PRODUCTION OF SPACE AND AGRICULTURAL PRODUCTION UNDER METROPOLITAN MUNICIPALITY SYSTEM: THE CASE OF KONYA

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ABSTRACT

PRODUCTION OF SPACE AND AGRICULTURAL PRODUCTION UNDER METROPOLITAN MUNICIPALITY SYSTEM: THE CASE OF KONYA

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Agricultural production and production of space are colliding into each other on a larger scale and more than ever today. This encounter is not only geographical but also economic, social and political. The form of the produced space, urban form and the distribution of these spaces and populations in the geography, the settlement patterns are two significant elements of the encounter of agricultural production and production of space.

The legal framework of urban policy, land use policy and local governments, in Turkey, is a significant variable in this encounter. Metropolitan Municipality System, with expanded borders to a provincial scale with the 6360 Law is the point of departure for this study and within this context, the impacts of the Metropolitan Municipality System (MMS) on agricultural production, settlement patterns and urban forms in time, in relation to each other will be the focus of interest.

The methodological cityist urban policy making of local governments within the metropolitan municipal system and the impact over the urban semi-periphery of cities and rural periphery of provinces is what this study will revolve around and within this frame, the three pillars of the settlement pattern, the geographical distribution of the population; the urban form, the form of the settlement area, the agricultural production will be under inspection with reference to core-periphery. With quantitative, spatial and qualitative data, the Konya Province, Konya City and the Metropolitan Municipality of Konya are where the hypotheses tested.

Keywords: metropolitan municipality system, settlement pattern, agricultural production, urban form, land use policy

ÖZ

BÜYÜKŞEHİR BELEDİYE SİSTEMİ ETKİSİ ALTINDA MEKAN ÜRETİMİ VE TARIMSAL ÜRETİM: KONYA ÖRNEĞİ

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Tarımsal üretim ve mekân üretimi bugün hiç olmadığı kadar ve daha büyük bir ölçekte birbirine geçmiş durumdadır. Bu karşı karşıya geliş sadece coğrafi değil, aynı zamanda ekonomik, toplumsal ve politiktir. Üretilen mekânın biçimi, başka bir deyişle kent formu ve bu yerlerin nüfusları ile birlikte coğrafi dağılımları, başka bir deyişle yerleşme örüntüleri tarımsal üretim ve mekân üretiminin karşı karşıya gelişlerinin iki önemli ögesidir.

Bu karşılaşmada kentsel politika, arazi kullanımı politikaları ve yerel yönetimlerin yasal çerçevesi önemli bir değişken olarak karşımıza çıkmaktadır. 6360 Sayılı Kanun ile sınırları il ölçeğine genişletilen Büyükşehir Belediye Sistemi bu çalışmanın çıkış noktasıdır ve bu bağlamda, bu çalışmanın merkezinde Büyükşehir Belediye Sisteminin tarımsal üretim, yerleşme örüntüsü ve kentsel biçim üzerindeki birbiriyle ilişkili etkileri yer almaktadır.

Büyükşehir Belediye Sistemi içinde yerel yönetimlerin metodolojik şehirci bir yaklaşımla ürettiği kentsel politikalar ve şehirlerin kentsel yarı-çevresi ile illerin kırsal çevresi üzerindeki etkisi, bu çalışmanın merkezinde yer almaktadır. Bu çerçevede, üç sacayağını oluşturan yerleşme örüntüsü (nüfusun coğrafi dağılımı), kentsel biçim (yerleşim alanının biçimi) ve tarımsal üretim, merkez-çevre yaklaşımıyla incelenecektir. Nicel, mekansal ve nitel verilerle Konya İli, Konya Kenti ve Konya Büyükşehir Belediyesi hipotezlerin test sahası olarak belirlenmiştir.

Anahtar Kelimeler: büyükşehir belediye sistemi, yerleşme örüntüsü, tarımsal üretim, kent biçimi, kentsel politika, arazi kullanımı politikaları

To Public Libraries, Seasonal Workers, and My Family

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Ceren Gamze Yaşar

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AR	Absolute Rent
CAP	Common Agricultural Policy
CEKUL	The Foundation for the Protection and Promotion of the Environment and Cultural Heritage
CIA	Central Intelligence Agency
CIFTCI-SEN	Farmers Union
CLC	Corine Land Cover
CRP	Conservation Reserve Program
DAP	East Anatolia Project Administration
DHKD	Conservation of Natural Life Organization
DKM	The Nature Conservation Centre
DM	District Municipality
DOGA	The Nature Organization
DOKAP	East Black SEA Project Administration
DR	Differential Rent
DSI	State Hydraulic Works
ECAF	European Conservation Agriculture Federation
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field Schools
GAP	South-East Anatolia Project Administration
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Green House Gases
GMO	Genetically Modified Organisms
GYODER	The Association of Real Estate Investment Companies
HES	Hydroelectric Power Plants
HUBUBAT-SEN	Grain Union
IBRD	International Bank for Reconstruction and Development
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
ILBANK	The Bank of Provinces
ILO	International Labor Organization
IMCA	Investment Monitoring and Coordination Agency
IMF	International Money Fund

INTES	The Turkish Employers Association of Construction Industries
IPA	Instrument for Pre-Accession Assistance
IPARD	Instrument for Pre-Accession Assistance for Rural Development
IPCC	The Intergovernmental Panel on Climate Change
KDV	Value Added Tax
KMM	Konya Metropolitan Municipality
KonPlan	Konya Master Plan
KOP	Konya Basin Project Administration
KOSKI	Konya Water and Sewerage Administration
KSO	Konya Chamber of Industry
KTO	Konya Chamber of Commerce
LAB	Land Administration Bureau
LAL	Land Administration Law
LAS	Land Administration System
LMB	Land Management Bureau
LMO	Land Management Office
MADEN-IS	Miners Workers Union
MEVKA	Konya-Karaman Regional Development Agency
MLIT	Ministry of Land, Infrastructure, Transport and Tourism
MM	Metropolitan Municipality
MMS	The Metropolitan Municipality System
MoAF	Ministry Of Agriculture and Forestry
MoEUCC	Ministry of Environment, Urbanization and Climate Change
MP	Metropolitan Provinces
MR	Monopoly Rent
MUSIAD	Independent Industrialists and Businessmen's Association
OECD	Organization for Economic Co-operation and Development
PDR	Purchase of Development Rights
R&D	Research and Development
RAMSAR	The Convention on Wetlands
RDA	Regional Development Agency
SEKER-IS	Sugar Industry Workers Union
SLCP	Slope Land Conversion Program
SME	Small and Medium-Sized Enterprises
SPA	Special Provincial Administration
TARIM-IS	Agricultural Workers Union
TCV	Turkish Environmental Foundation
TDR	Transfer of Development Rights
TEMA	The Turkish Foundation For Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats
TES-IS	Energy, Water Gas Workers Union

TKGM	General Directorate of Land Registry and Cadaster
TL	Turkish Lira
TOBB	Turkish Union of Chambers and Commodity Exchanges
TODAİE	Public Administration Institute for Turkey and the Middle East
TOKI	Housing Development Agency
TSKB	Industrial Development Bank of Turkey
TURKSTAT	Turkish Statistical Institute
TUSIAD	Turkish Industrialists and Businessmen's association
TVE	Township and Village Enterprises
UK	United Kingdom
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
US BLS	U.S. Bureau of Labor Statistics
US, USA	United States of America
VAT	Value Added Tax
WB	World Bank
WB-CCKP	World Bank Climate Change Knowledge Portal
WTO	World Trade Organization
WWF	Worldwide Fund for Nature
WWII	World War II
YOL-IS	Construction Workers Union

CHAPTER 1

INTRODUCTION

"Where is everybody?"[1]

Production of space and agricultural production are the two processes that are central to this study. The cycles of Production of space and agricultural production are considered as separate processes going on in different plains and analyzed in different fields of sciences separately. They are interrelated in space-time, in economy, in societal problems and in ecological problems. Today, there is a visible collision among these two interdependent processes. This long time ongoing tectonic shift is visible in both planetary, country, and local scales. Production of space always depended on agricultural production to begin with, food and water being the basic need for humanity to survive, and the collision started with the establishment of first cities. The significance of our era in this long collision history is the dependent relationship of production of space to agricultural production transformed into a struggle on resources and land uses in massive scale. At this early stage, it will be useful to clarify that the term production of space is selected due to bring the analysis on the same ground with agricultural production. Both terms refer to not only products but also production relations. The product of agricultural production is obvious and the product of the production of space is the urban space[2].

The history of urbanization is intertwined with the history of agricultural production and this history has a definitive geographical side to it. The river valley basins, for most of the literature, were the places where both the urban and the rural settlements were born, where urbanization was flourished, and agricultural production was invented by the humankind (Sojberg, 1965). Accessibility, the old and the new transportation routes, production patterns, weather, climate in general, are some other definitive factors developed in time. The strong and inevitable bond between urbanization and agricultural production becomes more and more

[1] Fermi, E. (1950).

[2] The question of rural space might arise at this point, yet rural space is predominantly harmonious with and supportive of agricultural production and rural production relations while urban space produced has many qualities that conflict with agricultural production.

visible if we travel in time backwards. Therefore, the major rural land use, agricultural production, have to be handled as a continuum with the urban land uses. Urbanization followed the emergence of agricultural production and still dependent on it while as the rent theories shows us, the closer to urban agglomerations the better agricultural production in terms of economic opportunities. What we call urban form is a hypothetical line that emerges between the urban agglomeration and the agricultural land uses or natural land and this combines our two key terms, agricultural production, and urban form.

For the third keyword, settlement patterns have intrinsic relations with urban forms and agricultural production. Agricultural production and urban areas can only co-exist, without one missing, the reason, or the condition of the existence of the other is jeopardized. The settlement patterns are defined by the population movements and accumulations while these accumulations create urban agglomerations, and these agglomerations are dependent on the agricultural areas while the production in the agricultural areas are under the impact of the population movements as well.

Before proceeding on in the jungle of terminology, I would like to expand my perspective into a dramatically more vast scale, the scale of the universe as we know it and remind the reader about the Fermi Paradox on the possibility of the existence of the vast amount of extraterrestrial civilizations and us who could not yet be able to hear any sign from those is making us ask the question; if mathematically[3] the existence of extraterrestrial civilizations is solid, why have we not observed any sign of them yet?

One of the solutions to this question and The Fermi Paradox itself is mind blowing for our field, the urban studies: our galaxy is in a deserted and a "rural" end of the universe and this "peripheral" galaxy is not worth colonization, so left outside alone. The accessibility costs, both in terms of space and time, are so high that no other intelligent extraterrestrial civilization bothers to colonize our galaxy. Brin, G.D., (1983) defines this solution as "Low rent – earth is inaccessible or undesirable" for space travel. The urban-rural debate, methodological cityism (Angelo, Wachsmuth, 2015) and the city oriented urban policy just fits perfectly with this universal scale paradox and this specific solution to it. It also gives us a chance to develop our perspective with an insight of relativity.

To put it in a nutshell, it is all relativistic, as a planet, as a continent, as a country, as a region, as a city, as a town and as a village we might be other worlds' rural. Rural and urban are not contrary by definition but rather a relativity, a matter of scale and a transitional hierarchy. Hence, we must be careful neglecting the rural, the peripheral, even if urbanization as a process, is now the dynamic and even if this dynamic is underlining the city. This

[3]Drake, F. (1961) Drake Equation

planetary scale urbanization (Brenner&Schmid, 2014) does not bring an equal medium for peripheral areas to flourish as their core counterparts. The relativistic differences, differences stemming from previous layers of histories and geographies similar to the geological history understanding of Doreen Massey, differences of scale, and the differences in positions in hierarchies usually remain in relation with each other. Capitalism as a process rule all the geography and the process of urbanization is perpetually changing the geography over existing layers and creating new landscapes somehow recalling the past landscapes while having new elements.

Time and space matter. For a moment, leaving aside the debate on the existential question of a "rural" in an "urbanized" world, the point and time where rural transforms into urban (and vice versa—depending on the position of the viewer), on the periphery and on the provincial-periphery, what is happening today? This question brings forth more than it seems to and oblige a specific method that enables studying "the infinitely complex organism that is modern society as it evolves and changes over time" (Ollman, 2003). Today, the 56.2% (2020) of the world population is dwelling in "urban" areas, where the "urban" is normatively defined by the advanced capitalist western and northern countries.

The question "what is urban?" is most probably the hardest question in urban studies and the answer might change with time and space. So, the question "what is rural?" which is highly intertwined with the previous question becomes blur as well. If we add the extended urbanization in planetary scale and completely urbanized society with all its socioeconomic aspects to the equation, the depth of the problem drastically increases. The difference between the core, the semi-periphery and the periphery, the "outside", in terms of space and time and in terms of society and economy remains solid.

Yes, geography is under the impact of urbanization as a totalitarian process and yes there is no way to draw strict and legible frames defining where the urban ends and the rural begins. It is not even a problem of drawing boundaries since the geography is highly transitive and dialectic. By nature, we are not enabled to use dichotomy, we are bound to be dialectical. So, for a study to understand the relation between urban growth/production of space/urbanization and agricultural production with regard to regulations, accumulations and circulations and the geography, even every element of the study (whether it be geographically, politically, economically or socially) are dialectically bonded, we are still in need of using different names for different zones in the geography for practical purposes. Hence, for this study and for the time being we will continue to stick with the words urban for the core, and rural for the periphery as in the case of dependency theory where periphery is used for the places left outside in terms of politics, in terms of economic decision making, with high levels of inaccessibility in deep geographies and dependent on the core in every aspect.

In the case of Turkey, the collision of urban and rural is solidified with a legislation change. The Metropolitan Municipality System (MMS) with the recent changes becomes the medium of this visible encounter. The administration of urban-core settlements, namely the provincial core and rural-peripheral settlements and geographies, namely provincial periphery was divided into two previously. Metropolitan municipality system is a form of rescaling where a special form of government, the local government, is expanded from municipal scale (the urban settlement area) to the provincial scale (urban, rural and natural areas as well as urban and rural settlements).

First one was partially local and the core player was the municipality (alongside the central scale player, Ministry of Environment, Urbanization and Climate Change) while the rural peripheries with all settlements and the geography, were under control of special provincial administrations (SPAs) and the two organs were specialized accordingly. With the increasing needs of MMs, the need to control extensive geographies, the municipal borders are expanded to provincial borders and SPAs were abolished in metropolitan provinces, and the MMs have become the core players in the whole geography with all scales of settlements included.

The urban core focused urban policy making is now extended to the whole province with a variety of land uses and settlements in different scales. The spatial planning and urban policy we know will likely and have to transform into something new with this expansion. The need to produce this study comes from this need.

The core of this study is putting forward the measurement methods for and measuring the impact of Metropolitan Municipality System (MMS) on settlement patterns, urban form and agricultural production in relation with each other. Constructing upon the country context, the impact of MMS on settlement patterns, urban form and agricultural production will be solidified with an analysis of the praxis in the case of Konya Province.

In 1989, Konya has become a metropolitan municipality (MM). The municipal borders of MMs in this time interval was the borders defined by the master plans of the core-main cities in the provinces. In 2004, MMS had undergone a major change with the 5216 Law on Metropolitan Municipalities. The MMS was defined more clearly with this law and the municipal borders were expanded to circles with 20 km, 30 km, 50 radii (depending on their population) from the governorates. It has taken its current shape back in 2012 with Law no 6360, which is also the major point of departure for this study and the law became operational after the 2014 Local Elections[4].

[4]The financial regulations affecting the urban service provision tariffs in rural settlements was delayed (to 2019 at first) for preventing backlashes and the time interval has been extended to 31.12.2022.

The municipal borders of the MMs are expanded to the provincial borders. To illustrate, the municipal area of Konya Metropolitan Municipality was 291 kilometer-squares (the planned area in 2020 Kon-Plan produced in 1999) before 2004 and there is only one settlement, the city of Konya was covered. Between 2004 and 2014, the area was expanded to 1256 kilometer-squares, the number of settlements did not increase in the case of Konya, yet in other MPs, increased. Today, after 2014, the number of settlements covered increased to 781 in total and the municipal border is expanded to provincial border and for Konya it covers a vast 40.838 kilometer-squares of area with 28 districts, 752 former villages (now neighborhoods) and the core city of Konya. MMS is the independent variable of the hypothesis of this study and the impact of MMS is what is measured. Settlement pattern with a reference to both population and the land, links the urbanization process with agricultural production and it is the first pillar where the results of the MMS will be measured. The relevancy of urban form, the second point of reference for this study comes from the problem of excess consumption of land for urban development on the periphery of metropolitan cities. The historic and geographic roots of the relation between agricultural production, production of space and settlement patterns is still visible and agricultural production is one of the realms that will be affected from the MMS most and hence agricultural production is the third pillar where the independent variable of our hypothesis, MMS will be tested.

1.1 Aim and Justification

The first aim of this study is to bring back the agricultural production, rural-small scale and peripheral settlements and rural geographies debates into the urban policy debate. This is for practical purposes since with the 6360 Law modifying the 5216 Metropolitan Municipality Law forging a provincial scale and monolithic[5] metropolitan municipality system this debate is inevitable for urban policy, land use policy and urban planning. The two legal changes in Metropolitan Municipality System (MMS), the 5216 law (2004) and the 6360 Law (2012) reshaping the power structure in local governments and expanding the borders of metropolitan municipalities are producing new tensions between agricultural production and production of space in metropolitan provinces. The urban gaze of urban planners and local governments is not helping either and the urban core dominating these vast geographies, producing land use policies, planning the futures with tools meant to form urban areas (and not successful in even

[5]The term monolithic is borrowed from Akbulut, Ö.A. (2007) Belediye Yönetimi Reformu: Monolitik İktidar Yapısının Güçlendirilmesi, Cilt: 16, Sayı:1, Çağdaş Yerel Yönetimler Dergisi, TODAİE, Ankara, pp. 7-29.

doing that – see the 3rd chapter 4th subsection on Turkey's settlement patterns and urban forms) and not cut for rural spaces with all its economic, social, and spatial relations.

This expansion, the expansion of borders, and the rescaling of power distribution for local governments, makes agricultural production and rural settlements a part of the urban question, urban policy and land use policy, more than ever. The administrative borders between predominantly production of space geographies and predominantly agricultural production geographies are wiped off the map and one player became the central local authority: the metropolitan municipality. With this change, not only the framework of urban policy making but also the framework of spatial planning has changed. Urban policy in Turkey now dominates provincial-peripheries, rural geographies, and settlements as well and the borders of spatial plans produced by metropolitan municipalities are far beyond city-limits, covering whole provincial geographies. This transformation in the praxis, inevitably, requires a change in the education of spatial planning and urban policy. Agricultural production is one major point of interest added to the urban policy and spatial planning agenda. Rural, provincially-peripheral, and small-scale settlements dispersed in rural geographies are some other newly-added points of interest. This expansion should be analyzed first and then covered in policy making, spatial planning and more importantly in education. This study is a step towards meeting this need.

Long before the MMS and in wider geographies all around the world, the public policy-making has been already suffering from "methodological cityism"[6] defined by Angelo and Wachsmuth (2015) as "an overwhelming analytical and empirical focus on the traditional city to the exclusion of other aspects of contemporary urbanization processes". This definition is on theoretical level, and in this study, we are extending and stretching the meaning to fit the praxis and policy-making as well. Methodological cityism of urban policy makers within the practical context of urban policy is what is problematized here. Urban policy, or policy-making in general, is suffering from the duality perspective of urban-rural divide and the focus on cities excludes other geographic and social elements, and hence the periphery. With the expansion of the control boundaries of MMS and metropolitan municipalities (suffering from methodological cityism) becoming the major players in urban policy and production of space, a comprehensive perspective freed from the duality of urban and rural and the city as the only focus, is needed. The power relations in the frame of spatial planning as a spatial state apparatus has been redefined by the law no 6360 (alongside other complementary changes), and this change forces us to develop a new understanding in spatial planning and in the education of spatial planning.

[6]Which I refer as the urban gaze.

The second aim of this study, on theoretical level, is to bring the agricultural production and production of space cycles on the same plain of analysis in order to develop a comprehensive understanding. The urban sprawl in the form of the cities is usually analyzed with reference to the internal land and policy relations within urban cores and urban peripheries (semi-periphery in our study context). The "outside" where the cities sprawl to and the relations on these geographies is usually invisible in this urban gaze. Yet, where sprawl takes place, there are also rural relations that enables sprawl taking place. The continuum understanding between urban and rural land uses, between production of space (in the form of urban sprawl) and agricultural production with their spatial, social and economic relations (in relation with each other) is a must to decipher what is going on the semi-periphery (the periphery of urban settlements). The enactment of 6360 drastically expanding the urban borders over rural geographies both gives us a chance to measure this and urges us, planners, to understand this.

The division of labor in sciences resulted with fragmentation of problems into unsolvable and lacking pieces in different fields. Space-time is a continuity and most of the problems, solidified in our case, some of the urban and agricultural problems are interrelated. If the authority to solve these interrelated problems are given to metropolitan municipalities, a single body, in the case of our country, then a more integrated perspective to production of space and agricultural production is needed. More significantly, it is needed for comprehensive solutions for the problems.

In Turkey, most of the cities, in terms of their geographical locations, are more than 2000 years old and the 30 metropolitan provinces are among the oldest. This historicity is one of the explanations why most of the agricultural production is taking place around major cities. It is not only the contemporary understanding of accessibility but also the archaic, age-old relationship between urbanization, in other words agglomeration and concentration of population and agricultural production that comes forward when explaining the phenomenon. These old cities are all settled near or on highly fertile agricultural basins or valleys with rich water resources. Security priorities changes by era, yet the need for water and food have not changed at all. As a result, the largest cities, apart from the specific case of Istanbul, our primate city with a population of 14,8 million (TURKSTAT, 2017), are strong in agricultural production. It might even be the reason that they have become larger in the first place. The capital accumulated in these cities is tinted by agricultural production either via directly agriculture or agriculture-based industry.

Even though service sector and in minority of cities industrial production are gaining ground for especially last 30 years, capital accumulated via agricultural production is still visible in most of the cities. Within this context, the significance of MMS for the future of

agricultural production becomes clear. Agricultural land loss and demotivation of farmers in production stemming from land speculation and vastly distributed development rights alongside increasing input expenses and marketing problems are the concepts related with the MMS impact analysis over agricultural production. It is useful to be kept in mind that urban sprawl problem, in most cases, is also a problem of the consumption of the agricultural land for non-agricultural purposes.

As of 2016, the 56,7% of all agricultural land in Turkey is located within 30 metropolitan municipalities' provincial borders (TURKSTAT, 2017), and the number of provinces in total is 81. Agricultural land loss between 2000 and 2016 is 10% of total agricultural land and 60% of this loss has taken place in 30 metropolitan provinces (MPs). Moreover, the 63,9% of agricultural Gross Domestic Product (in 2014) was produced in these 30 MPs (TURKSTAT, 2017). In addition to that, most of the prime and irrigated land is located in the near vicinity of Settlement areas of city of Konya (Karatay, Cumra, Karapinar districts) and Eregli, the two largest settlements in the province (European Environment Agency – Copernicus, 2016). In other words, agricultural production does not take place in far-off secluded places but rather right around the corner, on highly accessible agricultural land surrounding metropolitan municipalities. All the agricultural land that these values are produced, are now under control of metropolitan municipalities, bodies designed to manage urban policy. Urban policy in Turkey is not cut to fit (at least yet) the needs of agricultural production, the needs of sprawled small-scale settlements and the needs of the rural geography for that matter.

Settlement patterns, namely the distribution of population over the geography with reference to concentrations and sprawls are also part of this problem for several reasons. The flow of and the changes in population over the geography in time is one of the main reasons creating pressure for development over land in specific spaces. On the other hand, population concentration is also significant for agricultural production due to the labor-intensive nature of agricultural production. In other words, the settlements with decreasing and aging population might suffer from lack of productive population, and this will eventually drop the rates of land used for production in the short run. Long run is another story, with the change in ownership patterns in agriculture, heavy capitalization, and industrialization and with the technological developments rapidly increasing efficiency of labor power with mechanization and robotification.

MMS can be considered as a step towards structuring and regulating the fragmented bits of planning authority. It might cure the problem of urban sprawl, or it might result with a deeper level of urban sprawl, depending on the discourse in power in that local centrality. It might create deeper problems for the consumption of agricultural land for the sake of urban

development and land speculation, or it might result otherwise. At this point in time, it is highly crucial to measure the impacts of MMS on urban form, agricultural production and settlement patterns in order to form the new, reactionary and proactive forms of urban policy-making in local governments and urban planning education. Within this context, the overall aim of this study is to decipher the impacts of MMS on agricultural production, settlement patterns and urban form in relation with each other and to develop and produce a statistical (including the economic and the social), spatial and a political analysis of the issue to produce an operational guide constructed on evaluations for future debates in planning, land use policy, urban policy and planning education.

1.2 Hypotheses and Research Questions

Metropolitan Municipality System (MMS) as the frame of urban policy and as the structure of local governments has an impact over agricultural production, settlement patterns and urban form in relation with each other. The direction of impact is under question. The encounter between production of space and agricultural production forms the main axis of study. Independent variable is the MMS with its changing borders, limiting-enabling elements and the dependent variables to be tested are agricultural production, urban form and settlement pattern in the province of Konya.

The first hypothesis of this thesis is: Metropolitan Municipality System empowering metropolitan municipalities in provincial scale urban policy making with its heavily urban perspective favoring urban growth, will likely increase the consumption of fertile and productive agricultural land via encouraging a sprawled urban form in larger cities of the provinces. To put in a nutshell, my **hypothesis is**, the MMS combined with the discourse regarding the provincial-peripheral geographies of the province as reserve areas for urbanization [7]has increased consumption of agricultural land in the form of urban sprawl and land speculation.

Interrelated with the first hypothesis, **the second hypothesis** is: Metropolitan Municipality System, via focusing on larger settlements in the province in policy making and parallel to rescaling of the local state, rescaling in space and in production, will likely change settlement patterns of provinces in favor of concentration in core-settlements, while deserting dispersed, rural and small-scale settlements. In other words, the tendency of the population to concentrate in metropolitan urban cores increase while rural and dispersed patterns face with a population decrease. Not only the changing urban form under the impact of MMS, but also

[7]See: law no 6306 on the Renewal of Urban Areas under Risk of Disaster

the change in settlement pattern with decreasing productive population in dispersed rural settlements (villages) has a negative impact on agricultural production.

Building upon these two hypotheses, **the third hypothesis** is: Metropolitan Municipality System, via encouraging economic rescaling in production, will encourage rescaling in agricultural production from smallholder agriculture to large-scale and/or industrialized agriculture. The regulations changing due to the MMS expanding over the geography of province has negatively affected agricultural production.

There are three pillars corresponding to each three hypotheses: urban form, settlement patterns and agricultural production and this forms the basic structure of the Konya case study part. The impact of first two pillars, settlement pattern and urban form, on agricultural production will also be measured.

At first, the two hypotheses I put forward seems to be conflicting with each other. Settlements rescale favoring the larger settlements in terms of population and the population seems to agglomerate in larger settlements on the one hand and on the other urban sprawl takes place on the peripheral parts of urban settlements and these settlements develop into agricultural land consuming further agricultural land. I overcame this contradiction, **concentration and sprawl** happening at the same time within the same province, with a spatial perspective in the analysis. The concentration takes place in terms of population in larger settlements, yet this does not mean that a concentration will take place in the urban geography of these settlements, these settlements tend to develop in the form of urban sprawl. The population increase makes the problem deepen via increasing the pressure over "the need for land development". Hence, while concentrating in larger settlements, populations in the form of urban form, continue to sprawl.

The research questions are as follows: In the last 33 years, within the timeline of MMS, how agricultural production has transformed? How urban forms of and settlement patterns have changed under the impact of the MMS? How these changes in the fields of urban form and settlement patterns affected agricultural production? Is it possible to measure the impact of MMS over agricultural production, settlement patterns and urban form? How can it be measured? What are the elements of analysis for urban policy makers to check before and after the policies produced?

In our field, and in spatial studies in general, it is hard to isolate reasons from other contextual elements and results, hence, it has to be kept in mind that, it is not proving the hypothesis right but rather the analysis produced while doing it is what we are after. Where and what to look in order to measure the impacts of a specific urban policy? How to evaluate the changes in time? The production of space and the promise of production of space via development rights and speculation on the edge of cities consumes agricultural land and

negatively affect agricultural production due to the consumption and/or the uncertain future of the land.

1.3 Scope and Structure

There are nine chapters in this study and these chapters are highly transitive. Some parts overlap, some others are tied to each other even though they belong to different chapters. Following the introduction, consecutive chapters are as follows: second, production of space and Agricultural Production reviewing the literature and relevant theories, third, settlement patterns, agricultural production spaces and urban forms alongside planning implementation tools in conservation of agricultural land in China, the United States of America and the Netherlands in comparison with Turkey, fourth Contextual Explorations and the MMS: Neoliberal Era of production of space and Agricultural Production in Turkey, fifth, Field Study Framework and Urban Policy: The Case of Konya, sixth Settlement Pattern Analysis of Konya and the Metropolitan Municipality System Impact, seventh, Urban Form Analysis of Konya and the Metropolitan Municipality System Impact, eighth Agricultural Production Analysis of Konya and the Metropolitan Municipality System Impact and conclusion evaluating the results and the contributions to the theories, translating them into policy and educational suggestions and further questions.

1.4 Methodology

"Methodological pluralism and the analytic rigor can be combined"[8]

The methods that we use for doing research and answering a question, the question of the thesis, is nearly as significant and determinant as the question itself on the answer that we get. Everything starts with the formulation of the question and the reasoning behind it; where we get this idea from and why are we doing an inquiry on it. Following this – in an intertwined fashion – comes the method, how are we going to answer this simple question? Being simple is one major prerequisite for a main question but the simpler the question gets the complex the answer becomes in most of the cases. Starting with an understandable and a clearly defined question, the second step is the selection of the method from a variety of choices. This selection can be structurally stratified when it comes to methods: quantitative or qualitative? Bottom-up or top-down? Grounded or normative? Theory testing or theory designing? Deduction or induction? A duality of choices on every stratum: each and every selection modifying the result.

[8]Brady H., Collier H, 2010. P.20

The major question of this part to answer is the question of quantitative and qualitative methods. Social sciences all started with the quantitative methods, gaining its roots from the positivist- natural sciences (Swindgewood, 2010), heavily dependent on statistics and statistical thinking working basically on to decipher the correlations between different variables belonging to observations, in order to make predictions. The early age planning was also dependent on this very fundamental methodology. Highly scientific and positivist way of planning cities which are facing the problems of the capitalist city, with all its industry and low quality of life stemming from the industrialization including dense urbanization, air-water pollutions, living conditions not suitable for human needs. Planning in Turkey was always quantitative and it's still quantitative alongside being highly political. Spatial planning, land use policy and urban design somehow require new methods built upon the old ones form other fields, so for a study to conduct a research on spatial planning and land use policy, this have to be kept in mind (Zeisel, 2006) Hence, a research on urban planning, whether chosen or not, will likely to include quantitative elements. This does not mean that we are confined to use quantitative method and the quantitative method only. A qualitative thesis is also within the limits of possibilities for urban policy and planning, yet it is inevitable to focus on quantitative method since it is a brick in the fundamentals of contemporary and recent spatial planning and policy making in Turkey. Qualitative studies on the other hand, is a relatively fresh and newly establishing methods for scientific inquiry.

The method that we chose heavily depends on three fundamental elements: the question that we are asking, the answer that we want to obtain and last but not the least the data available. A realistic research design has to consider the data at hand, what is accessible what is not, the qualities of the data so on so forth. The data available is also heavily dependent on the question and the answer as well but more than that it is dependent on space and time: the era that we are doing the research, the era that the research is about and the geography of research. In the case of contemporary Turkey where statistics are not consistent and detailed enough, and even politically veiled from time to time the availability of data becomes a major element in research design. Urban planning and agriculture in Turkey are highly controversial fields, which are exposed to more problems in obtaining data. As a matter of fact, every bit of information that we gather is highly significant whether convenient for either quantitative or qualitative methods. Therefore, a combination of qualitative and quantitative methods is needed for the conduction of a research. The question is, how to combine these two ways of thinking? A good combination includes a good understanding of these two so we will start our search for an amalgam method with understanding the similarities and the differences between the two methods.

When talking about these two methods to combine them, there are two fundamental issues to be considered according to Brady and Collier (2010): the trade-offs and the shared standards. With each and every choice we make, we are facing trade-offs. To put in a nutshell, with reference to quantitative and qualitative research methods, we are giving up on the detailed in-depth information on a subject while we are not using the qualitative method, on the contrary we are giving up on generalities and a general understanding of the subject at hand with not using the quantitative method. Both have their own weaknesses and strengths and sometimes we need both. The trade-offs can be increased in number, the significant point here is "a methodological framework that does not centrally consider trade-offs is incomplete" (Brady, H., Collier, D., 2010, p. 26).

For the second fundamental issue, the cumulative nature of scientific progress makes the shared standards highly significant. The standards for methods and the standards for the trade-offs are what these standards are all about. In order to be a part of the conversation going on in our field worldwide, we need to structurally standardize the research design. A heuristic way of doing the standardization and selection of methods is preferred by the author of this thesis on purpose.

Plenty of different models can explain the very same data and "causality is a property of the model, not the data" (Heckman, 2000 in Brady, Collier 2010) is a reminder we have to keep in mind all the time for preventing us from failing to recognize the uncertainties in our models for analysis. On the contrary to what positivism claims, the correct answer to our question, the fitting model can be more than one or none.

The primary condition for scientific research is making "inferences", "attempting to infer beyond the immediate data to something broader that is not directly observed" (King, Keohane and Verba, 1994). For our case, the issue at hand is highly complex: production of space and agricultural production. To make inferences, to develop an understanding and to develop a method for understanding and to make predictions based on this method for the future usage (for the policy making process and spatial planning), we need every piece of information that we collect, whether it be quantitative or qualitative, whether it can be standardized or not. Using "the power of abstraction" will be used over the factual materials (Sweezy, 1970: 16-18) collected on the issues of agricultural production, production of space and the conflict between these two elements of economy, uses of land, forms of production, and elements of society.

Production of space and agricultural production have both highly complex and multilayered structures. Within this complexity it is nearly impossible to isolate one independent variable (if there is any real independency exists in social sciences) and measure the exact impact of that variable. MMS is the "independent" variable of this study, and the

impacts will be measured with this limitation noted. Our goal is limited to illustrate impacts roughly and possible outcomes of the MMS over urban form, settlement pattern and all these variables' impacts on agricultural production. Alongside the results of hypothesis testing, the elements of the analyses, the structure of the analyses and the possible inputs for urban policy making and spatial planning will be the end products of this study. What does the paradigm shift in urban and land use policy in Turkey brings? What have to be the elements of analysis for a comprehensive approach? How urban policy and land use policy needs to be transformed? How spatial planning and spatial planning education need to be evolved? These are also what we are measuring and analyzing throughout this study.

1.4.1 Methods and Materials

Measuring the impact of metropolitan municipality system (MMS) over agricultural production, settlement patterns and urban form may require varying scales, approaches, and methods. To start with, the two scales of analysis are as follows: the first one is the national scale, for clarifying the context and this is done in comparison with three other countries. With these baselines drawn, the MMS will be evaluated in depth with reference to 5216 Metropolitan Municipality Law, 6360 Law on the Establishment of 14 Metropolitan Municipalities and 27 Districts and Amendments to some Law and Decree Laws, the legal framework that these laws forming the MMS is situated. The implementations of these laws after 2014 will also be put forward with their results in agricultural production, settlement patterns and urban forms in national scale. Following this twofold analysis, the Konya case will be analyzed in depth and the results of MMS in the case of Konya will be measured.

1.4.1.1 Data Collection

The methods of data collection in national scale are:

- collect data from TURKSTAT, Central Government Bodies' documents and publicly available data of these bodies relevant for subject
- laws, regulations, and other legal documents
- literature review for the Turkish experience in agricultural production, urban forms and settlement patterns
- spatial data such as satellite views, maps, historic maps, land use maps, and a literature review on spatial data
- in-depth interviews with central government bodies[9]

[9] The in depth interviews were with the former Ministry of Food, Agriculture and Livestock (now Ministry of Agriculture and Forestry), the former Ministry of Development (now the Strategy and

Apart from the in-depth interviews, the same data collection methods are utilized to collect data on the three countries' cases produced for contextualization and comparison purposes.

The methods of data collection for the case of Konya are as follows:

- visiting site, observing the edges of the city and still agriculturally productive areas, documenting these areas and collecting qualitative and quantitative data (for Konya scale)
- collecting data on urban policy related documents of all players having roles in urban policy making an implementation related with urban form, settlement patterns and agricultural production (for Konya scale) to illustrate the black box of urban policy making in the case of Konya
- In-depth interviews with relevant local and national players such as ministries, metropolitan municipality, public institutions and mukhtars[10] (for both scales) in order to understand and present the structure-agent formation in the case of Konya and Turkey
- collecting the unstructured and uncategorized data existing in a dispersed form on several different online platforms (such as yerel.net, google earth, public players' web sites, market, international and civil players' web sites) – minor data mining (for both scales) and web-scraping to produce a structured base for testing the hypotheses
- spatial and statistical data collection of settlement patterns, urban form and agricultural production (for both scales) in order to test the hypotheses.
- Spatial data collection from satellite views, land uses, historic maps, plans, etc.

1.4.1.2 Analysis Methods

The collected quantitative and qualitative data is used with several different methods throughout the thesis. In the macro scale study, agriculture and urban growth-related indicators were selected for representing the condition of agricultural production and production of space in that province. The comparison and ranking of these 30 MPs have given us the chance to determine the MM with most tension between production of space and agricultural production. Based on this comparison and ranking, the second scale, the case study has been selected. This

Budget Department of the Presidency, the former Ministry of Environment and Urbanization (now the Ministry of Environment, Urbanization and Climate Change).

[10] The mukhtars to be interviewed are selected based on the scales of the former villages now rural neighborhoods, and their locations and the population change they experience in time. The selected villages are located in both close perimeter of the city of Konya and far off deep rural parts of the province. The villages also has increasing, decreasing and relatively stable populations.

analysis is not presented in the thesis for focusing the problem at hand, yet used to select the case study. In the local scale, with statistical methods depending on the national scale macro study, the case of Metropolitan Province of Konya has been selected.

Agricultural production and urban growth-related indicators were selected and depending on the cumulative result of this study, the case of Konya was chosen. The selected parameters were: population dynamics and demography, including flow of population from "rural" areas to urban areas and the sectoral flow in employment alongside the increase in population; spatial agricultural data including agricultural areas both utilized and total, agricultural share in the export of that province, spatial and statistical data on construction sector, housing and real estate sector, and the distribution of land use and the area that the settlement of the city covers. Data illustrating the representative, administrative and regulatory problems are added to the data set. Furthermore, the detailed and most recent urban forms of 30 MPs were drawn based on the google earth satellite view. The process was laborious yet crucial. Depending on this accumulated statistical table and spatial data, with standardizing and sorting them, the case study was selected.

For the methodology part of the thesis, the important deduction that must be made from these two laws is the 30 cities are under great risk of excess and unneeded production of space, with excess housing for 'middle' and 'upper' classes, rent-based transformation either evacuating or redlining urban poor, deepening the uneven development within and between cities and fostering urban crisis. At the same time, the same legal framework, making the local governments locally central, and authorizing metropolitan municipalities for a more comprehensive planning opportunities, 6360 might be a chance for producing more coherent and comprehensive plans for provincial scale. This must be tested as well.

The case of Konya will be evaluated based on four pillars of analysis. The politics of production of space and agricultural production is the first pillar. The method for this part summarizing two complex and interrelated processes is structuring and categorizing the processes via first defining the players and the roles of the players, and second drawing the flow charts of the two processes. The impacts of MMS are illustrated as modifications in the processes and the hierarchy of players.

In the settlement pattern pillar of the case study, the collected population data from 1990 to 2021 of all settlements in the province (of 720 neighborhoods, 28 peripheral districts and 1 city of Konya consisting of three core districts) are utilized to track the changes in the settlement pattern within MMS timeline. The timeline is divided according to the break points of MMS and the change in the intervals between these dates are measured. 1989, 2004 and 2014 were the break points for MMS, yet, due to limitations of population census years, 1990, 2000,2007, 2014 and 2021 were the years selected for the collection of data. The data

collection part for this section was among the most laborious parts of the study. The inconsistencies in the names and statistics of rural neighborhoods, the fragmented and uncategorized data were the main problems and similar problems exist in nearly all data collection works in Turkey.

The statistical data of population is spatialized and the concentrations and sprawls in the population in provincial scale are interpreted in this part. Following this analysis, the settlements are grouped into population classes (500-2000, 2000-5000, 5000-10000, 10000-25000, 25000-50000, 50000-100000 and over 100000) and the mobility of settlements among these population classes were analyzed with Sankey diagrams. Rescaling in the settlement patterns is interpreted based on these diagrams. Districts and rural neighborhoods in which population groups tend to have increasing population or decreasing population is analyzed with this method.

The change in the surrounding areas of the city of Konya is significant for this study. Since the change in the MMS in 2004 extended the municipal border to a circle with a radius of 20 kilometers from the Konya governorate – Konya center, the first 20 km is under the impact of MMS for a longer period of time. City of Konya is sprawled, and the 20 km radius barely covers existing urban form of Konya and the settlements within the 20 km radius is already swallowed by the city of Konya. Therefore, the boundaries of the close-up analysis are expanded to 40 km radius. The impact of a primate city on the settlement pattern of its surroundings will be measured via this expansion.

Urban form analyses start with the city of Konya. The urban form of the city of Konya was drawn based on google earth satellite view and the change is tracked back in time with 1989, 2004, 2014 and 2021 urban forms based on google earth historical view service for that years. The neighborhood boundaries in within the urban form was drawn based on google earth data and the populations of neighborhoods were collected from TURKSTAT population statistics system. These two are combined and the density and population distribution map of the city of Konya was produced. The urban form of Konya was interpreted with reference to topography. Following this, the urban forms of district cities were illustrated within their topographies and geographic features. The geographic features are categorized, and the districts and rural neighborhoods are illustrated based on their geographic features. The geographic categories are plain, slope, foot slope (mountain foot), ridge, valley, forest, waterfront and plateau. The district urban forms are categorized into three groups, compact cities, dispersed cities and linear cities and this categorization is illustrated on map. The rural neighborhoods are also categorized in terms of geographies of settlements and the types of settlements and mapped in provincial scale. The majority of data on rural neighborhoods are

collected from yerel.net village profile pages and the data is checked and enhanced with google earth satellite view spatial data.

Since it is a geographic and inevitably geometric quality of a city, it is possible to understand if a city is sprawled or not solely by viewing it either from bird's eye-view, from a map or by visiting the peripheral parts of the city, where the city ends. However, to compare cities or in time, a more defined method is needed. Is the city getting more sprawled or more compact in time? Which city is more sprawled? These questions can only be answered by using standardized, comparable, quantitative, and qualitative methods. For capturing the differences between cities and changes in time, we have borrowed quantitative methods from compactness studies. Compactness refers to convexity in mathematical terms (Bozeman et al., 2008).

Majority of compactness calculation studies were produced to solve districting and redistricting problems of United States and are focusing on gerrymandering (a term created with infusing the last name of a politician from 1812 and salamander; the shape of the district resembling it) meaning "redistricting that is carried out for political gain" (Azavea, 2006). To change the results in local elections, the boundaries of the districts were redefined and to solve this problem, compactness analyses are gaining ground. A similar debate was conducted on the 5216 Metropolitan Municipality Law and 6360 Omnibus Bill (Torba Yasa) on Metropolitan Municipalities. Several critiques were made on the assimilation of small and medium scaled provincially-peripheral settlements within provinces via creating a monolithic structure (Akbulut, 2007) of province scale. The core claim was the provincially-peripheral/rural votes are mainly right-leaning while the core/ central cities have a tendency to be more left-leaning. Voting behaviors have a correlation with scale in most of the cities and this tendency seems to be right for some cities for some elections (Cinar, 2007). Therefore, even though the scale differs, and different terms are used, we are familiar with what gerrymandering implies.

Compactness literature focuses majorly not on settlement areas, urban forms of cities, but rather administrative district boundaries (Young, 1988; Niemi, 1990; Azavea, 2006; Azavea 2010; Kaufman et al., 2017; Bozeman et al. 2008; Horn, 1993; Altman, 1998; Chambers and Miller, 2009; Altman and McDonald, 2013, 2015, 2018). Yet, to develop a deeper view on urban form and urban sprawl, we can borrow the methods used. The intersection of mathematics and public administration, the compactness computing methods were already used in measuring the degree of urban sprawl in several cities (Angel 2005; Parent, Civco et al. 2009; Sevtsuk and Amindabari, 2010).

To start with a purely geometric score that can be calculated to measure the compactness of a form: Polsby-Popper measure introduced by Cox (1927) is, for our case, the ratio of an urban form's perimeter to a circle's perimeter with the same area as the urban form.

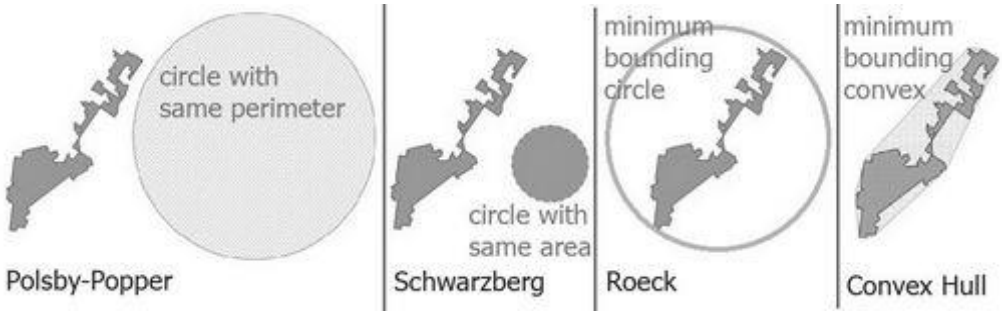

Figure 1 Geometric Tools for Measuring Compactness

Circle here represents the absolute compactness, and the ratio will be between 0 and 1. The more the shape gets closer to circle, the absolute compactness, the more the ratio gets closer to 1. Hence, the higher the Polsby-Popper Score, the better. A similar measure to Polsby-Popper score is the Roeck Score (Roeck, 1961). Roeck score is calculated with dividing the area of urban form to the area of the minimum bounding circle of the urban form. Circle is the perfect compactness and is equal to one, while the score falls towards zero, the form gets more sprawled.

The third measure is the Schwarzberg score (Schwarzberg, 1950). The score is calculated by dividing the area of urban form to the perimeter of the urban form. The larger the score, larger areas with shorter perimeters, the more compact the urban form. The fourth measure is convexity ratio (Bozeman and Pilling, 2013), convex hull compactness measure in other words (Azavea, 2010; Sevtsuk and Amindarbari, 2012). Convex hull refers to the minimum bounding convex polygon including the sprawled polygons of urban form and convexity ratio means the ratio of settlement area to the convex hull area. The value changes between 0 and 1 and the closer it gets to one means the compacter the form[11].

The fifth measure is the contiguity index (Angel et al., 2005; Sevtsuk and Amindarbari, 2012). Urban sprawl usually shows signs of leapfrog development and hence, measuring contiguity is crucial to illustrate the degree of sprawl. Contiguity is computed by dividing the continuous settlement area (core and largest polygon in urban form) to the total settlement area with all the discontinuous fragments of urban form included (Angel et al., 2005; Sevtsuk and Amindarbari, 2012).

[11]Source: Azavea, (2010) Redistricting The Nation, White Paper, Philadelphia.

The sixth measure is a different form of contiguity measure, referring to the distribution of fragments of urban forms in terms of size and quantity (Angel et al., 2005). The number of different size groups of fragments of urban form and the percentage of areas of different scales of fragments illustrates the contiguity in a different way. With this, it is possible to measure the overall contiguity of urban form.

The seventh and the last measure is the slope compactness measure is not only geometric but also geographic as well (Angel, et al., 2005). This method is similar to Roeck measure with a geographic twist, within the minimum bounding circle of the discontinuous fragments of urban form, the slope is calculated and the above the upper limit of settlement topography is excluded. For our case study, in 2016 Konya Environmental Plan for the year 2043, the maximum slope for settlement was defined as 40% (21.5 degrees) and we also have used it as an upper limit. Hence, within the minimum bounding circle covering urban form, the area with slopes higher than 40% are excluded from the analysis. The rest is used as a divider for the settlement area within the circle and similar to Roeck and Polsby-Popper, getting closer to 1 means compactness. All methods introduced above have their own deficiencies and problems and by themselves not enough to illustrate the whole picture (Young, 1988), yet, in combination with others, they will provide a good basis to measure the change in urban form in time. With this, we can quantify the impact of MMS over the urban growth process and urban sprawl.

Agricultural production analysis is the last part of the case study. The cumulative impact of pillars analyzed above alongside the MMS is measured. This part is structured with reference to factors of production: land, labor and capital. These three factors for the case of Konya under MMS impact is analyzed. As a starting point, the current condition of agricultural production and the change of agricultural production is analyzed with reference to plant production and livestock farming statistics. We have first started with the products and then continue with the factors of production. Agricultural production is a highly complicated process with plenty of players and processes included. The agricultural products are first grouped under plant production and livestock farming and the main products of the province are analyzed in subgroups. The agricultural land change in the province is summarized with the TURKSTAT data from 1990 to today, in sown land, fallow land and total agricultural land categories.

The changes in agricultural production in 3 core districts, Karatay, Meram and Selcuklu are compared with the 28 provincially-peripheral districts in the province in this part. This comparison is to measure the impact of city of Konya (3 core districts) on agricultural production and the impact of MMS on provincially-peripheral districts. All analyses conducted within agricultural production pillar include this comparison.

For the land part of agricultural analysis, the Corine Land Cover (CLC) data was used as a basis of analysis. The data is spatial therefore more useful than the TURKSTAT data and also more precise. The CLC is produced in European scale for the years 1990, 2000, 2006 and 2012. The MMS breakpoints we were using were 1989, 2004 and 2014, therefore, the closest ones, 1990, 2006, 2012 and 2018 were selected. The spatial increase and the decrease in agricultural land, in pasture areas, in irrigated and non-irrigated agricultural land are illustrated. With CLC data we can measure the impact of MMS after 2014 change up to 2018.

In the labor part of factors of agricultural production, the agricultural workers, agricultural employment, rural population, seasonal migration, farmers withdrawing agricultural production and aging agricultural population subjects are analyzed statistically and politically. In the last factor of production, the capital part, the rescaling of agricultural production symbolized with the rescaling in the tools and machineries of production (alongside land size and enterprise scale) is illustrated first with statistical data. Following this, the ownership patterns and land consolidation is analyzed.

The problem of rent and land speculation is analyzed in next part with using the data collected from the www.sahibinden.com website, the largest and most used online platform for real estate market. The land available in the market are collected and categorized. The all land available for sale in the market for the three core districts (2208 ads), ads for sale in a district with increasing population (Ilgin), a district with decreasing population (Altinekin), a district with stable population (Cihanbeyli), three rural neighborhoods with increasing populations, three rural neighborhoods with decreasing populations and three rural neighborhoods with stable populations (mid-April 2018) were collected from the website and analyzed. A total of 2459 ads were analyzed and the total number of land ads for Konya province at that time was 4945; almost half of all ads were categorized and used. The results are mapped in city of Konya, using the neighborhood boundaries. The peripheral neighborhoods are included in the analysis since the majority of land available are on these neighborhoods and the most problematic struggle between production of space and agricultural production takes place in these neighborhoods. A follow-up has been conducted with the same tool for the same space for the year 2022 mid-May.

The last part of the capital subsection is the newly emerging sectors with contesting land uses for agricultural production, for the case of Konya, solar energy production. The data on the existing and projected solar power plants in the province was collected for this part and interpreted.

1.1.1. Approach

The three pillars of analysis, the conditions of settlement patterns, agricultural production and urban form in the case of Konya province, in the first scale of the study, will be illustrated with reference to metropolitan municipality system and its impact over these three pillars starting from the first establishment of the system in the case of Konya province in 1989 with the acceptance of the law no 3399 becoming fully operational with the 1989 local elections. Konya is the seventh of metropolitan municipalities and affected from the changes in 2004, 5216 Metropolitan Municipality Law (20 km radius boundaries) and in 2014, the law no 6360 changing the previous MM law. Within this timeline, the changes in agricultural production, settlement pattern and urban form will be observed in this section. The relationship between these three pillars of this study, settlement pattern, agricultural production and urban form is a dialectic one and their relationship with urban policy is also dialectic.

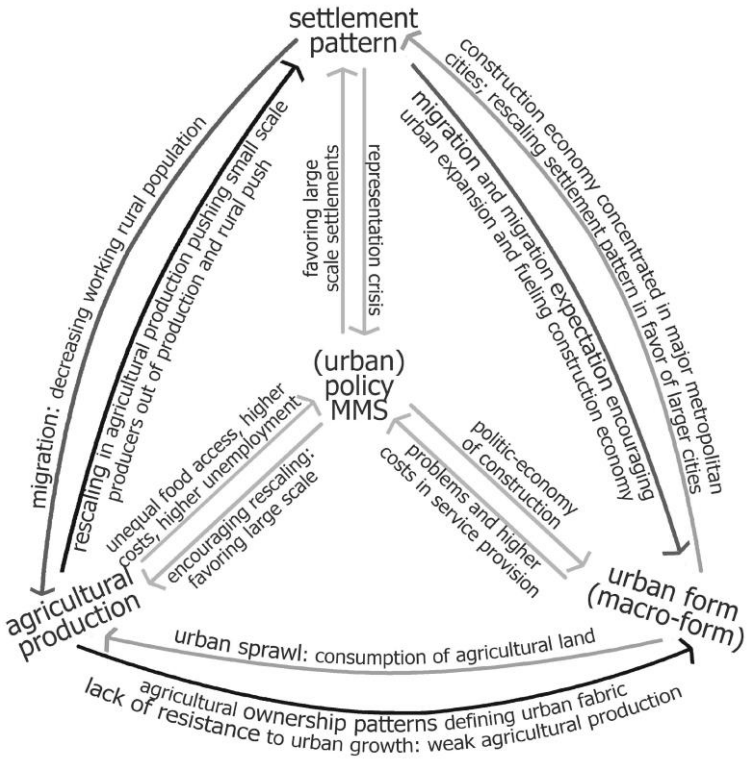

Figure 2 Three Pillars of Analysis and MMS as an Urban Policy Frame

Each one of the four nodes above are analyzed in the corresponding sections of this chapter and the links between are the abstractions of the results of the relationships between the nodes. Reading the figure clock-wise, changing and rescaling settlement patterns towards agglomerations via migration and migration expectations (sometimes not met) creates a pressure for urban expansion. With urban expansion and construction economy accumulated

in major metropolitan cities dominating national economy, increases the agglomeration of settlement patterns towards major metropolitan cities in return. Urban sprawl, the most widespread form of urban expansion in the case of Turkey and in our case of Konya, increases the consumption of agricultural land on the periphery and agricultural ownership patterns end with undesired ribbon development or leapfrog development with a lack of urban design logic. In addition to that, the weakness of contemporary agricultural production (for several reasons) in Turkey creates a lack of resistance to the urban growth from outside. Rescaling taking place in agricultural production pushes small scale producers out of production, and this eventually pushes population from rural, peripheral or small scale settlements with agricultural economies to larger, urban and or core agglomerations with service economies. In other words, creates a shift in settlement pattern. The changes in settlement patterns, with decreasing populations in small, peripheral and rural populations results with a decrease in working population in agricultural production. Even though this is a natural trend of our times and agricultural production is becoming more efficient in utilizing labor power, for the case of Konya and most of the cities in Turkey, this is also a part of the problem since the migrating population is also leaving their land and stop producing. The outer loop in the figure is now a circle.

Positioning urban policy and MMS as the frame of the urban policy is also similar. Urban policy is suffering from methodological cityism (Angelo&Wachsmuth, 2015) and favors larger agglomerations, while in return, there is a representational crisis of small scale settlements within MMS boundaries. The villages being transformed into neighborhoods in the eyes of policy makers (with law no 6360) and district municipalities losing some of their rights via becoming under the singular and monolithic control of the metropolitan municipalities[12] are the bases of this representational crisis.

Construction-driven local economies and lack of immunity of local governments from rent, speculation and development pressures results with an urban expansion encouraging urban policy and the MMS will likely increase the scale of the problem. The produced urban forms, usually named as oil-stain and more like fungi in a petri dish, creates problems for urban policy makers in service provision, increasing the costs and making the provision nearly impossible in some cases.

[12] This structure of the MMS is regarded as a form of local centralization by some political scientists while the debate is going on and some others name the process as monolithic local governments rather than centralization as defined in the public administration literature. Regardless of the name given to the process, a significant percentage of the recent public administration literature finds the expansion of the borders in massive scale in conflict with the subsidiarity principle for local public policy and service provision.

The relation between urban policy and agricultural production is less visible to the eye, yet still highly significant. Urban policy indirectly affects agricultural production via urban form decisions increasing consumption of agricultural land. With the 6360 Law, within the MMS the rescaling of agricultural production is encouraged and larger scale production is favored in all forms of agricultural production (including Livestock). The problems in agricultural production in return increases the cost of living in urban agglomerations, results with unequal access to food and higher unemployment rates since the excess labor power stemming from rescaling in agricultural production is migrating to urban agglomerations. Within this threefold structure, the case of Konya was analyzed.

The second scale of the study, the country scale is studied in a three-fold structure: regulations, accumulations and circulations in relation with each other. To solidify the study; the main elements of this research for testing the impact of MMS over urban form, agricultural production and settlement patterns can be grouped (transitively as their nature claims) as regulations, accumulations and circulations.

1.4.2.1 Regulations: Players and the Black Box of Policy Making

The elements of policy-making process, in urban planning, the conservation of agricultural land and agricultural production, and national scale settlement policies and agricultural policies are falling under this group. The legislatures of urbanization and agriculture are drawing the frame while players, the central government, ministries, administrations, the local governments (municipalities and decentralized public administration units), local shareholders (capital owners, landowners, farmers, dwellers) and market players (producers, mediators, regulators, consumers), international players and civil players are also significant in the process; the process going on in between production of space and agricultural production.

The changes in the legal framework of urbanization, land-use, production and reproduction of space, local governments, agriculture, landscape and ecology are significant for this study. The legal framework of MMS will be analyzed in relation with the legal framework defining urban form, settlement patterns and agricultural production. With reference to localization-centralization, compactness-urban sprawl, developmentalism-clientelism, conservation-consumption and rescaling debates, a structured analysis will be conducted on the regulations. The legal framework forming the metropolitan municipality system (MMS) will be a point of interest emphasized in the study. The institutions, political players in other words, will also be included in the analysis. The decisions made by public sector and the control of the government over the flow of capital, are highly relevant. The plans, master plans, environmental plans and development plans as regulatory documents

shaping the urban and rural space, also have significance in the process of analyzing the impact of MMS. production of space, master plans, development rights and the results in terms of land-use, and the observation of these in space. Moreover, the players, institutions in local, national, and supranational scales are also significant in defining the frame for the problem at hand and for a comprehensive understanding of the problems.

1.4.2.2 Accumulations: Production Relations and Ownership Patterns

Factors and means of production in agriculture and of urban space, the capital embedded in each and the scales of production are the elements of this pillar. The production relations in both agriculture and urban growth and the ownership patterns in both areas are forming the spatial and economical fixes for the subject of inquiry. The development rights given, whether it be realized or remained virtual are affecting the land use pattern and agricultural production on the surroundings of metropolitan cities. Rent and ownership patterns are two integral parts in the formation of urban form and settlement patterns. On the other hand, the scale of production in agriculture, in terms of land scale, and in terms of "small-scale farmers vs. companies" debate is also significant. In addition to this, the ownership pattern, on the periphery of cities and outer zones (exurbia, deep rural areas) matters as well. For the urban growth side, the scale of housing projects: mass housing as a way of public housing provision, and scale of housing problem are significant. These two elements, the production relations and ownership patterns are both historical and geographical.

1.4.2.3 Circulations: Geographies, Movements and Flows

The capital flowing into space is shaping it dialectically. Capital investments by market and public players (in the form of social and technical infrastructure, housing provision, budget and state controlled/provided urban functions) are producing the space everyday today. Rent, as a socially produced value in the form of realized and speculated development, has a significant impact over formation of geography as well. Uneven circulation and flow of capital creates rural settlements with no access to needed service, areas of privation, in other words service zones of no flow. This flow, alongside other reasons (such as decreasing labor-intensity, mechanization, industrialization and now robotification of agriculture, inefficient supports, and policies, so on and so forth) brings us to another flow, the movement of populations, from the rural to the urban, from agricultural production to service, tourism, industry or construction sector. The movement of populations over the geography and in the economy between sectors and the movement of capital over the geography are categorized as the circulations in the study.

CHAPTER 2

PRODUCTION OF SPACE AND AGRICULTURAL PRODUCTION IN THEORIES

The production of space is essentially considered an urban function transforming a land into “urban” while agricultural production takes place in “rural” areas and more than that the existence of agriculture in space is one of the qualities what makes a space rural. These two forms of production are mutually exclusive on space and this mutual exclusivity exists or assumed to be existent in the social and economic layers of relations. When agricultural production and urban space are problematized on the same conversation, the debate is limited to the development of agricultural land into urban parcels with a reference to urban sprawl and land speculation. This study plans to surpass this limited understanding of the land struggle between urban and rural land uses, therefore in this section I first enlarge the framework of analysis for deciphering the relation between the production of space and agricultural production by listing all the relevant terms for the space that they clash into each other with their social and economic backgrounds. Second, rent as a conjunction between the spatial relations, social relations, and economic relations, will be utilized as a means of understanding the relation between the two forms of production.

2.1 Bringing the Two Forms of Production on the Same Theoretical Plain: A Land Use Based Perspective

The consumption of agricultural land by urban land uses previously regarded as insignificant since the scale of land consumed by urban land uses are very limited with regard to massive agricultural and natural areas and this skepticism is clearly voiced in the literature by several authors where one prominent one is Hart “who argues that there is no absolute shortage of land for agriculture and that much of the concern regarding urban encroachment on rural land is "arrant nonsense" (as quoted in Platt, 1981: 114). Yet, the problem here is not the scale of the land but rather the quality and the location of the land alongside existence of water, and more significantly “once high quality agricultural lands are lost, they cannot readily be replaced because their productive characteristics are not qualitatively equal to those of newly converted wild lands (Sampson 1981)” moreover, these newly converted “marginal”

farmlands are significant for flora, fauna and the natural habitat (as quoted in Chen, 2010: E164). The woodlands, grasslands, wetlands and other perennial covers, despite their services to landscape, "habitat, biodiversity, soil and water quality, carbon sequestration, and aesthetics", are also transforming into annual crops in global scale with the increasing pressure of large-scale agricultural production (Corry, 2016). The balance between urban and agricultural land uses also must exist in the balance between agricultural land uses and natural land uses.

With a severe level of abstraction, and borrowing from Koomen, et al. (2008) the Earth consists of three categories of land uses; these are natural areas, agricultural areas, and urban land uses. As Wehrwein (1942) puts forward, "land problems appear in their most acute form on three fringes or transition zones:

- The area between arable farming and grazing,
- The zone between farms and forests,
- The suburban area lying between the built-up city and farms"[13]

These three interfaces and fringe zones are the spaces of tension among different land uses and this tension become visible with land use changes and transformations.

What is emphasized by Koomen, et al. (2008) is the tension in each fringe is related with the other; a land use change here might result with a land use change somewhere else. The game of land use is a zero-sum game among these three and urban land uses are the ones which applies the highest pressure over the two others. The previous dichotomy of open space versus urban development solidified with the dichotomy between urban and rural, with this abstraction transforms into a triangular model of 'agriculture-versus-nature-versus-urban-development' (Koomen et al., 2008: 363). In this triangular model, natural areas are under pressure of not only urban land uses, but also agricultural land uses as well[14].

[13]Wehrwein, 1942: 217.

[14]The Illustration is based on the approach developed by Koomen et. al. 2008 and produced for this thesis.

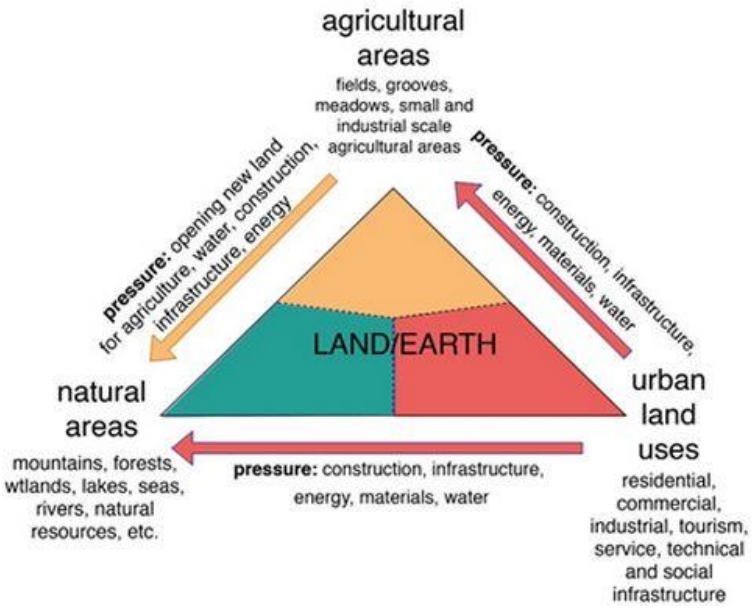

Figure 3 The Triangular Model of Land Use

Urban land uses include residential, commercial, industrial, and service land uses alongside tourism, energy production, technical and social infrastructure facilities, transportation, etc. while natural areas include mountains, forests, wetlands, lakes, seas, rivers, natural resources, etc. Agricultural land uses include fields, grooves, meadows, livestock facilities, small and industrial scale agricultural areas. These three ends of land use namely agricultural, urban, and natural are in contest with each other and more than unclear urban – rural divide, define and frame the geography.

The conversion between these three categories of land use is under the impact of development and planning approaches of a country. These three land uses hang in a balance in the natural state while with the approach of development and the prioritization of the economic sectors, one dominates the others. In contemporary state, urban dominates both while due to urban population growth the need for agricultural land increases alongside the need for efficiency in agricultural production and this results with an increased pressure over the natural areas.

The significance of these three pillared land use changes not only lies in the best use of the land alongside a balance for the future of the planet and nature but also in the climate crisis. According to the grim 2020 Report of The Intergovernmental Panel on Climate Change (IPCC) on the Climate Change and Land[15], the 32% of all emissions between 1850 and 2019 stems from land use change from natural to urban & agricultural and from agricultural to

[15]https://www.ipcc.ch/srccl/ accessed on April 2022.

urban. “Land is both a source and a sink of Green House Gases (GHGs) [… and] Sustainable land management can contribute to reducing the negative impacts of multiple stressors, including climate change, on ecosystems and societies” (IPCC, 2020: 7). More than 70% of the planetary ice-free land surface is under the impact of the Anthropocene with high levels of human use, around 12%-14% of this ice-free land surface is intensively used for agricultural production, more than 70% of the fresh water is used for agriculture and the soil wasted by agricultural soil erosion is 10-20 times higher than the soil formation rate in no tillage areas and more than 100 times higher in conventional tillage areas (IPCC, 2020). After this severe cost of agricultural production for the nature and the future, 25%-30% of total food produced is wasted (IPCC, 2020). This loss is similar to the excess housing problem with severe levels of consumption of land and resources. In the case of Turkey for the year 2020, the total number of households was 24,604,086 while the total number of flats registered to the Address Based Population Registry System (TURKSTAT,2021) was 38,4 million. Not including the number of flats under construction, these numbers illustrate a vacancy rate around 36%. After embedding severe level of land and resources, 36% of flats likely being vacant is a sign of high inefficiency similar to the wasted food. These two forms of land use change, from natural to agricultural or urban and from agricultural to urban alongside land use intensification (new more intensive methods of agriculture, or intensification of urban land use) results with further land degradation and with the lost ability to use these areas as carbon sink, a deepened climate crisis.

According to Tekeli (1991), in the Anatolian Context, starting from Ottoman Empire Era, the word *imar* was used as a direct translation of development including both socio-economic - agricultural development alongside other sectors and production of space meanings of the concept. At the time, the production of space via development plans (rights) was not divorced from the revitalization and socio-economic development of that settlement. After the emergence of the term *kalkınma* which is the direct translation of socio-economic development, the term *imar* lost its socio-economic meaning and left with solely the physical development, the production of space. This shift resulted with a paradigm shift in the planning and development approach of the country.

Development approach of a country can be measured and theoretized with reference to its approach to environment, agriculture, industry and production of space. The development approach implemented alters the balance between the natural areas, urban land uses and agricultural areas illustrated in the triangular model of land use above. Among these three core types of land uses, the one prioritized in Turkey (and in many other countries) is the urban land uses. After the narrowing down in the meaning of the term i*mar* solely to the production of space via development rights, the missing piece *kalkınma* gradually lost its

impact in the public policy of the country and the urban land development become the means of development in general. This shift is visible in the massive scale and expanding land and housing market of the country, housing and land as the prime way of investment. This brings us to the problem of rent and rent as a cement gluing production of space and agricultural production. The problem of rent with reference to agricultural production and production of space will be analyzed in this chapter.

Development is used as a proxy for growth in most of the cases and for the case of Turkey this growth is considered synonymous with urban growth. Urban growth is also limited to production of space with development rights usually on the periphery. The problem of periphery takes plenty of forms in different contexts, yet there are also repeating patterns. To understand it in different contexts, in the next part I will categorize and historically and geographically analyze the terms relevant for the periphery with reference to agricultural production and production of space.

2.2 Terms Relevant for Production of Space and Agricultural Production: A Bibliometric Analysis

Words matter. In the fields of urban studies and urban policy, there are plenty of words for relatively a smaller number of concepts as in most of the social sciences. The selection of vocabulary is highly ideological, and the palette of words selected for same phenomenon differs accordingly. Under the light of this, it is useful to begin with the terms. Rural and urban are twin themes generally used together defining each other in a complementary way. Urban refers to city while rural refers to country in general. Harvey (1978), in Urban Process Under Capitalism, says “'urban' has a specific meaning under the capitalist mode of production” and he relates it with the twin themes 'class struggle' and 'accumulation'.

As the unit and space of accumulation urban land is commodified and it is subject to class struggle (Şengül, 2001) not solely between capitalists and workers but also between farmers, agricultural workers and capital owners in the housing market, middle class or upper, investors, buyers, homeowners. This specific form of struggle takes place on the periphery of cities where rural land has a potential to turn into urban land. The growth of the city gives rise to the tension between urban land uses and rural land uses on the periphery of the city.

On one side the urban areas tend to grow with production of space and on the other side the rural areas as the medium of agricultural production gains importance on a more abstract and macro level as the time passes. Defining is not an aim of the study, it is rather, understand, expose and change, in this specific order. Yet, if defining is needed for understanding, then, the philosophy of internal relations (Hegel, Marx, Ollman) states, “It is simply that the particular ways in which things cohere become essential attributes of what they are” (Ollman,

2003). Urban and rural as we observe exist, in relation to each other, and with reference to that relation.

Urban and rural are relational and they are relations themselves. Urban is more than an agglomeration of population in high-density geographies. The cumulative increase in the quantity changes the quality eventually; the accumulation of quantities results with revolution in the qualities and the relation between these two is highly significant for understanding complex contemporary problems, specified in this case, urban growth and agricultural production (Ollman, B. 2003). The basic question, what is rural, on the other hand, cannot be answered without involving the urban and vice versa.

One of the major and unluckily most widespread mistakes is to define these two exclusively with each other, claiming that existence of one is only possible with the absence of the other, in terms of land use, capital, etc. This point of view makes it harder to understand what is going on in the peri-urban or semi-peripheral areas, namely the areas where the urban and the rural juxtaposes and the relation of dominance become visible and re-defined. The dominance of the urban over society, enables us to state that we are overall urbanized, both with urban and rural elements (Lefevbre, 2003).

Planetary urbanization and the "implosions and explosions" of the urban force us for an analysis of landscape on a planetary ground (Brenner, 2014). Land uses like industry, mega-infrastructure projects, bridges, airports, energy-production facilities located in rural areas and the capital invested in rural areas, in agricultural production for instance, are highly urban land uses. It has become impossible to define the borders between the urban and the rural with these "implosions and explosions". While these debates are going on in the academic world, ignorantly, rural is being redefined, by policy makers. European Union classifies rural and periphery into nine different classes depending on their accessibility and the rent embedded, while local metropolitan governments in Turkey are redefined with control boundaries expanded to cover surrounding rural areas. This is one of the major moments that will be visited within this study. These developments both in national and supra-national scales mostly met with silence in Turkish politics and academics. Whether we debate over it or not, urban, and rural are now under a redefinition process; and dialectics is at work, whether we observe or not: in definitions, institutions, public policy, social structure, economy, and in rural and urban.

The categories used to group the terms are as follows: core terms frequently used by this study (the keywords), terms used to describe the extended areas of the urban settlements, terms used to describe the geographically peripheral parts of the (urban) settlements, terms used to describe the outer and far-peripheral settlements, terms used for defining problems and phenomena and the terms for planning and conservation tools. Within this six-fold

categorization, in total 4 terms are defined (see Appendices) and a bibliometric analysis including the historical-geographical distribution of the usage of the words is produced. For each part, the Turkish words used in our context are also noted.

2.2.1 Core Terms Utilized in This Study

The core terms, the keywords of this study are production of space, urban form, settlement pattern, metropolitan municipality and agricultural production. In addition to these core keywords, for a spatial differentiation within the provinces, namely the control and authority zone of metropolitan municipalities, core, semi-periphery and periphery are used. These three terms are borrowed from world systems theory and used for first dividing the urban form into two as core and the semi-periphery and at the same time dividing the province into provincial core (urban form) and periphery. A bibliometric analysis is produced for the terms defining these zones and the problem itself in the next section. Within the context of this thesis, for simplification and abstraction purposes the selected terms and the relation between these terms are illustrated below.

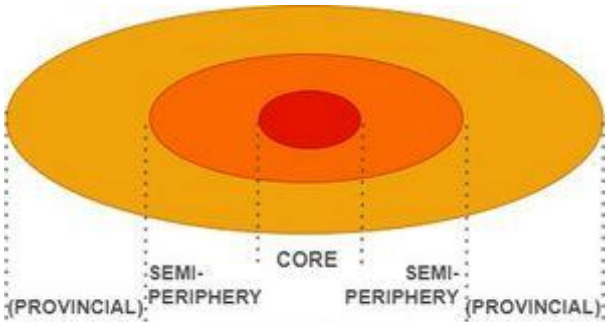

Figure 4 Core - Semi-Periphery - Periphery and
Provincial Core - Provincial Periphery

The impact and the applied power of the core over the periphery (urban over rural) basically depend on accessibility from the core and the features of the periphery that makes it worth colonizing. This brings us back to the Fermi paradox solution “Low rent – inaccessible or undesirable” and also reminds us the rent-gap theory (Smith, N., 1979). Within the context of this study, words urban and rural will be used with a slight change of meaning and without creating a dichotomy. This slight change is amalgamating the words urban and rural with core and periphery respectively. Well-defined powerful core is surrounded by undefined, transitive, blurred and invaded periphery. Invaded here stands for the planetary urbanization layer now covering the geography.

Another significant point in the study that needs clarification is the **village and neighborhood** problem. With Law no 6360 villages are transformed into neighborhoods in

legal terms. Their legal status changed with this move alongside some other changes. Yet, especially in the case of Konya, they are still highly rural and resembles villages more than neighborhoods. They are named as neighborhoods in the law without any indicators enabling us to differentiate them from the neighborhoods within the urban forms of large settlements, cities. Yet, they are dramatically different than their urban counterparts. They have lost their status as villages and hence it is not possible to use the term village for these settlements after the law and yet they did not lose their village characteristics. At the beginning of the study, in order to solve this problem, differentiating names were proposed for these former village neighborhoods, but in 2021 with the public pressure, in order to differentiate these neighborhoods from urban neighborhoods, the term "rural neighborhoods" were coined in the law. Hence, within the context of the thesis, this term will be utilized for these neighborhoods.

Production of space term was first used by Lefevbre and the core of this idea comes from the quest of "a code which allowed space not only to be 'read' but also be constructed" (Lefevbre, 1991: 7). There are indefinite number of "multitude of spaces" layered on top of each other; intertwined or alienated and understanding how space(s) is(are) produced is only possible with understanding these different types of spaces "geographical, economic, demographic, sociological, ecological, political, commercial, national, continental, global", physical, mental, social, space of flows, particular, singular, mathematical, etc. (Lefevbre, 1991: 8, 15-16). The three categories of space are central in Lefevbre's approach which are physical, mental and social, and these three forms of space are perceived, conceived and lived (Lefevbre, 1991).

This understanding of space that the term production of space implies a Marxist approach to spatial, urban and geographical sciences. The term first utilized in the academia and predominantly stayed in the academic realm, not used widely by public. The frequency of the term in books between 1800-2008 peaked in 2000 and after that year the utilization of the term constantly falls according to google books, ngram statistics service[16].

[16]https://books.google.com/ngrams/graph?content=%22production+of+space%22&year_start=1900&year_end=2019&corpus=15&smoothing=3 accessed on Feb. 2022.

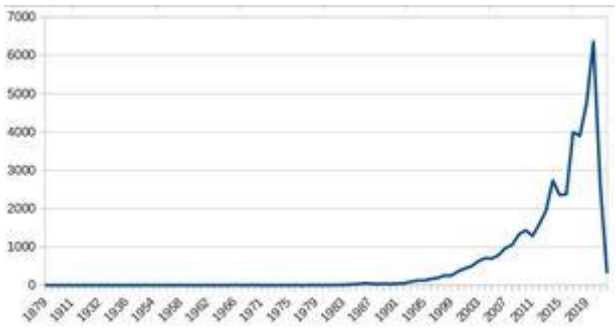

Figure 5 Production of Space Term in Time

Another service used for academic bibliometrics is Dimensions.ai and according to this search engine, the term production of space is used in the academic realm since 1879 and the search yielded with 44919 results since then. The frequency of the term peaked in 2020 and in 2021 it decreased[17].

The term is frequently used in this study, predominantly with a reference to the physical space produced or speculated to be produced with development rights. The other connotations, social and mental spaces in other words, are not at the focus, yet there are several references to them as well.

The second core term is **urban form** refers to different elements of the urban fabric depending on the scale "from regional, to urban, neighborhood, 'block' and street" and defined as "the physical characteristics that make up built-up areas, including the shape, size, density and configuration of settlements" (Williams, 2014: 6). Kevin Lynch is among the pioneer names using the term and theorizing it (Lynch and Rodwin, 1958). "Cities are too often regarded simply as collections of smaller environments" yet "every physical whole is affected not only by the quality of its parts, but also by their total organization and arrangement. Therefore, the first criterion for form analysis is that it identifies form qualities which are significant at the city or metropolitan scale, that is, which can be controlled at that scale, and which also have different effects when arranged in different patterns that are describable at that scale" (Lynch and Rodwin, 1958: 203).

The definition of urban form covers several scales including the metropolitan and city scale in relation with other scales and in this scale, it means the "macro-form" (borrowed from the Turkish context) of the city, referring to the form of the extended urban settlement with all its core and peripheral parts. Within this study, this is the meaning referenced the usage of the

[17]https://app.dimensions.ai/analytics/publication/overview/timeline?search_mode=content&search_text=%22production%20of%20space%22&search_type=kws&search_field=full_search accessed March 2022.

term in books had its peak back in 1969 and the second highest peak was in 1973[18]. The term was popular in 1990s yet after 2000, the frequency of the usage of the term decreased according to google books statistics[19]. The term first appeared in the academic language in France.

Urban form[20], throughout this study, means the spatial form of the city, "macro form" as defined in Turkish urbanism context, the form of the continuous and discontinuous settlement areas of cities and the geometry of the city form. It is not the form of urban fabric within the settlement area but rather the form of all settlement area. The way cities grow on the geography can crudely be divided into two groups: compact and sprawled. Compactness and level of sprawl are two ends in the forms of urban growth and urban form is the result. Compactness-Sprawl spectrum has utmost importance for urban policy& implementation and service provision within cities and it is also substantial for agricultural policy, land development, agricultural rent, rural areas, and agricultural production. Most of the metropolitan cities in Turkey unless limited by geographical thresholds, tend to sprawl. These provinces are 30 largest in terms of population and substantial amount of agricultural production takes place in most of them. All major agriculturally productive cities are also metropolitan provinces which have a sprawl problem. Sprawled primate cities within provinces also dominates settlement patterns and contributes to the state rescaling since majority of population and capital are accumulated in these cities.

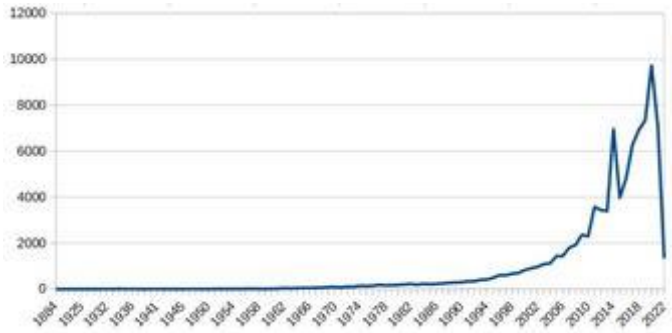

Figure 6 Urban Form Term in Time

[18]https://books.google.com/ngrams/graph?content=%22+urban+form+%22&year_start=1900&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20urban%20form%20%22%3B%2Cc0#t1%3B%2C%22%20urban%20form%20%22%3B%2Cc0 accessed in March 2022.

[19]Ibid.

[20]Kent Biçimi, Üst Biçim, Makroform

According to Dimensions.ai, the term urban form is encountered in 89974 publications and peaked back in 2014 and 2020. It is twice the popular with reference to production of space[21].

The third core term is **settlement pattern**. In the literature, the definition of settlement pattern, similarly to urban form, varies by scale. The term is used for defining the urban fabric of the settlement as in the case of urban pattern in some cases (e.g. Turner, 1968), in migration studies it is used for illustrating the locational tendencies of migrants in within settlements (e.g. Schiller and Çağlar, 2009: Alba et al., 1999) and in some studies utilized to define the geographical distribution of settlements and population (e.g. Linard et al., 2012). Within this study, the term is used to define the geographical distribution of the population and the settlements with reference to the changes in time. The term reached its peak point in 1950s and 1970s, and lost popularity in the 1980s. after 1998, the usage increased a little in google books[22]. Majority of the studies using the term are quantitative studies. "There is a distinct lack of detailed re-search on the implications of changing demographic regimes for settlement patterns in general" yet it can be a useful tool to analyze poly-centric regions (Champion, 2001: 659) and the rural, small-scale settlements.

The term **settlement pattern[23]** refers to the distribution of the population among settlements and the distribution of different scale of settlements on the geography in the form of concentrations, agglomerations and sprawls. Settlement pattern is the section extracted from the circulation and the accumulation of people over the geography in a specific time. The significance of settlement patterns lies in its dialectical and reciprocal impacts on production of space, agricultural production and urban policy & implementation. The outputs of the black box of urban policy making in the frame of metropolitan municipality system depends on the settlement pattern (alongside several other reasons) in that metropolitan province. The agglomerated populations in major cities depends on the agriculture usually conducted by sprawled small scale settlements and these two processes are reciprocal. To decipher this reciprocity and to produce a more comprehensive analysis, settlement pattern is defined as one

[21]https://app.dimensions.ai/discover/publication?search_mode=content&search_text=%22urban%20form%22&search_type=kws&search_field=full_search accessed in March 2022.

[22]https://books.google.com/ngrams/graph?content=%22+settlement+pattern+%22&year_start=1900&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20settlement%20pattern%20%22%3B%2Cc0#t1%3B%2C%22%20settlement%20pattern%20%22%3B%2Cc0 accessed in March 2022.

[23]Yerleşme Örüntüsü

of the three pillars of this study. Settlement pattern has strong links with the geographical conditions, economy, politics, urbanization, migration, culture and the urban-rural debate.

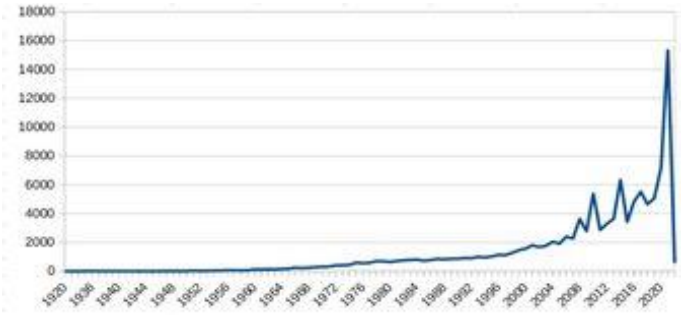

Figure 7 Settlement Pattern Term in Time

Searching the term settlement pattern in Dimensions.ai yielded with 115629 results and the term is used since 1920 the usage has peaked in 2021 (twice the amount of the previous year)[24].

The fourth key term to this study is **metropolitan municipality** referring to a specific form of municipality as an element of local government exercised in metropolitan cities and in the case of Turkey metropolitan provinces as an administrative category. This keyword is specifically significant for the case of Turkey since the enactment of the 5216 metropolitan municipality law (2004) and the change in the law with 6360 (2012) transforming 30 provinces into municipal zones where metropolitan municipalities have majority of the responsibilities and the authorities of the local governments. Most cited documents utilizing this keyword are either produced by Turkish or South African scholars or are focused on these two cases.[25]

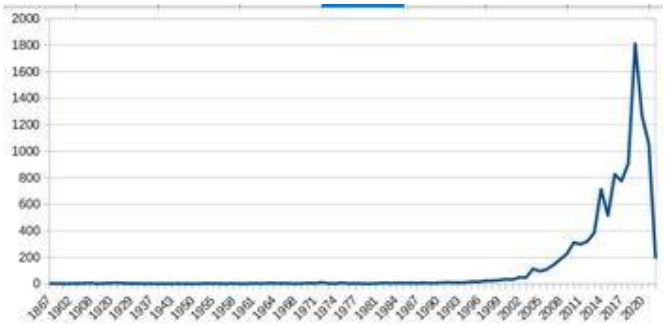

Figure 8 Metropolitan Municipality Term in Time

[24]https://app.dimensions.ai/discover/publication?search_mode=content&search_text=%22settlement%20pattern%22&search_type=kws&search_field=full_search

25EbscoHost research yielded results in the following percentages: 89.9% Turkey, 6.9% South Africa and 1.4% Brazil.

The term metropolitan municipality search yielded 10759 results in Dimensions.ai and the frequency of the term peaked in 2019.[26]

Metropolitan Municipality System (MMS)[27], today in Turkey, refers to the monolithic authority of the metropolitan municipality (MM) controlling all the provincial geography, land and all scales of settlements within the vast borders of the province. There are 81 provinces in Turkey and in terms of population the 30 largest ones are today metropolitan provinces. A substantial example of state rescaling and the impact of production of space and the process of urbanization on rescaling, the history of MMS dates to 1984, to the first law on metropolitan municipalities and between 1984 – 2004 16 Provinces have become MM.

Agricultural Production is the last core keyword for this study, and it is both old and much more widespread that the other terms that usually utilized by academic realms. Still, the usage of the term was most popular between 1940 and 1980s and after that the frequency started to decline in books[28]. Agricultural production search in Dimension.ai yielded with 464115 documents and it is the most used keyword among the five core terms. The usage of the term peaked in 2021.

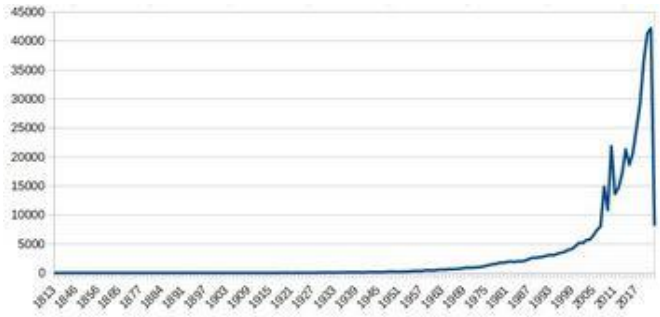

Figure 9Agricultural Production Term in Time

Agricultural production is the human production dealing with growing plants and crops and raising animals for several usages. Agricultural production "works with living material"; it is seasonal, sequential, spatially fixed with plenty of uncertain factors and with products having perishable in nature (Boltvinik, 2016). Both agricultural production and urban growth are land dependent and the struggle between these two land uses is drastic on the

[26]https://app.dimensions.ai/discover/publication?search_mode=content&search_text=%22metropolitan%20municipality%22&search_type=kws&search_field=full_search

[27]Büyükşehir Belediye Sistemi.

[28]https://books.google.com/ngrams/graph?content=agricultural+production&year_start=1800&year_end=2019&corpus=26&smoothing=3&direct_url=t1%3B%2Cagricultural%20production%3B%2Cc0#t1%3B%2Cagricultural%20production%3B%2Cc0 accessed Feb. 2022.

periphery of growing metropolitan cities. Expansion of agricultural production might be considered as a form of urban growth as well, regarding the dramatically increasing need for food and other agricultural products (biofuel, cotton, etc.) with vast levels of population increase in urban agglomerations. Yet, on the edge of the cities, it is still a struggle between land uses. Land dependency and the distribution of population that can be vaguely divided into two parts in terms of agriculture: producers and consumers, and these are also the two keywords tying settlement pattern, urban form and agricultural production. The changes in the pattern where producers living in sprawled small settlements and consumers living in agglomerated core cities affects agricultural production. One of the indicators of development and urbanization is the percentage of non-agricultural employment, in other words the consumers of agricultural production. In the dominant discourse agricultural production and development are considered as mutually exclusive yet both on space and in time, it is not the case.

The graph plotted below utilizing the ngram statistics measuring the frequency of terms in the google books illustrates that the oldest term is the agricultural production, academic usage dating back to 1920s. The production of space on the other hand is the newest among all while which became more popular in a short amount of time. The ups and downs of the usage of settlement pattern, agricultural production and urban form are similar while the popularity of settlement pattern has fallen more in books. 1970S and 1980s were the peak years of urban form, agricultural production, and settlement pattern[29].

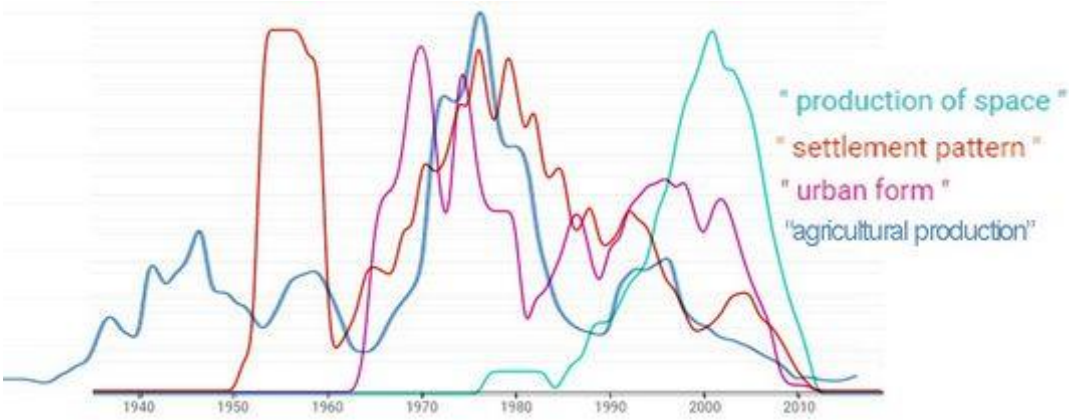

Figure 10 Core Terms in Google Books 1800-2018

The most utilized term among these four terms is by far agricultural production. Urban form and settlement pattern terms are "invented" in the United States while production of

[29]Ngram Viewer for Google Books, accessed March 2022.

space first used in France, Metropolitan Municipality in Australia and Agricultural Production in United Kingdom. This statistic is valid for academic usage[30].

Table 1 Histories, Geographies and Frequencies of the Core Terms

	settlement pattern	urban form	production of space	metropolitan municipality	agricultural production
scopus results (number of papers,	6155	5810	1108	489	37730
country or context of emergence (in peer-reviewed journals)	United States, Greece	United States	France	Australia	United Kingdom
dominant fields utilizing term	social sciences, earth and planetary sciences, environmental	social sciences, environmental sciences	social sciences	social sciences, medicine, engineering	agricultural and biological sciences, environmental science, social sciences
time of emergence (in journals)	1938	1957	1961	1981	1849
academic popularity interval - (frequency)	1976 onwards	1995 onwards	1998 onwards	2003 onwards	1955 onwards
context of emergence	academia	academia	academia	politics, legal framework	academia
focus (urban-centered or rural-centered)	neutral	urban centered	urban centered	urban centered	rural centered
used most in:	United States, United Kingdom, Canada, China	United States, United Kingdom, China, Australia	United States, United Kingdom, Germany, Canada	South Africa, Turkey, United States, Brazil	China, United States, United Kingdom, India

Four terms are predominantly utilized in social sciences while as expected agricultural production is utilized in agricultural and biological sciences. Environmental sciences follow in the case of urban form, earth and planetary sciences for settlement pattern, and interestingly medicine in the case of metropolitan municipality. The oldest term among these four is agricultural production followed by settlement pattern, first used academically in 1938 and popular since 1976. Apart from settlement pattern which is relatively neutral and agricultural production which is rural centered all three terms are urban centered and focused. The popularity of production of space is increasing since 1998, and urban form since 1995. Metropolitan municipality, the newest term among these four is gaining popularity 2003 onwards. Production of space and urban form terms are most used in the United States and secondly United Kingdom, while settlement pattern is also widespread in Canada as well. First

[30] Data is collected from www.scopus.com, March 2022.

three are widespread in core countries[31] while metropolitan municipality is widespread in peripheral countries such as South Africa and Turkey and Agricultural production in both core and peripheral countries. It is most widely used in South Africa and secondly in Turkey (especially in recent years the number of studies is multiplied) and the third one is the United States. Yet the term is predominantly utilized by peripheral countries.

The Turkish versions of these core terms and keywords are **yerleşme örüntüsü** (settlement pattern), **kent formu – makroform** (urban form), **büyükşehir belediyesi** (metropolitan municipality) and **tarımsal üretim** (agricultural production). The last one is generic as its English counterpart, while "yerleşme örüntüsü", "kent formu" and "makroform" are emerged in the academic realm. "Büyükşehir belediyesi" on the other hand emerged in the administrative and legal realm with the change in local government laws and structure.

2.2.2 Terms Used to Describe Extended Areas of Urban Settlements

There are several names given to the extended areas of large urban settlements, yet due to the incomprehensible scale of such mega cities for daily human scale, majority of the terms are invented either in public administration/local governments/legal framework terminology or in academia.

These terms compiled and listed can be found below in the table[32] with the frequencies, time interval and the geography used. The terms are analyzed with bibliometrics while for the detailed descriptions of these terms see Appendix A.

[31]Core and peripheral countries are defined within the context of dependency school and Wallersein's world systems theory.

[32]Data is collected from www.scopus.com, March 2022

Table 2 Histories, Geographies and Frequencies of the Terms Used to Describe Extended Areas of Urban Settlements

term	scopus results (number of papers, books, etc.)	country of context of emergence (in peer-reviewed journals)	dominant fields utilizing term	time of emergence	academic popularity interval	context of emergence	focus (urban-centered rural-centered)	used most in:
metropolitan area	55553	United States	social sciences, other, engineering, medicine, environmental science	1923	1965 onwards; peak: 2008	politics, legal framework	urban centered	United States, China, Japan, Australia
metropolis	21231	United Kingdom	other, social sciences	1836	1982 onwards	society	urban centered	United States, China, United Kingdom, Nigeria
metropolitan region	8349	United States	social sciences, environmental science, medicine	1933	1983 onwards	politics, legal framework	urban centered	Brazil, United States, Chile, Australia
metropolitan city	4943	United Kingdom	other, social sciences, medicine, environmental science, engineering	1928	1996 onwards	politics, legal framework	urban centered	India, South Korea, United States, China
metropolitan province	41	United Kingdom	social sciences, arts and humanities, environmental science	1997	2016 onwards	academia	urban centered	South Africa, Zimbabwe, Romania, Germany
urban agglomeration	4652	United States	social sciences, environmental science, earth and planetary sciences	1949	2002 onwards		urban centered	China, United States, Poland, Germany
city-region / city region	3311	United States	social sciences, environmental science	1925	1991 onwards		neutral	United Kingdom, United States,China, Canada
conurbation	2255	United Kingdom	social sciences, environmental science, earth and planetary sciences	1922	1973 onwards		urban centered	United Kingdom, France, Germany, Poland
megacity/mega-city	6068	India	environmental science, social sciences, earth and planetary sciences, engineering	1984	2002 onwards		urban centered	China, United States, India, Germany
megalopolis	1323	Greece	social sciences, earth and planetary sciences, environmental science, engineering	1890	2000 onwards		urban centered	Russia, China, United States, Greece
metroplex	325	United States	engineering, social sciences, environmental science	1980	peak: 2010		urban centered	United States, China, United Kingdom, Mexico
primate city	225	United States	social sciences, earth and planetary sciences, environmental science	1961	peaks: 1986, 1989, 2014, 2015, 2019		neutral	United States, China, United Kingdom, India
Postmetropolis / post-metropolis	46	United States	social sciences, arts and humanities	1997	peak: 2011		urban centered	Italy, United States, Spain, Australia

When these 13 terms are listed based on frequency and geographical distribution statistics[33] the most frequently used ones are metropolitan area, metropolis and metropolitan region for large urban settlements and their extended areas. Megalopolis first used in Greece in academic journals and megacity is first used in India, the rest of the terms are first academically used either in United States or United Kingdom and majority of the terms are coined in United States. Apart from metroplex which is predominantly used in engineering field, megacity in environmental sciences and metropolis and metropolitan city in "other" fields, all terms are predominantly used in social sciences. Metropolis and megalopolis with their Hellenistic roots are the oldest terms within this category while postmetropolis, megacity and metroplex are three relatively newest. The usage of metroplex and postmetropolis is

[33]The table above is produced based on scopus data which is an indexing website for academic journals and books, and the majority of the indexed sources are peer-reviewed papers.

decreasing while the frequency of primate city is fluctuating, the rest of the terms' frequencies are increasing in general as the number of papers is also significantly and rapidly increases.

These terms are leaning towards an urban-centered perspective yet two of them, primate city and city-region are relatively closer to being neutral among urban-centered and rural-centered approaches. Metropolitan area and metroplex terms is predominantly used by United States academic realm, while urban agglomeration and megacity are predominantly used in China. Megalopolis is predominantly utilized in Russia and metropolitan city in India. Among all the keywords within this category metropolitan city is the term where Turkey is among the countries where the term is most used alongside South Korea. Metropolitan region term is widespread in Brazil and Chile while conurbation is in UK, France and Germany.

The Turkish versions of the terms used for defining the extended areas of urban settlements are anakent (metropolis), metropol (metropolis) and büyükşehir (bigcity). "Metropol" is a translated-iterated version of metropolis and "anakent" is the literal Turkish translation. Both "anakent" and "büyükşehir" were invented in the legal realm with laws and regulations, "anakent" is not used anymore.

2.2.3 Terms Used to Describe Peripheral Zones of the Urban Settlements

"*where there is tight circumscription, there will be spill";*
hence, "the phenomenon of suburbs is almost as old as cities."
(Kostof & Castillo, 1999: 47)

The peripheral zones of urban settlements are easier to comprehend in human scale and daily life, since it is closer to the neighborhood scale, there are plenty of names used to address these areas both in history and in academic and social realms. Majority of terms used here has a "temporal component due to urban growth and expansion and to improvements in transportation" and in time the places where these terms refer to transforms into urban (Iaquinta and Drescher, 2000: 10) and the majority of the terms hints a relativity, there are always relatively rural and relatively urban areas in comparison with this zone.

The 15 terms used for these zones are listed in the table below[34] with a bibliometric fashion and the detailed definitions of each term can be found in Appendix B.

[34]Source: data is collected from www.scopus.com, March 2022.

Table 3 Histories, Geographies and Frequencies of the Terms Used to Describe Peripheral Parts of Urban Settlements

term	scopus results (number of papers, books, etc.)	country or context of emergence (in peer-reviewed journals)	dominant fields utilizing term	time of emergence	academic popularity interval	context of emergence	focus (urban-centered rural-centered)	used most in:
suburban/ suburb	38145	United Kingdom	social sciences, medicine, environmental science	1850	1971 onwards	society (14th century)	urban centered	United States, China, United Kingdom, Australia
periurban/ peri-urban	11696	South Africa	environmental science, social sciences, medicine	1963	2002 onwards	urban planning field	urban centered	United States, United Kingdom, South Africa, India
urban fringe	2041	United States	social sciences, environmental science, earth and planetary sciences	1941	2003 onwards	academia	urban centered	China, United States, Australia, United Kingdom
Periphery (in documents urban word is encountered)	8897	United Kingdom	medicine, biology, social sciences, engineering	1919	1934 onwards	society (16th century)	not applicable	United States, United Kingdom, China, Germany
semi-periphery/ semiperiphery	514	United States	social sciences, arts and humanities, economics	1976	1999 onwards (2020 peak)	academia	not applicable	United States, United Kingdom, Russia, Poland
urban periphery	788	Canada	social sciences, environmental science	1976	2006 onwards	academia	urban centered	United States, Brazil, United Kingdom, China
edge city	240	United States	social sciences, environmental science	1988	peak: 1997	academia	urban centered	United States, United Kingdom, China, Canada
rural-urban interface	204	Canada	social sciences, environmental science, agricultural and biological sciences	1972	2007 onwards	academia	rural centered	United States, India, Germany, Australia
urban-rural interface	185	United States	environmental science, social sciences, agricultural and biological sciences	1974	2003 onwards; peaks: 2012, 2013	academia	urban centered	United States, China, Australia, Germany
rurban	115	United States	social sciences, environmental science	1943	2012 onwards	academia	rural centered	India, Spain, Japan Finland
leapfrog development	126	United States	social sciences, engineering, environmental science	1977	peak: 2013	academia	urban centered	China, United States, Japan, Malaysia
rural-urban transition	85	Canada	social sciences, environmental science	1972	peaks: 2013 and 2019		rural centered	China, United States, United Kingdom, Germany
urban shadow	45	United States	earth and planetary sciences, environmental science, social sciences	1971	1975-1990; 2011-onwards		rural centered	United States, China, United Kingdom, India
urban-rural transition	48	United States	environmental science, social sciences, agricultural and biological sciences	1981	peak: 2009		urban centered	China, United States, Germany, United Kingdom
penturbia	2	Poland	social sciences, earth and planetary sciences	2006	peaks: 2006, 2012		urban centered	Poland, Brazil

The most frequently used one among these terms is suburb/suburban while the least frequent one is penturbia. Periurban and periphery are the second and third most widespread used terms. Interestingly rural-urban interface and rural-urban transition are slightly more widespread than urban-rural interface and urban-rural transition, and "urban-rural" versions of the terms are more widespread in environmental sciences while "rural-urban" versions are more widespread in social sciences. Peri-urban term is popular in environmental science while urban shadow is popular in earth and planetary sciences. The rest of all terms are popular in social sciences. Urban-rural and rural-urban interface, and urban-rural transition are popular in agricultural and biological sciences and even though the urban-rural terms are labeled as urban centered, this phenomenon might be a solid fact against this label. 7 of the terms are emerged in the United States, 3 of them in Canada, one in South Africa, one in Poland and one in United Kingdom. The oldest term here is suburb, which is used since 1850 and it is academically popular since 1971. Apart from rurban, rural-urban interface and rural-urban transition, all terms are urban centered. Majority of the words are popular in United States, urban fringe, leapfrog development, urban shadow, and urban-rural transition are more

widespread in China and interestingly rurban is widespread in India, Spain, Japan and Finland. Most of the terms were frequently used in previous years and now declining in popularity and some other words are replacing them. The appearance of these terms in academic peer-reviewed journals are also relatively more recent in comparison to other five categories.

The Turkish versions of the terms used for defining the peripheral parts of the urban settlements are periferi (periphery), çeper (periphery), saçaklanma (fringe), banliyö (suburban), varoş (ghetto, bustee; from "varış" meaning arrival), kenar mahalle (outskirts), şehreküstü (outskirts, vexed with city), yörekent (satellite town, suburb) and dolaylık (vicinity). "Periferi" is a direct translation-iteration of periphery, and together with "çeper", "saçaklanma" and "yörekent", they are emerged in the academic realm. "Varoş" and "şehreküstü" are historical words used since the Ottoman era, and they refer to the urban fabric settled outside of the city walls. "Banliyö" is a direct translation-iteration from the French word for the suburbs and at the same time, the train going to suburbs. "Dolaylık" and "kenar mahalle" are words emerged in the social realm. The oldest of the term groups is this group, the names given to peripheral parts of settlements. the reason is these areas are within the perceivable scale, not abstract but rather solid for human scale.

2.2.4 Terms Used to Describe the Outer, Far-Peripheral and Rural Settlements

The fourth category is the terms used for the peripheries of the peri-urban areas and outer zones that are still within the hinterland of urban cores yet carries more rural characteristics than the peri-urban areas. There are significantly a smaller number of words describing this zone and rural and rural settlement (villages) terms are utilized to describe these areas in general. The terms here do not refer to same phenomenon but rather different elements of same (rural) context.

These four terms utilized for these zones are listed in the table[35] below and for a detailed description of each term, please see Appendix C.

[35]Source: data is collected from www.scopus.com, September 2019.

Table 4 Histories, Geographies and Frequencies of the Terms Used to Describe the Outer and Far-Peripheral Settlements

term	scopus results (number of papers, books, etc.)	country or context of emergence (in peer-reviewed journals)	dominant fields utilizing term	time of emergence	academic popularity interval	context of emergence	focus (urban-centered rural-centered)	used most in:
exurban / ex-urban	886	United States	environmental science, social sciences, agricultural and biological sciences	1928	peaks: 2009, 2015, 2016		urban centered	United States, China, Canada, Australia
satellite town	286	Japan	social sciences, envronmental science, earth and planetary sciences	1962	peak: 2016		urban centered	China, India, Australia, United Kingdom
deep rural	125	India	social sciences, computer science, medicine	1974	peak: 2013		rural centered	South Africa, United Kingdom, Spain, United States
exurbia	87	United States	social sciences, envronmental science	1960	peak: 2011		urban centered	United States, Canada, Australia, United Kingdom

This category of terms is not as widespread as other categories and usually the words rural, village and town terms are used to define these geographies and the settlements within. All terms are urban centered apart from deep rural and their popularity in time is fluctuating. Exurban term is predominantly used in environmental science while the rest are predominantly used in social sciences. The other three fields that these terms are utilized in are earth and planetary sciences, agriculture and biological sciences and medicine. Exurban/exurbia mostly used in United States while satellite town is used in China and India and deep rural is predominantly used in South Africa.

There are two Turkish words used to define these kinds of areas and settlements, these are “kır” and “taşra”. They both mean rural but the second one may refer to settlements, scale, culture and daily life, while the first one may refer to geography, population, landscape and rural in general with its all relations.

2.2.5 Terms Defining Problems and Phenomena

There are several terms referring to problems and phenomena definitions for the clash between urban and rural land uses and for the condition of non-urban areas. These terms defined in the Appendix D are listed based on their historical and geographical frequencies in the literature[36] and the results can be seen below.

[36]Source: data is collected from www.scopus.com, October 2019.

Table 5 Histories, Geographies and Frequencies of the Terms Defining Problems and Phenomena

term	scopus results (number of papers, books, etc.)	country or context of emergence (in peer-reviewed journals)	dominant fields utilizing term	time of emergence	academic popularity interval	context of emergence	focus (urban-centered rural-centered)	used most in:
urban sprawl	5595	United Kingdom	social sciences, environmental science	1952	1999 onwards	urban planning field	urban centered	United States, China, Italy, France
urban expansion	5615	United States	environmental science, social sciences, earth and planetary sciences	1925	1995 onwards		rural/nature centered	China, United States, Italy, Brazil
suburbanization/ sub-urbanization	2940	United States	social sciences, earth and planetary sciences, environmental science	1925	1976 onwards		urban centered	United States, China, United Kingdom, Poland
land loss / agricultural land loss	973	United States	environmental science, earth and planetary sciences, social sciences, agricultural and biological sciences	1927	1977 onwards, fluctuating		rural centered	United States, China, United Kingdom, Germany
land consumption / consumption of agricultural land	489	United States	social sciences, environmental science	1963	2001 onwards		neutral	Italy, Germany, United States, China
counterurbanization	252	United States, Europe	social sciences	1980	peak: 1989		urban centered	United Kingdom, United States, Canada, Spain
Peri-urbanization / periurbanization	484	France	social sciences, earth and planetary sciences, environmental science	1980	2006 onwards	urban planning field	urban centered	France, United States, China, United Kingdom
planetary urbanization	190	United States	social sciences	2011	2012 onwards	academia	urban centered	United Kingdom, United States, Canada, Italy
farmland conversion	153	United States	environmental science, social sciences, agricultural and biological sciences	1980	2009 onwards		rural centered	China, United States, Canada, Germany
urban age	152	Canada	social sciences, medicine	1971	2010 onwards		urban centered	United States, United Kingdom, Australia, Germany
rurbanization	39	Italy	social sciences, earth and planetary sciences	1978	fluctuating		rural centered	France, Canada, Spain, Belgium
diffuse urbanization	24	United States	social sciences, environmental science	1983	peak: 2016		neutral	Italy, Mexico, Portugal, Canada

Majority of the terms are first used in the journals in United States while urban sprawl is used in United Kingdom, peri-urbanization in France, urban age in Canada, and rurbanization in Italy. Urban expansion, land loss and farmland conversion are rural centered and predominantly used in environmental sciences while the rest is in social sciences. The countries where these terms are widespread today is also illustrative: urban expansion and farmland conversion are predominantly used in China, land consumption and diffuse urbanization in Italy, peri-urbanization in France, rurbanization in France and counterurbanization and planetary urbanization in United Kingdom. Counterurbanization and diffuse urbanization have lost their popularity while the rest have increasing popularity. Land loss and suburbanization became popular starting from 1970s, urban sprawl and urban expansion from 1990s.

Majority of the keywords defining the phenomena and the problems described in this part are not widespread in the Turkish context. The most widespread ones are kentsel saçılma (urban sprawl) used in the academic realm solely, similarly kentsel buyume (urban expansion) is also an academic term, and tarım alanlarının imara açılması (urban development on agricultural land) which is used in public policy making, media and the academic realm.

2.2.6 Terms Defining Planning and Conservation

There are plenty of terms for planning and conservation yet the ones only relevant for agricultural production and peripheral geographies are selected to be analyzed within this category.These terms used for planning and conservation are defined in the Appendix E and listed by their historical and geographical frequencies in the table[37] below.

Table 6 Histories, Geographies and Frequencies of the Terms for Planning and Conservation

term	scopus results (number of papers, books, etc.)	country or context of emergence (in peer-reviewed journals)	dominant fields utilizing term	time of emergence (in academia)	academic popularity interval	context of emergence	focus (urban-centered rural-centered)	used most in:
regional planning	35393	United Kingdom	engineering, environmental science, social sciences	1923	1972 onwards		neutral	China, United States, United Kingdom, Latvia
rural planning	2855	United Kingdom	social sciences, environmental science, earth and planetary sciences	1927	peaks: 1997, 2013		rural centered	United Kingdom, United States, China, Netherlands
metropolitan planning	878	United States, United Kingdom	social sciences, engineering	1948	peak: 2012		urban centered	United States, Australia, United Kingdom, Canada
agricultural planning	763	United States	environmental science, earth and planetary sciences, agricultural and biological sciences	1935	2004 onwards		rural centered	United States, China, Brazil, India
agricultural conservation	303	United States	environmental science, agricultural and biological sciences	1936	2003 onwards		rural centered	United States, China, Canada, Brazil
agricultural land preservation	58	United States	environmental science, agricultural and biological sciences, social sciences , economics	1976	peak: 1982		rural centered	United States
agropolitan approach	56	United Kingdom, Singapore	environmental science, earth and planetary sciences, social sciences	1978	peak: 2017		rural centered	Indonesia, Malesia, United States, Australia

Among these seven selected keywords regional planning, rural planning and agropolitan approach are all coined in United Kingdom, and the rest in United States. Regional planning is by far the most frequently used one as expected and agropolitan approach is the least. Rural planning and metropolitan planning are predominantly used in social sciences while regional planning in engineering and the rest in environmental sciences. Agricultural land preservation, metropolitan planning and rural planning are peaked in 1982, 2012 and 1997-2013. Regional planning is popular since 1970s while agricultural planning and agricultural conservation are popular since 2000s. Among these terms only metropolitan planning is urban centered, the rest is either neutral or rural centered. Agropolitan approach is interestingly widespread in Indonesia and Malesia while the rest is mostly popular in United States. Agricultural planning is also frequently used in Brazil and China, metropolitan planning in United States and Australia, rural planning in the United Kingdom, United States,

[37]Source: data is collected from www.scopus.com, September 2019.

China and the Netherlands, United Kingdom and China and regional planning in China, United States, United Kingdom and Latvia.

Bölge planlama (regional planning), tarım alanlarının korunması (preservation of agricultural land) and kırsal planlama (rural planning) are the three relevant planning and conservation terms in the Turkish context. They are predominantly used in the spatial planning realm.

2.3 Rent Theories at the Intersection of Production of Space and Agricultural Production

Land, as a means of production and as a location with all the geographic and other attributes, is essential for both production of space and agricultural production. Due to this dual nature of land, the notion of land whether it be urban or agricultural is tied to rent (Geray et.al., 1973). There are several theories of rent majority built upon each other cumulatively. Yet, the problem of rent was usually neglected in studies where even if it is relevant and the history of rent theories is rather a ruptured one in time "for understanding the category of rent is an understanding of several other theories, frustrated many unbiased approaches to rent theory" (Haila, 1990: 280). Yet, this adversity did not obstruct the inevitable needs for rent theories in some specific historic moments in connection with urgent social issues such as controversy over the corn duty at the beginning of 19th century or suburban boom in the USA in the 1960s-70s (Haila, 1990).

Rent, throughout this study, is used in the meaning of land rent and the land is understood as "pieces of land suitable for settlement and production anywhere on earth, subject to public, common or private ownership, and on which different types of uses can take place" (Ersoy, 2022). Rent as a social production relation, is the price paid for the usage of the land as the most fundamental of all natural resources and appropriated via primitive accumulation (Ersoy, 2022 citing J.S.Mill). Rent is internalized in capitalism even though it is a notion dates to pre-capitalist times of the human society (Ersoy, 2022).

Earlier rent theories mostly neglected the spatial dimension apart from location, spatial organization and the land use elements of the problem yet based on these theories, land use and urban land theories are developed (Geray et.al., 1973). Rent theories focused on agricultural land and there was no differentiation between urban and agricultural land in terms of rent and urban land was not an object of interest for rent theories at the time. Then, with urbanization boosted in a massive scale with industrial revolution and the capitalist mode of production, the focus had shifted to rent in production of space and on urban land plot. This shift is paralleled with the expansion of urban forms of cities over peripheral agricultural lands surrounding them and the economy shifting towards an urban economy.

In some moments in history, the subject becomes popular and studied, while in the rest, it is usually neglected. Haila (1990: 275) explains this discontinuity with the need: “the inception of these debates has always been closely connected with urban social issues”. In addition to that, according to Haila (1990: 275) one of the reasons that rent theories had not become an integral part of many relevant studies is “the theory of land rent seems to have been an article of faith, rather than a dynamic tool for empirical research, with the consequence that the savants have fallen into two camps: the true believers and the sceptics”. Yet, this does not change the importance of rent in understanding production of space and agricultural production or diminish the significance of the utilization of rent theories.

The earlier roots of rent theories can be found in mercantilist era and mercantilist thinkers. Sir William Petty, among the pioneers of the mercantilist school is the first to conduct research on rent (Ersoy, 2022). Petty introduced the notion of labor-time component in the exchange value of a commodity and the surplus value (Ersoy, 2022). According to Petty, rent is surplus as a whole (instead of being a part of it) that is the net income or surplus as the portion of agricultural activity in excess of production costs (Ersoy, 2022). Following this understanding, Petty searched for answers to the question of difference among different locations and listed closure to market, land fertility and implemented agricultural production techniques as answers to this question (Ersoy, 2022). Later on in the history of rent theories, Marx transformed these answers into differential rents.

The following line of thought problematizing rent is the physiocracy following the natural order (Ersoy, 2022). According to physiocracy agricultural production is the only productive and efficient sector in the society while agricultural labor is the only productive labor and also the source of the wealth of the society (Ersoy, 2022). The society is divided into three classes within physiocracy, and farmers are the productive class harvesting from land and sharing the net profit that they have generated with the landowners in the form of the rent (Ersoy, 2022). Rent is a form of surplus value produced by the labor of farmers, paid to landowners and emerges within the agricultural production relations (Ersoy, 2022). The significance of this analysis of rent lies in the source being the agicultural production instead of industry and finance for the surplus (Ersoy, 2022).

Adam Smith is among the core names for rent theories. Smith ties the number of workers in the manufactural production to the agricultural production supply and this essential relation is the reason to prioritize agricultural production against urban growth (Ersoy,2022). The rent originates from this necessity for agricultural production in order urban areas to grow and industry to flourish and with private property notion, this is paid to the landowners (Ersoy, 2022). Rent varies based not only the fertility of the land but also the location. The level of rent is a result of commodity prices and market prices are determined based on wages and

profit and this rent, as the price of land, is the maximum amount that a farmer/operator/worker can afford (Smith, 2007). Rent is regarded as a surplus value and a problem of distribution in Smith's approach, and it is a monopoly price for the limited resource of land and the price is set by the affordability for the user / farmer (Ersoy, 2022). Rent is also a surplus and the level of surplus based on the market prices determines the level of rent.

Malthus, while focusing on poverty and population, has also problematized rent in his studies. The rent is defined as "the portion remaining to the landlord after all expenditures on agricultural production, including the profit on capital employed" and the source of rent is not scarcity but the generosity of the nature (Ersoy, 2022). Rent is the result of high market prices of commodities and originates from the limited fertile land while it is not monopolistic according to Malthus (Ersoy, 2022). Increasing the supply of agricultural products as the necessities of life will create the problem of population growth and to prevent this and prevent poverty, the society should abstain from this (Ersoy, 2022).

In the early 19th century, David Ricardo, living in an agricultural society (Alonso, 1960) and with the corn duty controversies arising in the time of Napoleonic Wars (Haila, 1990) and under the impact of the era, produced the first consistent theory of rent. The two other traditions, Neoclassical rent theories and Marxist rent theories are cumulatively based on the Ricardian understanding of rent. Ricardo defines rent as "that portion of the produce of the earth, which is paid to the landlord for the use of the original and the indestructible powers of the soil" (1821: 39). The rent arises from the limited quantity and the differentiating in quality of land. Difference among those "original and indestructible powers of the soil" is the origin of rent.

The amount of land utilized for agricultural production tends to increase in time with the increase in the consumption due to population increase and the progress of the society. This expansion in the agricultural land results with the utilization of less fertile and less quality lands, and the price of the agricultural commodity produced is defined with reference to the least productive and the most marginal land. The difference between the costs in the marginal lands and more productive, primary lands is the rent (Ricardo, 1821). The degree of land (in terms of fertility and other relevant qualities of land increasing productivity) determines the amount of rent harvested from that piece of land. The main two assumptions of Ricardo are first land is scarce and second there is a progressive utilization of land from the best in quality to the worst. Market price determined by the worst, creates a surplus for the best and the better, in varying degrees depending on the degree of the quality of the land. The last land utilized, which also happens to be the worst, yields zero rent. The amount of rent that is harvested from each degree can be calculated mathematically in agricultural production and the market price (of the agricultural product – usually grains) can be correlated with the rent (of the land). For

Ricardo rent is a transfer payment from capitalists to landowners, and the amount of rent is an expression of power distribution among landowners and capitalists (Deak, 1985). The Ricardian theory of rent answered two questions: "How does (the substance of) rent emerge?" and "Who and what are its agents? ...Who receives rent?" (Haila, 1990: 276). For an application of the Ricardian rent theory in the Turkish case, please see Appendix F.

Two lines of thought are developed on rent based on the Ricardian understanding of land rent (Nakiboglu, 2006). Neoclassical rent theories and Marxist rent theories. The focus was purely agricultural production in Ricardo while the following two lines of theories' focus was shifted to urban land in time.

2.3.1 Neoclassical Rent Theories

Neoclassical rent theories are focused on the question of the emergence of rent, "How does rent emerge?" is at the heart of these theories (Haila, 1990: 277). This line of thought utilized the Von Thünen's theory of location. The focus of rent study is shifted from agricultural production to urban land/plot in recent neoclassical rent theories and von Thünen's theory of location is applied to urban land rent. Von Thünen's theory on rent dates back to early 19th century as in the case of Ricardo. The Isolated State, famous book by Von Thünen is not only central for neoclassical rent theories, but also significant and pioneer in settlement theories and urban and rural land use and rural economy theories.

The location theory of Von Thünen, who is a landowner and developed this theory based on data collection at the time is mostly neglected by economists while excessively followed by geographers (Clark, 1967). Spatial organization of agricultural production is at the heart of Von Thünen's theory on rent. Unlike Ricardo who is focusing on the differences of quality in terms of fertility in land and natural resources, Von Thünen focused on the accessibility as the element of differentiation and ignored the former (Deak, 1985). Similar to following neoclassical theories of rent, Von Thünen also ignored the question on the agents relevant for rent and focused solely on how rent emerges as a natural process (Deak, 1985; Haila, 1990). Von Thünen, suggested that "transport costs were the cause, and rents the consequence, of important differentiations of agricultural, dairy, and forest production, according to distance from the market." (Clark, 1967: 371). Not only with accessibility and transportation costs but also with the kind of production, rent differentiated according to Thünen, and as a landlord, he collected data for each kind of product he analyzed (see Von Thunen, 1827).

In "The Isolated State" Thunen studied rent on equally fertile agricultural land surrounding an isolated city (Geray et al., 1973). The city is assumed as monocentric while the element of water (a stream for instance) is also calculated separately (a linear centered model using the stream as a line of reference). Under these circumstances, the rent emerges from the

differences in the accessibility and transportation costs of each plot (Geray et al., 1973). The accessibility or transportation costs are determined by the distance of the agricultural land, the location of the agricultural production activity to the market, where those products are consumed. In an isolated state, Thunen assumed a central market, city, surrounded by different agricultural land use circles based on rent, market price of the commodity produced, the type of product and the required amount of land for production. The rural land use, the patterns and types of agricultural production surrounding the city is determined by the transportation cost flexibilities of the products according to Von Thünen and it is a sort of competition between these land uses. "Not only the cost, but also the delays of horse transport, made it obligatory that perishable products—milk and fresh vegetables—should be produced in the immediate neighbourhood of the town—on this very highly manured and very highly rented land" for instance and wood for both energy production and building in the cities is also no exception in terms of the need for lower transportation costs (Clark, 1967: 371-372). This spatiality of Von Thünen's thinking and replacing natural resources and fertility of land with location and accessibility were the reasons why he was excessively followed by geographers rather than economists.

The Thünen rings surrounding the city illustrating the rural land use and rent levels are formed with reference to distance from the city and the rural land use and rent are determined together with reference to distance (Geray et al., 1973). In a landlock environment without water transportation, between the core, the central city and the unoccupied wilderness, there are four Thünen rings surrounding one another. From the core to the periphery, these are: first, dairy, fresh vegetables, and market production (intensive farming of perishable foods), second, forest for fuel and building, third, grains and extensive field crops and fourth ranching and animal products (which needs and utilizes larger units of land). The rent yielded from the land by the landowner decreases from the closest, the first to the most distant, the fourth. Ranches are the last ring where agricultural production takes place, further than that is not economically suitable for agricultural production due to transportation costs in a single-centered isolated city. This spatiality of von Thünen's understanding of rent enabled followers of this line to utilize the theory in an urban setting. For a further elaboration of rent in Von Thünen's work and the bid function, please see Appendix G.

Henry George following Ricardo and Adam Smith, defines rent as payments for the use of land excluding buildings or other improvements (George, 1879). Unlike other neoclassical rent theorists, George dealt with both the emergence of rent and the economic role of rent in accumulation and in society (questions adapted from Haila, 1990). Similar to Marx, George claimed that the main condition of rent is private property and affected by socially-determined scarcity (Harvey, 1973). Wages, interests and rents exclude each other, and wages stands for

the reward for labor, interests stand for the return of capital and rents stands for the payments for land and the natural capabilities of land (George, 1879). George suggested a single tax on land while no tax on labor or capital, as a means for development and his way of thinking on tax still has repercussions (Nakiboglu, 2006).

At the end of 19th Century, Alfred Marshall while writing Principles of Economics addressed the issue of rent. He considered "the theory of the rent of land is no isolated economic doctrine, but merely one of the chief applications of a particular corollary from the general theory of demand and supply" (Marshall, 2013(1890): 523). He expanded the spectrum of rent theory to other land uses especially urban land uses and added the third dimension to the analysis, namely height (taller buildings on smaller high rent plots and shorter buildings on larger low rent plots) (Nakiboglu, 2006). Alonso (1960), one of the prominent writers in neoclassical rent theories, finds Marshall's remarks on land rent interesting but rather random.

With the increasing interest in urban land rent in United States of America at the beginning of the 20th Century, rent theories gained ground (Alonso, 1960). Haig, following von Thünen, utilized the bid rent function to urban land rent and suggested that rent and transport costs are a complementary sum, this sum is called friction of space and urban form is formed based on the minimization of this sum/friction (Geray et.al., 1973; Alonso, 1960).

Logan and Molotch's City as a Growth Machine Theory are among theories developed on neoclassical rent theories' assumptions and remarks. "Land [is a] market commodity providing wealth and power" and locality in urban settlements operates as a growth machine (Molotch, 1976: 310). "Competing land interests" are "capable of strategic coalition and action" and "any given parcel of land represents an interest, and that any given locality is thus an aggregate of land-based interests" (Molotch, 1976: 310). Population growth is an integral element of the growth machine in the urban sphere and with the decrease in population growth alongside expected power loss in the growth machine, the ruling class and the political system is also expected to be transformed (Molotch, 1976: 328-329). The transformation of urban land is among the drives of the national economic growth and city as a growth machine is where this growth takes place in this theory.

2.3.2 Land Rent in Human Ecology

Chicago School is among human ecology theories that focused on urban land rent. Burgess developed an urban settlement model with concentric circles based on the abstraction of the land use distribution of the American city and Hoyt updated this model with sector theory (Ersoy, 2022). In this approach, the city settlement is divided into concentric zones, sectors

are sprawling from the core to the periphery and the neighborhoods targeting upper classes with higher rent are located on the peripheral parts of the cities (Ersoy, 2022).

Hawley utilizing Haig's notion of spatial friction while explaining the distribution of land uses within the urban form and the highly accessible places by being more popular among all land uses will also be the ones with higher rent (Ersoy, 2022). Yet, the residential areas with higher rents due to higher accessibility from industrial and commercial parts of the urban form have the problem of neglection due to land speculation and expections of the land and flat owners (Ersoy, 2022). The urban poor are the captive dwellers of these neglected areas with high rent pressure while upper classes do not have such a problem (Ersoy, 2022).

Quinn states that the exchange value of the land in urban areas reflects the real value, the location and the speculative expectations of the landowner and the land value is tied to topographic features, construction costs, distance from the central functions and the existing spatial pattern (Ersoy, 2022). Location selection for classes and urban functions is a struggle and the medium of this stuggle is land rent according to Quinn (Ersoy, 2022).

Firey in accordance with Alonso, considers rent in relation with accessibility in a concentric framework and stated that rent declines from the core to the periphery of the urban form of the city yet the scale of the fall differs among different land uses (Ersoy, 2022). For Wingo, the key for developing an understanding of rent is transportation cost as a function of the distance, infrastructure costs, and time spent (Ersoy, 2022). Rent and transportation costs are complementary to each other, and their sum is fixed, and the size of the land is also a component for rent (Ersoy, 2022)

Alonso (1960), Mills (1967) and Muth (1969) worked on land rent and especially on the question how the rent emerges and later on their approaches are molded into a single approach and utilized in urban land use and pattern studies (Haila, 1990). Alonso did not divide the theories of rent among urban and rural, but rather aimed for a combined theory to analyze two ends on the same plain (Alonso, 1960). Following Ricardo and von Thünen, the assumptions of Alonso for agricultural land rent are as follows: "land uses determine land values, through competitive bidding among farmers [and] land values distribute land uses, according to their ability to pay" (Alonso, 1960: 152-153). for further elaboration of the land rent in this model, please see Appendix H.

Alonso-Muth-Mills model, in a combined fashion utilized in further calculations for rent, by several urban economists (e.g. Brueckner, 1987; Capozza and Helsley, 1989; Lai and Tsai, 2008) yet the qualities of variables; the distance, the size of plot, the height of building if existent, the land use, produced and consumed goods' market prices, income and commuting costs made it hard to produce a simple and single formula to calculate rent. Calculating rent was significant for these studies because it determines the size of the city, majority of papers

concluded that a regulated market of land rent diminishes city size while unregulated rent ended with urban sprawl in varying degrees. These quantitative studies working on calculating rent and city-size based on rent, was severely complex due to partial nature of change[38] in each variable. These partialities required partial functions, which was the main obstacle beyond a single and simple formula. The mathematical complexity of the models resulted with a dead end in rent calculations under neoclassical approach even though the studies continued.

Following this tradition, Fujita worked on a unified theory of urban land use and city size (Fujita, 1999). He used bid rent function as a basis for his theory, yet unlike previous researchers he suggested that a dynamic framework rather than a static one is needed to capture the formation of rent (Nakiboglu, 2006). For Fujita, "land is a complex object endowed with dual characteristics"; both a commodity and a (immobile) location (Fujita, 1999: 3). As all neoclassical theories, the city is assumed as monocentric, the transportation system is radial and the plots are on a featureless plain (Fujita, 1999: 12). Accessibility (location), space (size and quality) and environmental amenities are the three basic factors that has to be balanced for a household (Nakiboglu, 2006).

2.3.3 Marxist Rent Theories

Marx analyzed the problem of rent more thoroughly than his contemporaries and contextualized it within its historical setting (Geray et.al., 1973). The theory of rent in Marx is constructed on the Ricardian theory of rent. Ricardo regarded rent as a antogonistic force against accumulation while Marx regarded landowners useless in the capitalist mode of production (Haila, 1990: 277). Marx accepted majority of Ricardo's explanations and assumptions on rent while named the Ricardian rent as differential rent I (DR1) and suggested that there is another differential rent which is differential rent 2 and these two "serve simultaneously as limits for one another", "while the first is the basis of the second" (Marx, 2010: 543). The fundamental difference of Marx from Ricardo was "for Marx rent is a historical rather than a natural form" (Deak, 1985: 44). Based on this foundation, while studying rent, Marx focused on answering all three relevant questions for rent: "How does the substance of rent emerge?"; "Who or what are its agents? What are their behavioral patterns and mutual social relations?" and What is the economic role of rent? What is its role in accumulation and coordination?" (Haila, 1990: 276).

[38]The partial nature stands for the change in the variable and its impact on other variables. They are not changing in a linear fashion. After reaching an optimum level, the direction of impact changes (such as first positive, then optimum, then negative).

Marx defined rent in a twofold fashion, it is both a payment for the use of land and "a specific historical social institution […] which regulates the relation between landowner and capitalist/producer" (Jager, 2003: 235). There are four types of rent in Marxist Theory of rent; these are differential rent I, differential rent II, absolute rent and monopoly rent. These four categories of rent are not complementarily form a total rent but rather they are "processes related to production on land, which may give rise to rent, according to the prevailing relations of production and the corresponding development of production itself' (Deak, 1985: 45) not even DR I and DR II are regarded as separate and additive in Marx (Harvey, 1985: 95).

Differential rent I, following the explanation of Ricardo, is based on natural fertility of land but it is "neither original nor indestructible" Deak, 1985: 47). Yet, it is modified by Marx in three aspects: firstly, it is not only fertility but also location and their interactions which creates trade-offs between those two creates DR I; secondly, both fertility and location is described socially and subject to change in time directly or indirectly; thirdly, this is the emergence of differential rent under normal conditions of flow of capital which is also subject to change (Harvey, 1985: 94). This change in the capital flow into the land is the reason of differential rent II (DR II) (Harvey, 1985: 94). These two types of differential rent are also named as intensive and extensive differential rent (Jager, 2003).

"All land with the exception of the worst yields rent and this rent … increases with the quantity of capital and corresponding intensity of cultivation" explains Marx, on differential rent I and adds that the change on the quantity of capital and intensity of cultivation is the origin of differential rent II (Marx, 2010; 496). In other words, DR II is a matter of scale. In DR I the capital invested in (equal size of) plots was regarded as same, while in DR II, it is the change in the amount of capital invested in land is what generates rent. On DR II Marx wrote (2010: 508-509): "It is not necessary … that the investment of capital [increase] be [in same ratio] in all soils … The law is the same so long as additional capital is invested in one, or several, of the rent-bearing soils, no matter in what proportion. It is only necessary that production should increase upon every soil in the same ratio as the capital. The rent increases here merely in consequence of an increased investment of capital in the soil, and in proportion to this increase. …But this is the law: The rent increases absolutely upon all these soils, even if not in proportion to the additional capital invested."

The DR II understanding of Marx is illustrative for the speculation and development pressure in the land market for both urban and rural land uses as well. Here is why: "the price of uncultivated land of varying quality (merely assuming differential rent to exist) is determined by the price of the cultivated plots of land of the same quality and equivalent location. The price is the same – after deducting the cost of bringing the new land into cultivation – even though this land does not yield any rent. The price of the land is, indeed,

nothing but the capitalised rent" (Marx, 2010: 496). The price of cultivated (for rural) and developed (for urban) land determines the price of uncultivated and undeveloped land, and the market pressure and speculation feeds from this deterministic relation.

The third category, monopoly rent (MR) mentioned only once in Capital Volume III and Marx did not consider it as a separate category, but rather an indirect part of surplus-value (Marx, 2010: 601). Monopoly originates from the monopoly of the owner over the product and hence it is an indirect form of rent included in the surplus-value (Evans, 1999). It is the inelasticity of the demand curve for the product which creates the monopoly rent element of the surplus-value. To put in a nutshell, for Marx, the only normal forms of rent were absolute and differential rents (Marx, 2010; Daek, 1985).

The fourth category, absolute rent (AR) is directly related with the core element of capitalist mode of production: existence of private property. This form of rent arises from the naturally limited supply of land which is divided and appropriated by private property which is a form of monopoly itself (Geray et.al., 1973). Land itself is a commodity limited by nature and this commodification and the limits are the origins of absolute rent and even the least fertile, marginal land, unable to produce differential rent acquires an absolute rent. Absolute rent, by definition, problematizing private property and the monopoly of landlords as a class, is existent only within the framework of Marxist economy (Fine, 1982).

"[L]and must be treated as a pure financial asset and that land has to become a form of 'fictitious capital' [where] 'fictitious capital' amounts to a property right over some future revenue" and this commodification and financialization of land, privately owned, is the source of absolute rent (Harvey, 1985: 95) while the essence of absolute rent for Marx is this: "Given the same rate of surplus-value, or degree of labour exploitation, equally large capitals in various spheres of production produce different amounts of surplus-value, in accordance with their varying average composition" (Marx, 2010: 563). Rent is a secondary form of exploitation for worker class for both Marx and Engels, "the rent extracted from the worker can affect the value of labor power and so diminish surplus value to the capitalist" and hence the problem of housing (which originates from the question of rent) cannot be solved without problematizing wages question (Harvey, 1985: 101).

The majority of rent studies and implementations following Marxist tradition were produced in socialist and communist countries, especially Union of Soviet Socialist Republics (until the collapse of socialism in this country) and China (Geray et.al., 1973). The implications of Marxist Theory of Rent with its quality and quantity aspects were flourished in these countries while advanced capitalist countries and the academic realm and implementations in these countries partially remained blind to this theory under the dominance of neoclassical economy and neoclassical urban economy in universities and public policy.

Until 1992, in Soviet Russia, ground rent theory of Marx (with its implications in agricultural production under capitalism had been thought in universities (Brue and MacPhee, 1995). The problem in Soviet studies of rent and urban economics are behind a language barrier, most English documents on the issue were produced by anti-socialist and anti-communist American economy schools and hence it is hard to learn the content of these studies and the ideological discontinuity in government resulted with a clean slate over these studies. A similar language barrier applies to China as well yet in recent years with the massive increase of Chinese researchers writing in English, and with the help of the ideological continuity in the government, unlike Russia, there are more documents can be found on China on Marxist rent theories. Following the establishment of the Republic of China, the land was expropriated, private property is terminated and transformed into socialist land public ownership; the problem of ground rent is regarded as a problem of capitalism and private property, and hence neglected (Zhu, 2017). "Marx pointed out that similarly, the elimination of private ownership of land does not require the elimination of rent, but requires turning the rent to society, thus, the labors actually occupy all labor tools without excluding the preservation of leasing and rent. It is clear that the socialist society abolishes the land private ownership, but the land public ownership still exists, so the economic realization form of land public ownership is still rent" (Zhu, 2017: 37). There are two forms of land ownership in China, collectively owned (by farmers – rural areas) and state-owned (urban areas) and state also owns the land use change generated rent. Within this framework, the majority recent studies in China on land rent are quantitative and working on the calculations of rent and rent as a factor in urban growth, urban sprawl on outer peripheries and urban renewal in inner cities (e.g. Wu et.al., 2012 Regional Science and Urban Economics, Jiang et.al., 2012, Landscape and Urban Planning; Song et.al., 2017, Acta Geographica Sinica; Guo et.al., 2017, Cities; Wu et.al., 2019, Computer Environment and Urban Systems).

Even though neoclassical theories of rent are dominant in western urban economy research and policy, still, some figures following the Marxist tradition were emerged in Europe and even in United States of America alongside Latin American Countries and other countries from other continents. Their number is low yet they are widely known since the academia of advanced countries and English using countries are more visible than the rest. David Harvey, still productive within the same ideological frame, is one of the prominent writers in this realm. He mainly focused on urban land rent rather than agricultural land rent. Three types of space defined by Harvey (1973) under capitalist mode of production, absolute space, relative space and relational space are defined in relation with rent and private property in an urban setting. Ownership is the reason for both absolute space and absolute rent while relational space is the basis of differential rent and relative space illustrates the location of land (Nakiboglu, 2006).

Neoclassical rent theorists connect rent to the one aspect of space which is relative space (location) while Harvey connects rent with all three aspects of space namely absolute, relative and relational and more importantly he reversed the relationship between land use and rent and claimed that rent can determine land use instead of land use determining land value (Haila, 1990). Harvey's aim was to construct "a theory of organization of space in contemporary capitalism" and considered it a must to construct a consistent theory of rent within the structure of theory of value (Deak, 1985: 60). For Harvey, unlike Marx, "under transitional conditions, landlords can play a direct and active role in the exploitation of labor" (Harvey, 1985: 104).

Lipietz (1985), Ball (1976), Fine (1979), Barnes (1984), Evans (1999) are some names who worked on Marxist Theory of Rent. Neil Smith (1979) utilized Marxist theory of rent to gentrification in the inner cities and suggested that "gentrification is an expected product of the relatively unhampered operation of the land and housing markets" (Smith, 1979: 538). He defined ground rent in relation with land use (existing and proposed) under two forms: capitalized ground rent and potential ground rent (Smith, 1979: 543). With a change (or a speculation or pressure of change) of a land use, the difference between the capitalized ground rent and potential ground rent increases and this difference which is the cause of urban renewal and gentrification is called rent gap (Smith, 1979). As Smith (1979: 545) puts forward: rent gap is the "the disparity between the potential ground rent level and the actual ground rent capitalized under the present land use" and it is the mechanism underlying gentrification. Rent-Gap theory of Neil Smith is one of the most developed implementations of Marxist agricultural theory of rent to urban land market.

One of the recent studies on Marxist land rent theory is produced by Jager (2003). He stated that "land rent theory does not have one coherent and widely accepted theoretical corpus, but consists of a variety of different conceptualizations, even of its central categories" (2003: 234) and he worked on structuring a typology for Marxist rent studies. He worked on combining the nomothetic and ideographic[39] approaches to rent to form an integrated theory of rent "which is able to coherently treat the connection between urban space and the process of accumulation" (Jager, 2003: 237). Furthermore, land rent theory should overcome the perception of space as solely a distance and must find ways to allocate space with all its attributes in the urban analysis by accepting the Lefevbrian understanding of produced space and the dialectics. For including the land related institutions in the urban analysis of land rent, he utilized regulation theory. He omitted absolute rent in his urban analysis, especially on the

[39]diographic: "denies the possibility of a general theory of rent, advocating instead the analysis of concrete situations" and nomothetic: "searching for general, [universal] laws" (Haila, 1990: 275). Furthermore, ideographic line neglects the role of the rent in production and limits its role to distribution while nomothetic one considers rent as a financial asset (Nakiboglu, 2006).

land speculation on the periphery and focused on other forms of Marxist rent. Monopoly rent can be used for understanding the social divide in urban space, extensive differential rent (DR I in Marxist theory of rent), can be utilized to understand the economic divide in urban space and urban expansion, and intensive differential rent (DR II) can be utilized to understand the intensification of existing urban fabric, increasing building heights, urban renewal and land use changes in urban core. The fundamental condition for rent to be utilized in urban analysis is to contextualize it in its institutional embedding, and for this contextualization, regulation theory is used.

Even though under formation, the most recent usage of marxist understanding of land rent is in the degrowth approach. Degrowth is defined as "a type of postgrowth [...] for downscaling and transforming societies beyond capitalist growth and non-capitalist productivism" (Nelson & Schneider, 2019). Rent is problematized as a growth force within the degrowth approach (Siemoneit, 2014) and land rent is problematized within the context of the housing question (Nelson & Schneider, 2019).

2.3.4 From Urban to Rural: Land Rent on the Edge

In Ricardo, agricultural production is in the focus for the theory of rent. Neither urban space not the production of was a question of interest for Ricardo and majority of his contemporaries. With Von Thünen, with the addition of distance in the equation for rent, the theory of rent has become more suitable for an urban analysis.

Neoclassical rent theories focused on urban land rent and agricultural production is excluded from the analysis in time. The approach to production of space was not critical but rather descriptive. Instead of what should be in terms of urban growth and development, it is rather what happens naturally in a capitalist city. The main focus was to calculate rent, rent-dependent urban growth, land use formations, settlement hierarchies and predicting urban growth. Hence, these theories, even though not superficially visible and observable, are the underlying mechanisms in neoclassical urban development and growth models. The dominance of neoclassic theorists in economy resulted with a dominance of neoclassic theorists in urban economy. Apart from George, Neoclassic rent theorists regarded rent as a given and accepted the existence of rent as natural/inevitable.

In both Neoclassical and Marxist theories of rent, the land use shift from agricultural production to production of space is a matter of rent. In the first one, rent is rather the reason, without social and historical context, but in the second one, it is an element of change determined socially and within the frame of political economy, within social and historical context. Whatever the approach is, rent is key to understand the transformation of agricultural production to production of space on land.

Marxist rent theories are studied within the frame of political economy unlike neoclassical urban economists. Marxist rent theory originally developed based on the relations in agricultural production yet successfully translated into urban realm and production of space which is a Marxist concept itself. Rent gap theory is among the most recent implication of Marxist theory of rent onto production of space and Harvey, also utilized the theory of rent with reference to theory of value in the analysis of circuits of capital and the production of space in the secondary circuit of capital. Degrowth approach is another promising approach for further problematizing land rent in urban growth. Yet, quantitative and qualitative utilization of Marxist rent theories in urban space and production of space has more way to go.

Total supply of land is limited/constant while the location is unique to each piece and fertility has no role in the determination of rent in the urban realm (Ersoy, 2022). Yet, interestingly enough, as can be observed in the field study chapters of this thesis, the agricultural land surrounding cities are usually highly fertile prime farmland due to historical-geography of urban settlements' location selections. Cities are old in countries like Turkey and water and agriculture were vital (and still vital) in old times. The expansion of urban form under the urban rent pressure stemming either from population growth, local interest groups speculation and expectations, municipalities' ambitions, gatekeepers political and economic gains, market pressure or some other reason is threatening the agricultural production not because the amount of the land it consumed but rather the quality and features of the agricultural land being consumed by the production of space. When I started this study, it was the amount of land that I have problematized, today, after all the research and observations, I've come to a conclusion that the quality of the land and more significantly the existence of water either be it naturally or infrastructurally is more problematic for agricultural production, nature and future. Existence of water and fertility coming from water creates differential rent I in agricultural production relations and for production of space, the existence of water is interestingly enough, seeming to be a preferred quality therefore creating differential rent. This problem will be elaborated further in the field study part of this thesis, in the case of Konya.

Agricultural land with high levels of accessibility which creates Differential Rent I is also a source of threat to agricultural production due to the proximity to the urban form and the rescaling in small scale settlements, the movement of population to larger settlements is not helping either. This is the reason why I have studied agricultural production together with settlement pattern and urban form for measuring the impact of the Metropolitan Municipality System and used rent as a signifier.

The transformation of agricultural land to urban plot is where two forms of rent, the agricultural land rent and the urban land rent clashes into each other on space and in time. This

process is illustrated in the case of Turkey by Geray et.al. (1973: 23). The increase in the land value (and hence land rent) from agricultural land to urban plot is illustrated in time. In the first time interval the land value depends on the costs and market value of the agricultural product produced on land, in the second phase the urban expansion filling the gap between the land and the city is the defining power of land value, on the third stage the land is annexed to municipal borders and development rights are given, hence land value increases more, on the fourth phase, infrastructure is provided, on the fifth phase development (in the form of construction) starts on neighbor parcels and on the last stage existing development plans are revised, land use changes and the intensity and height of development changes which in return yields more increase in land value and market price.

This "stages of land value change" chart[40] in Turkey is used as a framework in the further chapters of this study, for a developed version of this chart see part: 5.2.2.3 The Process: From Agricultural Land to Urban Plot.

Rent is at the heart of the land conversion in terms of function from agricultural to urban space production. Following Marx, rent is the unearned socially produced (unnatural) surplus by labor for the landowner via the existence of private proprety. The notion of rent was born within agricultural production relations yet with the urban revolution Lefevbre suggested it has become more of an urban problem. With production of space becoming the medium of accumulation in the economic structure in the planet, housing market becoming the main market of investment, commodification of housing and the severe financialization of housing, rent has become the center of the urban problem. As Harvey puts, the secondary circuit of capital is where the capital flows now and unlike the primary circuit of capital, this flow is not always productive in socio-economic terms.

[40]Source: Geray et.al., 1973: 23.

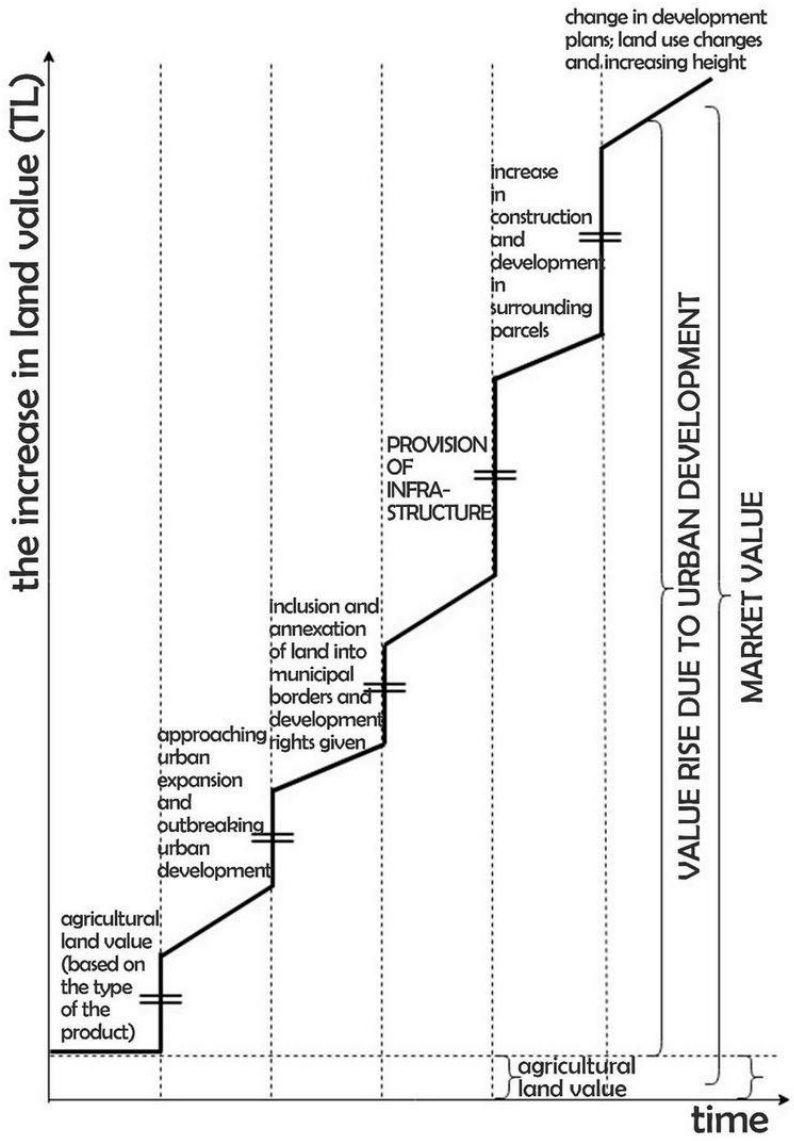

Figure 11 From Agriculture to Urban Space: A Rent Based Perspective

The discourse in Turkey names construction sector as a locomotive to the economy. The unproductive secondary circuit of capital has become a focus of interest in especially last 20 years and the Metropolitan Municipality System, transforming 30 largest provinces with core and semi-peripheral urban forms and massive rural peripheries into monolithic urban systems the rent pressure over the periphery has been massively increased. The areas, named as "reserve land" in 6306 Law[41] and subject to "limitless" urban growth with the authorities given to the Metropolitan Municipalities with 6360 Law[42] are under risk of uncontrolled but

[41]Law on Transformation of Areas at Disaster Risk

[42]Law on the Establishment of 14 New Metropolitan Municipalities... This law enlarges the extent of 5216 Metropolitan Municipality Law spatial-wise and authority-wise.

"planned" urban sprawl (see Yaşar, C.G., 2010) with development rights given. The unproductive nature of production of space especially in the form of endless residential areas comes from the problem of excess housing on the peripheral parts of metropolitan cities and this excess stems from the supply of housing divorced from the need, highly financialized, and used as investment in the Turkish context. Urban land rent is accumulated in local interest groups, and this is not always the agricultural landowner. A speculative market exists right in between these two different forms of landowners and plenty of transactions takes place in relatively short amount of time. Metropolitan municipality system favors the urban landowners against the agricultural landowners.

2.3.5 Theoretical Framework: Land Use and the Direction and the Drives of Rent

The theories and approaches analyzed within this literature review were on rent, land use, urban growth and the historical – geographical context of urban growth read through the names given to the spaces produced. These different theoretical realms boiled down into a rent-based land use conversion understanding for building up a framework for this study. The relation between land uses is defined in the form of rent and the land conversion among uses is described with drives of rent.

The land uses are grouped based on the production relations that they have with land, water, and natural resources. The groups are as follows:

- Core: Urban and Industrial land uses
- Semi-periphery: sprawled, low density, leapfrog patterned urban and industrial land uses
- Natural areas: Land, water, natural resources, and vegetation not used for any extractive purpose, not utilized by humans
- Fresh Water Resources: water bodies, catchment areas, ground water resources, all freshwater resources with their land and water
- Energy Production Spaces: all forms of energy production taking place in space
- Mining and Extractive Spaces: spaces where natural resources are extracted
- Harvested Forests and Plantations: Natural areas utilized by humans and used in an extractive fashion
- Meadows, pastures and grazes, the rural commons with non-extractive utilization
- Rural Settlements: Villages, small scale settlements
- Irrigated Agriculture
- Dry Agriculture

These eleven groups of land uses are illustrated in the graph below with reference to the rent-based relation among them. These rent-based relations are also grouped by drives. There are basically three drives, these are:

- expansion drive of rent
- utilization drive of rent
- dual drive of rent (rent originating from both expansion and utilization purposes)

These drives of rent between different land uses are illustrated with arrows pointing the direction of pressure. Expansion drive of rent signifies the rent and rent pressure originating from the expansion of the land use over another land use. This form of land conversion pressure in the form of rent pressure is illustrated with yellow arrows in the figure below. The utilization drive of rent is illustrated with dark purple arrows, and it means the rent pressure created not by expansion of the land use but rather the utilization of the resources for that land use. The major source of this form of rent pressure is core urban and industrial land uses. The energy production sites and mining sites far off cities are underutilization drive of rent instead of the expansion of urban land uses. The third drive of rent is a combination of these two above with both expansion and utilization purposes and it's illustrated with bright pink arrows. A good example of a dual drive of rent is the urban expansion to natural areas or freshwater resources. The freshwater resources are utilized by urban land uses and at the same time the urban expansion is a threat for fresh water resources spaces, hence both expansion and utilization.

Figure 12 Land Uses with the Direction and the Drives of Rent

The expansion, utilization and the dual drive of rent creates varying levels of pressures among different land uses. The pressure of rent is relative to the relation between different land uses. The land conversion in the form of expansion and extractive utilization of land are not happening “naturally”. The existence of enabling and even encouraging administrative structures and actors are the reason behind this transformation. One of the administrative

mechanisms, the Metropolitan Municipality System is what I have focused on within the framework of this study.

Figure 13 Hierarchy of Rent Pressure among Land Uses

Following the direction and drive of arrows, rent pressure in other words, the rent and rent pressure among land uses is sorted hierarchically. This hierarchical structure is like the food chain with hunters on the top and the hunts below. The core, urban and industrial land uses are on the summit of the pyramid as the prime hunters. Not only for economic reasons but also administrative reasons, after all the planet is ruled by the cities. It is followed by semi-peripheral land uses and extractive spaces. Irrigated agricultural production areas are right in the middle of this wild mess and layered below are freshwater resources, dry agricultural areas, harvested forests and plantations and rural settlements. The one on the bottom with all this pressure lies the natural areas and the meadows, pastures, and grazes. Similar to the effect of the gravity on a pyramid, this rent chain of land uses illustrates higher pressure of rent with lessening resistance power of a land use.

With a focus on semi-peripheral areas, the part selected for a further analysis within this structure of land use – rent scheme is the semi-periphery, irrigated agriculture, dry agriculture, meadows, pastures and grazes, freshwater resources and rural settlements cells of the honeycomb graph above. The impacts of the Metropolitan Municipality System (MMS) over the production of space and agricultural production will be measured within these geographies in the case of Konya with a reference to land use and rent framework produced here. The selected parts and relations are illustrated in color in the figure below.

Figure 14 Selected Land Uses with the Direction and the Drives of Rent

CHAPTER 3

LAND USE POLICY IN FOUR COUNTRIES: CHINA, THE UNITED STATES, THE NETHERLANDS AND TURKEY

"concilia incertum est, urbesne invisere,
Caesar,
terrarumque velis curam"[43]

Settlement patterns, widespread urban forms and spaces of agricultural production for four countries are analyzed in this chapter. Following this analysis, how agricultural areas are conserved with planning implementation tools if existent within the contexts of that country is clarified. The three cases selected are United States, the Netherlands and China, and in comparison, with these three countries, settlement patterns, urban forms and spaces of agricultural production in Turkey are also analyzed. These three cases are selected from the G20 – 20 largest economies in the world and depending on the tension between agricultural production and production of space. G20 Countries are the ones both the quarterback for the planetary agricultural market and the responsible of climate crisis with around 80% of greenhouse gas emissions.

The significance of the Netherlands comes from the significantly limited supply of land, forcing government and local governments to apply severe measures to control urban growth, forcing agricultural producers to develop more intensive ways of, and encouraging technological innovations in agricultural production. In addition to this, despite the scale of the country, the Netherlands is the second largest food exporter worldwide following United States[44]. The Netherlands, with Britain is among the countries where capitalist mode of production first evolved. As a European country the Netherlands is a part of Common Agricultural Policy Program and is a good case to measure the impacts of the program.

[43]Vergilius, Georgica. *kentlerimizi mi gözetirsin artık, ey Sezar, topraklarımıza mı bakmak istersin (2015, Alfa Yayınları) / *Whether to watch o'er cities be thy will, Great Caesar, and to take the earth in charge (2008, Gutenberg Ebook).

[44]https://www.investopedia.com/articles/investing/100615/4-countries-produce-most-food.asp accessed May, 2019.

China with her vast population and land, is the biggest producer, importer and consumer of agricultural production. Average population growth is not that high (0,26%; World Fact Book, 2021) yet, in metropolitan areas and urban areas, the population is increasing rapidly, hence there is a strong demand for production of urban space as well. This increases the tension of land use between production of space and agricultural production. China, in terms of dominant, governing ideology, is different from the other two by being a communist state with state capitalism.

United States, the last case, has the second largest stock of arable land following India, and despite the population employed in agricultural production is low, it is the largest food exporter dominating the food export market globally, and has one of the most efficient and productive agricultural production worldwide[45]. The form of urban growth is predominantly urban sprawl in United States which is among the more captive to automobile and hence the area consumed by urban land uses is vast.

To contextualize the three cases and illustrate the position of Turkey in terms of agricultural production and production of space with reference to these three, I will start with a summary comparison table of these four countries. Demographics, agricultural production, and urbanization will be three foci of interest for this part. Then, for each country, I will continue with the public administration and local government structure and the spatial planning system. Development approach of the country especially the development discourses' view of agricultural production and the balance between development and conservation will be summarized in the following part. Within this framework, I will profile each country one by one starting with the tools for planning utilized with reference to their understanding of development, the local-central balance in policy making and urban policy. Secondly, I will put forward the tools for conservation for agricultural lands in these countries and in the last part I will be comparing the settlement patterns, agricultural production patterns and urban forms of these countries. Settlement patterns differ depending on the scale, I will start with a summary in national scale and then select some types of settlement patterns from all over the countries. Urban form, the morphology of settlements is hard to grab in national scale, therefore, for each country, I have focused on the capital cities since the capital cities tend to be relatively more planned, and more state capital is embedded in the capital lands. The same problem, the problem of scale applies to agricultural spatial patterns as well and hence, I will be working on some selected patterns from all over the three countries representing different parts and types in the country in the same scale for comparison purposes.

[45]https://www.investopedia.com/articles/investing/100615/4-countries-produce-most-food.asp accessed May, 2019.

3.1 Contextual Comparison of China, USA, The Netherlands and Turkey

The history of land use change in the whole planet is rather an informative one. Since all the researchers, we are, looking from the urban areas, it seems to be massively urbanized with large urban areas and urban production relations dominating the geography. The latter seems to be case while the former is questionable. If the time interval is extended to whole human civilization history, the most significant change visible becomes the growth of cropland and pastures both utilized for agricultural purposes (Ellis, et al, 2020). We categorize these two land uses rural yet this massive increase stems from the population growth in planetary scale and this population agglomerates in urban areas. In other words, the rural production relations mostly exists due to urban production relations. The history of urbanization is also the history of agriculture in terms of land use conversion.

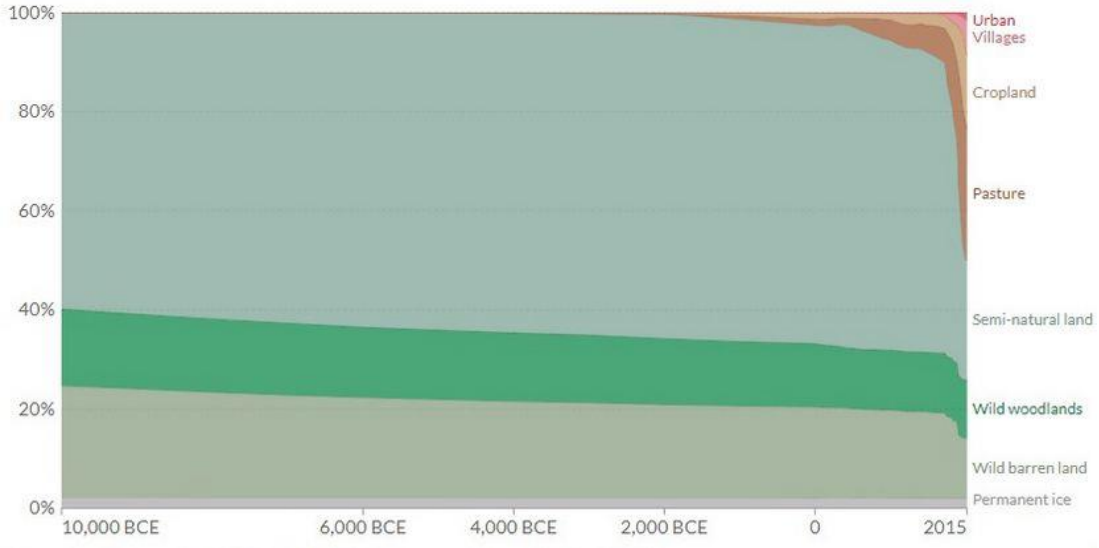

Figure 15 Global Land Use since 10,000 BCE

The figure above illustrates the change of land use in planetary scale and the largest land use covering earth is pasture by 26,47% in 2015 and 40,8% of all land use on earth was consisting of pasture, cropland (14,7%), urban areas (1,6%) and villages (7,1%)[46]. In other words, the planet is urbanizing but not via production of urban space but rather the expansion of agricultural production areas (pastures and cropland) to feed and energize the cities covering a small portion of earth.

The three selected cases, China, the United States of America and the Netherlands from three different continents and contexts, have similarities and differences at the same time.

[46] https://ourworldindata.org/land-use#how-the-world-s-land-is-used-total-area-sizes-by-type-of-use-cover accessed in April 2022.

In the table below[47], some selected indicators of agricultural production, population and production of urban space are summarized. Turkey is also added to the table to contextualize the Turkish case.

Table 7 Context of Production Summary in China, USA, The Netherlands, and Turkey

	Population (2021)	areas sq km	GDP per capita $	urbanized area sq km	rate of urbanization (2020-2025 estimate)	Population Growth Rate (2021)
China	1397897720	9596960	16400	380679	1.78	0.26
United States	334998398	9833517	59500	802054	0.96	0.7
The Netherlands	17337403	41543	54200	12803	0.59	0.37
Turkey	82482383	783562	28400	44090	1.11	0.7

	Agricultural self-sustain ratio the adequacy of food callories produced with reference to the need of the population) %	arable land percentage in total area	pasture percentage %	irrigated land (sq km)	agricultural area percentage % (2018 estimate)	total renewable water resources (billion cubic meters - 2017)
China	131	11.3	41.7	690070	54.7	2840
United States	147	16.8	26.8	264000	44.5	3069
The Netherlands	125	29.8	21.24	4860	55.1	91
Turkey	158	26.7	18.99	52150	49.7	211.6

	agricultural GDP percentage (2017 est)	construction GDP percentage	rural population percentage %	employed in agriculture %	employed in construction %	total agricultural water withdrawal (million cubic meters)
China	7.9	7	36.4	27.7	5.7	385200
United States	0.9	3.3	16.9	0.7	4.3	176200
The Netherlands	1.6	4.4	7.1	1.2	5.2	76.5
Turkey	6.8	9.7	23	18.4	7.5	50050

China is the largest country in the world in terms of population, United States with around 335 million, is among largest, while the Netherlands with 17 million is among smallest. With 81 million, Turkey is among relatively larger countries (CIA, 2022). All four have slowly increasing populations. The percentage of rural population is highest in China with 36.4% where Turkey follows with 23%. United States has 16.9% rural population while the Netherlands has the lowest with 7.1% (CIA, 2022). In terms of land China is largest among these four while United States is following just behind. Turkey has a land area equal to 8.4% of US while Netherlands has an area equal to 4.4% of Turkey (CIA, 2018). Even though the land area of China is slightly larger than US, the urbanized area of US is more than twice of China's (CIA, 2018). More than one thirds of the Netherlands is urbanized which is the largest ratio among these four and among largest worldwide. The Netherlands has an area large as only 4.4% of Turkey yet the urbanized area of Turkey is only three times large with reference to urbanized area of the Netherlands (CIA, 2018). The agricultural area percentage is highest

[47]Sources: CIA World Factbook (2012-2021), World Food and Agriculture Statistical Pocketbook, 2018; TURKSTAT, Worldbank agricultural indicators, UNECE, Intes, European Commission Report on Construction, Trading Economics, Investopedia, US Bureau of Labor Statistics, EUSME Construction Sector Report for China, United Nations – Food and Agriculture Organization, Statista, 2017-2021, Our World In Data, 2022.

in the Netherlands with 55.1% (CIA, 2018). It is followed by China with 54.7% (CIA, 2018). Turkey has 59.7% of agricultural land while the lowest is US with 44.5% (CIA, 2018).. Turkey has a fluctuating amount of agricultural land percentage while US and the Netherlands have decreasing, and China has increasing amount of agricultural land (with a decreasing pace) (CIA, 2018). In terms of irrigated land China has twice the size US has (CIA, 2018).

China has the lowest GDP per capita followed by Turkey (CIA, 2021). US is among the highest while Netherlands is also high (CIA, 2021). In terms of GDP from construction Turkey has the largest percentage with 9.7% (UNECE, 2018). China follows Turkey with 7% GDP from construction (Investopedia, 2018). US is the lowest with 3.3% while Netherlands also has a relatively low percentage of 4.4% (Trading Economics, 2018; UNECE, 2018). In GDP from agricultural production on the other hand, China has the highest percentage with 7.9% (Investopedia, 2018). Turkey follows China with 6.8% (Investopedia, 2018). US has the lowest percentage of GDP from agricultural production with 0.9% and the Netherlands also has a relatively lower percentage with 1.6% (Investopedia, 2018). Among these four countries, China has the largest percentage of employment in agricultural production sector with 27.7% (FAO, 2021). Turkey with 18.4% follows China while the Netherlands with 1.2% and US with 0.7% are significantly lower (FAO, 2021). The employment percentages in construction is also parallel; this time, Turkey is in the first rank with 7.5% while China is second with 5.7% (TURKSTAT, 2018; INTES, 2018; EUSME, 2015). With 5.2% Netherlands follows and US with 4.3% has the lowest percentage of construction employment among these four (EU-Commission, 2018; US-BLS, 2018).

The core sector in agricultural production is food production and FAO calculates each countries' self-sustainability and agricultural adequacy in terms of calorie production per person. According to FAO all four countries are producing adequate amounts of calories per person. In this indicator, Turkey has the highest percentage with 158% which means the calories produced in agricultural production in Turkey is more than enough to feed her population (FAO, 2018). Second country is US with 147% and is followed by China with 131%. The Netherlands produces the lowest with 125% yet still more than adequate amount (FAO, 2018). The last contextual element, which is significant both for agricultural production and production of urban space, is the water problem. All four countries have decreasing trends in water amount (Worldbank, 2018). US and Turkey have faster pace in decrease while in China and the Netherlands have slower paces (Worldbank, 2018). In terms of total renewable water resources per capita (m3) China has the lowest with 1979 m3. Turkey follows with 2661 m3 while the Netherlands has 5357 m3 (Worldbank, 2018). US has the largest amount per capita with 9526 m3 (Worldbank, 2018).

3.2 China

3.2.1 Land Use Policy: Settlement Patterns, Urban Forms and Spaces of Agricultural Production

In National scale, the population of China is concentrated on the South-Eastern and Eastern coastal parts of the country and the settlement patterns here are denser while in western and northern parts, the population and settlements are highly dispersed. The distribution of all settlements, the villages (around 1 million; one third of whole villages in the world) (Facts and Details, 2019), the small and medium sized cities (388 with a population between 10.000 and 100.000 and 360 100.000 to 1 million) (World Population Review, 2019) and the metropolitan cities with a population over 1 million (there are 65 of them) (World Population Review, 2019) due to sheer number of settlement points, is hard to illustrate on a map hence, as a representative illustration the population per square kilometer (density) will be used[48].

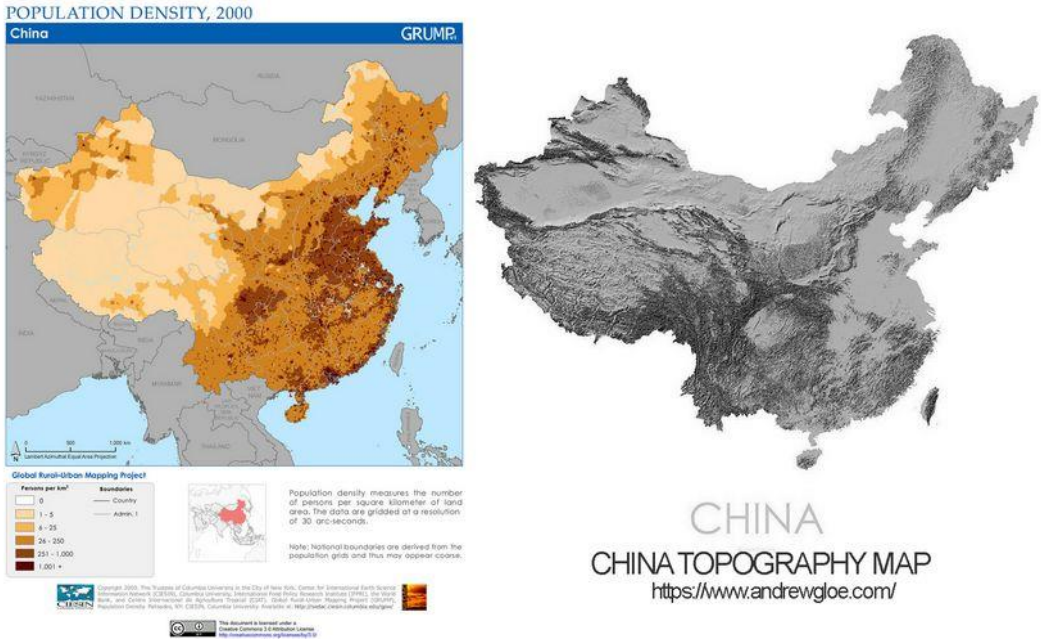

Figure 16 Population Density Distribution and the Topography of China

The geographies where settlements are concentrated have relatively lower temperatures, more precipitation, less slope and the concentration of settlements and population on the eastern coast, the coastal line on the ocean is significantly higher. The topographic threshold in the western part of the country is highly visible on the map. Chinese

[48]Source: CIESIN, 2009 retrieved May 2019 from https://sedac.ciesin.columbia.edu/data/collection/grumpv1/maps/gallery/search?facets=region:asia&facets=theme:population and https://www.andrewgloe.com/ accessed on April 2022.

cities' locations are old, there are settlements around 8000 years old and these settlements are located near rivers (on basins) and the ocean coasts (Revi and De Vries, 2002: 301-303), and these are the locations where population is concentrated today as well. China is among the countries with highest rate and probability of **urban expansion** in global scale; together with India, nearly 25% of all urban expansion expected in the whole world takes place in China (Seto et al., 2012: 16083). There is an expected coastal massive conurbation of 1800 kilometers from Hangzhou to Shenyang by the year 2030 following this urban expansion (Seto et al., 2012: 16083).

Chinese cities are growing, the urban population is increasing in time and since the rural population is amongst the highest worldwide, the need for new space for urban land uses is one of the most problematic issues in China. For the last four thousand years, the framework of plans implemented to majority of Chinese cities remained stable and this Chinese imperial planning's trails are still visible in urban and rural geographies in majority of China, especially in the eastern part of the country on the fertile basins (Steinhardt, 1999: 1-2). The basic form utilized in this framework is grid, and the grid pattern was utilized in urban fabric, rural settlements' distributions, agricultural fields' partitions, and in rural settlements. Rural areas were divided into compartments where each compartment had a walled city to secure the agricultural products collected in the center of these walled settlements and surrounded by agricultural fields where production takes place with flood control alongside irrigation system and canals (Trewartha, 1952: 70). The enhanced grid pattern created "a cellular structure of economy and society became established in which each cell consisted of a walled "city in the country" and its tributary agricultural area" ((Trewartha, 1952: 70). This pattern is still visible in the geography of China as seen below[49].

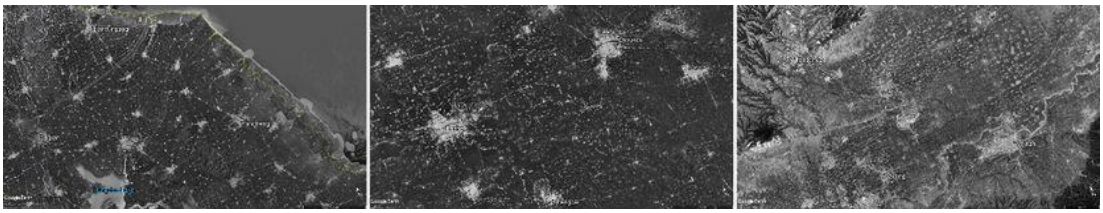

Figure 17 Chinese Settlement Patterns - The Imperial Grid

From the coastline settlements, inner basin settlements and higher elevation basin settlements these patterns repeat itself in majority of China where the population is concentrated. Hence the form of urban sprawl in these areas, even though following the cell system of the grid, illustrates signs of leapfrog development alongside ribbon development on

[49]Source: Google Earth, 2018, retrieved May 2019 from Google Earth Pro.

the major transportation network. The "walled cities in the country" provided commercial, administrative, military and religious functions, and fertilizers for "unwalled farm villages" surrounding them (Trewartha, 1952: 71). The specialization within this cell system resulted with long-range intercellular trade in ancient times and hence the settlements are near each other within a continuous network especially in basins (Trewartha, 1952: 70-71). These basins are now facing urban sprawl and these cell-node villages create a unique phenomenon in urbanization (Al, 2014). Due to this grid division of urban and rural lands in a continuum, "the rapid urbanization that has resulted from land reform, the dual urban and rural land ownership and management system, and the large influx of an underprivileged migrant population" first the agricultural land surrounding and sustaining these villages are developed with urban expansion and then with agricultural employment becoming extinct for villagers, these villages which are not regulated as their urban counterparts, uncontrollably developed with high densities, lacking infrastructure, "hand-shake houses" and these "villages in the cities" are absorbed and produced problematic areas (Al, 2014: 1).

The geographies with higher slopes on higher elevations have different forms; similar to settlements in other countries sharing same geographical features, they tend to be linear, more compact due to topographic thresholds limiting them and the form of urban sprawl is more of a ribbon[50].

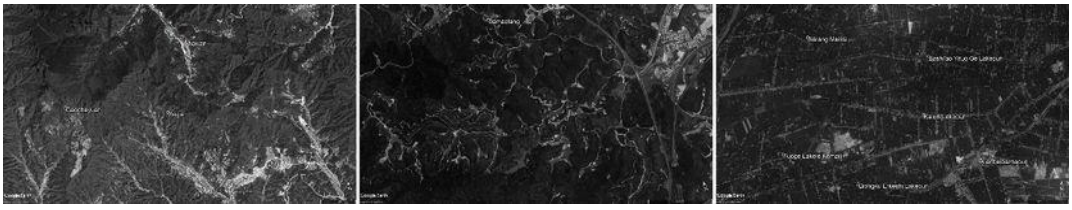

Figure 18 Chinese Settlement Patterns - Highlands and Western-Inner Lands

The first two settlement patterns are from higher slopes in the middle of the country while the last one is from the westernmost region which is dramatically different from the rest of the geography and following more of a ribbon development on a grid system instead of well-defined cell-nodes. The first two, linear, compact and/or ribbon-sprawled ones are like the settlements in the northern part of Turkey, the Black Sea Regions.

For understanding the Chinese **urban form**, Beijing, the capital city has been chosen. The city of Beijing, over 3000 years old, and with over 20 million of population has been facing severe sprawl especially after 2000s. The majority of urban growth has taken place after

[50] Source: Google Earth, 2018, accessed May 2019.

1990s and the city size expanded dramatically (the light-yellow color illustrating after-1990 growth in the first map below)[51].

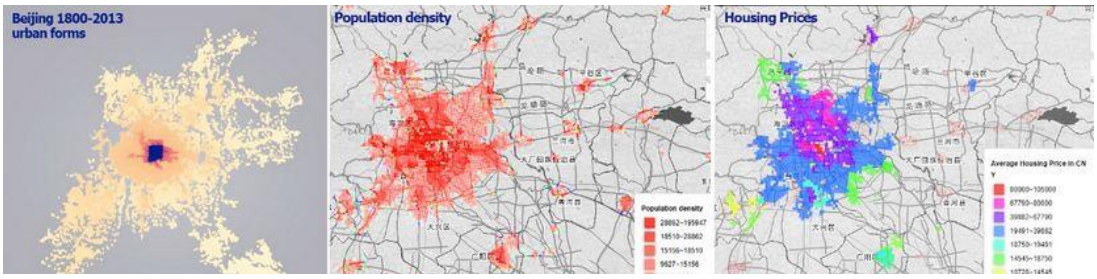

Figure 20 Urban Form in the Capital City of China: Beijing 北京

There are satellite settlements surrounding Beijing while the population decreases from core to periphery and on major axes the population density is high within the city. The housing prices are high in the center and low in the periphery similar to European cities apart from the northern fringe. The comprehensive plan of Beijing accepted in 1993, following the 1950 Soviet understanding of planning defined six distinct zones and planning decisions which are historic city core (with imperial grid urban fabric pattern), central built-up area (surrounding historic core), inner greenbelt (remainder of 1982 plan and decreasing; only 100 km square left from initial 300 km square), scattered districts (suburban development areas) and satellite towns for zones and the ring and radial highway system to set the frame of urban growth (Huang, 2004). The land ownership pattern in China (see 2.4.2.4 Planning implementation tools part) alongside local governments with limited resources resulted with development of land for urban land uses (especially housing) in excess amounts and the same problem, in the form of leapfrog or ribbon urban sprawl, is taking place in Beijing as well (Huang, 2004; Google earth satellite view 2019)[52].

Figure 19 Urban Morphology in Beijing

[51]Sources: Atlas of urban expansion, 2013, retrieved June 2019 from http://www.atlasofurbanexpansion.org/historical-data; Long and Huang, 2017 retrieved June 2019 from https://www.beijingcitylab.com/data-released-1/

[52]Sources: Davis, 2015 retrieved June 2019 from http://www.formerspatial.com/urban-geographies and Google Earth Satellite View of Beijing, retrieved June 2019.

Urban fabric in Beijing follows the historic core's imperial grid and main transportation network repeating this grid on larger scales and supported with ring roads dominates the urban form and urban fabric, urban morphology in general. The central historic parts are low-rise high density while relatively newly constructed core neighborhoods are usually high-rise and high-density. The suburban/peripheral parts are mixed like a patchwork as it can be seen from the satellite view on the right above, and both high rises and low rises, gated communities and open communities are mixed in these areas. Leapfrog urban sprawl dominates the form of suburban development, and this is heavily related with the dual structure of land ownership (communal rural – public urban ownership) and the local governments' tendency to develop as much land as possible (Huang, 2004).

China's climate varies dramatically from region to region from dry to temperate and tropical. The mean annual temperature is 7.43°C and mean annual precipitation is 610.67 mm for the year 2020 (WB-CCKP, 2021)[53]. This versatility illustrated below[54] creates a versatility in agricultural production patterns. In addition to that, the access to water also varies based on these geographical and climatological changes. In addition to that, majority of the population dwells in the parts with temperate climate (Köppen – Geiger group C, illustrated with apple green in the map below). The dry parts are on the other hand (light red, group B – dry in Köppen – Geiger groups) the most deserted part of the country.

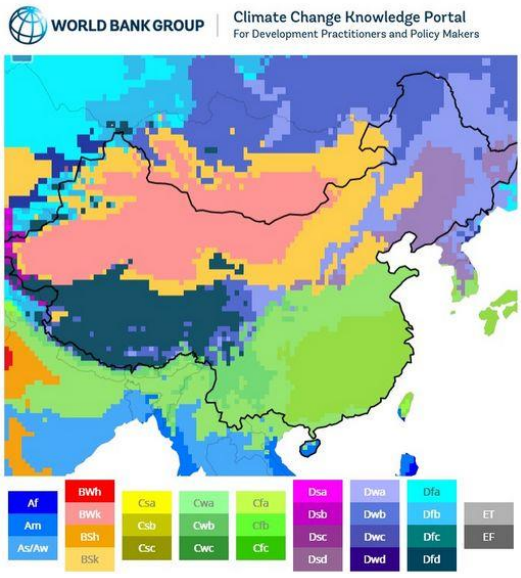

Figure 21 China - Köppen-Geiger Climate Classification 1991-2020

[53] https://climateknowledgeportal.worldbank.org/country/china/climate-data-historical accessed on May 2022.

[54] https://climateknowledgeportal.worldbank.org/country/china accessed on May 2022.

The fertile and irrigated basins of China are divided into cells with the massive land reform took place in the first years of the Republic. This imperial settlement system and the grid utilized by land reform supported and enhanced each other. Small-scale farms (smaller than 2 ha land for crop) are still dominant in Chinese **agricultural geography** yet there are also middle-sized and large-sized family-owned agricultural lands and large-sized firm-owned and cooperative-owned lands (Ji et.al., 2016: 41). China is home to 20% of the world population while has only 5% of world's fresh water and 8% of arable land (Huang and Yang 2017 as quoted in Huang and Rozelle, 2018: 487). This is one of the major constraints for agricultural production. With 250 million farmers and less than 0.5 ha average agricultural land size per farmer, 35% of all farms in the world are in China (Ren, 2006; Lowder et al, 2016).

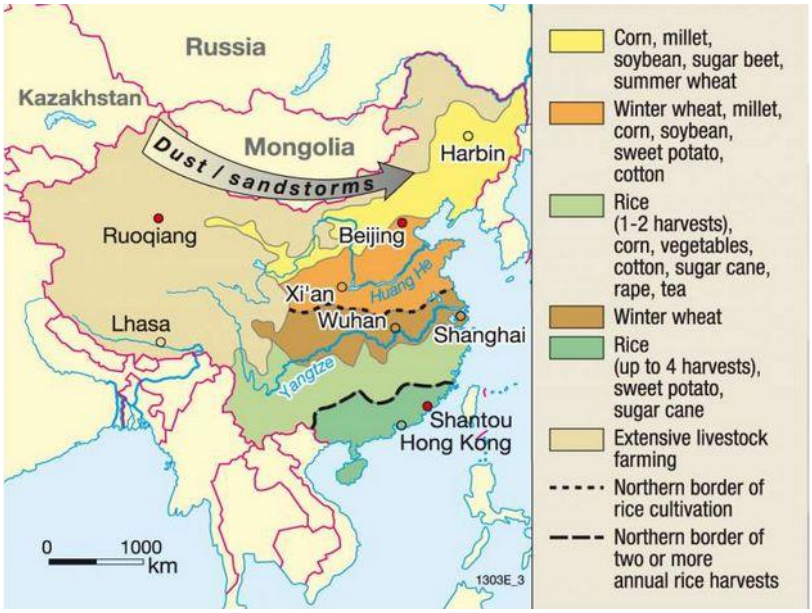

Figure 22 Agricultural Product Patterns in National Scale

As the atlas above[55] illustrates, main agricultural products in the case of China are rice, corn, cotton and wheat and dry regions on the western part of the county are predominantly utilized for livestock farming. Since the country covers a large area and several different climates, there are several **agricultural production patterns** within this context. Yet, regardless of climate and soil differences and existence or non-existence of water, with the help of imperial grid and land reform of the Chinese Revolution, the patterns are more similar than expected and the varieties in the patternsare less than US which has a similar land size.

[55]Diercke International Atlas, 2019 retrieved August 2019 from http://www.diercke.com/kartenansicht.xtp?artId=978-3-14-100790-9&seite=94&id=17554&kartennr=1

Figure 23 Agricultural Production Patterns in China

China with her vast land, have several different types of agricultural production patterns, some fabrics are selected[56] to represent the patterns at least partially. The first one upper left is from the coastal region and the pattern repeats itself over vast areas. In this case and in nearly all different patterns, the massive land reform and collective organization of agricultural production is highly visible. Coastal regions have irrigated agriculture while river delta agricultural fields are either irrigated or directly wetlands utilized for rice production. Highlands were also partially utilized for agricultural production and the agricultural fabric, even though following natural slope, is consistent with the reformed land of flat lands. Drylands are the part with harshest conditions with limited water yet, the community type of production enables agricultural production in that geography as well. Among all these different patterns, the most vulnerable against urban sprawl is the coastal regions due to high urban pressure and relatively flat and non-wetlands. If water is too much or too less, it likely to hinder urban sprawl and settlements tend to be more compact.

3.2.2 Planning Implementation Tools and Conservation Regulations

Development policies in China are the central theme of the agricultural land protection problem. The 1978 reforms of the development policies were a major turning point for rural areas of China; economic growth is encouraged despite all the negative consequences over nature, rural industrial and residential development followed this economic growth alongside massive industrial land uses spreading onto rural areas (Skinner et al, 2001: 329). On the other side, the population increase, food security issues and agricultural land scarcity lead to a national policy of agricultural land preservation (Skinner et al, 2001: 329). Similar to Turkey,

[56] Source: Accessed June 2019 from Google Earth Satellite View.

the largest cities, namely the coastal and central cities have the most fertile land in China and these areas are also under risk of sprawled industrialization and urbanization (Lichtenberg and Ding, 2008: 63). Land, providing national food security and supporting high growth, is considered as the engine of growth in China and utilized as a tool for development by local governments who hold the ownership of the land (Liu, 2018: 437).

National Development and Reform Commission, Ministry of Land and Resources and Ministry of Housing and Urban-Rural Development are the three central public authorities that are controlling production of space and land use distributions while Ministry of Agriculture and Rural Affairs controls agricultural production and rural areas (MLIT, 2018)[57]. One of the two interrelated policies that are drawing the framework of preservation of agricultural land in China are economic development and rapid industrialization after 1978 reforms and the changing balance between the center and the local with public administration reforms (Skinner et al, 2001: 330). Hence, local governments (provincial administrations, municipalities, and local councils) are also becoming more significant in recent years. Conservation is a matter of scale and while it is relatively easier to define regulations on national scale, it is harder to implement these regulations and define more detailed, locally tailored rules for preservation in local scale. This problem occurred in the case of China as well, "the tension between the pressure to provide land for economic growth and the imperative to preserve agricultural land is played out at all levels of government, but becomes most acute at lower levels where ironically, the capacity to cope may be most problematic" (Skinner et al, 2001: 329-330).

China is a massive country with dramatic land diversity and therefore one of the major problems of Chinese agricultural land preservation policies is the one-size-fits-all approach on all administrative scales and same form of protection in diverse geographies (Lichtenberg and Ding, 2008: 67). The preservation of agricultural land has another side to; to produce enough food for massive population on a limited land, intensive agriculture has taken over majority of agricultural land and hence over exploitation of land, water and natural resources, agrochemicals-based pollution, land conversion-based soil erosion and deforestation problems are widespread (Yu and Wu, 2018: 1). In other words, conservation of agricultural land is not enough for China, industrialized agricultural production itself with the inputs, outputs and all the exploitation of nature has become a polluter and ecological problem, and there is a systemic conflict between agricultural production and environmental protection (Yu and Wu, 2018: 12). This applies to many other countries as well. Many countries focus on sustainable development yet sustaining economic growth sustaining agricultural production and

[57]https://www.mlit.go.jp/kokudokeikaku/international/spw/general/china/index_e.html accessed June 2019.

sustaining nature are significantly different from each other and likely to have conflicting results.

The ownership of land in China is twofold, urban land is owned by State while rural-agricultural land is owned collectively by villages on one level and the operational rights and household contract rights are owned by households, and urban development is possible with local governments in the name of public, expropriating agricultural land from peasants while majority of peasants are "limited to subscale farming and are under-compensated for their land when relocating" (Asia Society Policy Institute, 2018)[58]. Land Administration System (LAS) regulated by Land Administration Law (LAL) planned by national Land Administration Bureau (LAB) and varying levels of Land Management Bureaus and offices (LMBs and LMOs) in different local scales (provinces, municipalities, counties, towns) is the central system in conservation of agriculturally productive land, and the LAL is enacted in 1980s to form this system (Skinner et al, 2001: 333). With this law, each and every local government under direct control of central government is held responsible of keeping the agricultural land within their administrative borders unreduced and conversion of basic farmland above 35 hectares is only possible with central authorization (Lichtenberg and Ding, 2008: 60). Land allocation, land conversion for non-agricultural purposes and preservation of agricultural land, in this system is under responsibility of governors and mayors as the local government managers and LMBs and LMOs are the institutions that support this responsibility (Skinner et al., 2001: 333).

Until 1978, agricultural land in rural areas is collectivized, after the reform, it is de-collectivized and allocated equally to all households dwelling in villages. With this "household responsibility system" giving the collectively owned land's use rights to households since 1983 and in 2015 with the "Separation of Three Rights relating to Agricultural Land" (san-quan-fen-zhi) referring to "collective ownership rights, household contract rights and operational rights" on land the legal framework of agricultural land ownership is defined (Yu and Wu, 2018: 1, 5-6). Township and village enterprises (TVEs) were also established and the modernization of rural settlements via providing social and technical infrastructure in these areas with a slogan "Building a New Countryside" is proposed (Long et al., 2010 as quoted in Long et al, 2012: 12). These enterprises, solidified in constructions in rural areas increased in time (Liu, 2018: 429). Separation of these three rights, especially operational rights from the contract rights encouraged "small farms to transfer land to more experienced farms to benefit from economies of scale" and helped rural China to cope with the problems of "the loss of labor in the agricultural sector, the abandonment of more arable land, and expanded demand

[58]https://aspi.gistapp.com/spring-2018/page/land accessed June 2019.

for agricultural machinery" (Yu and Wu, 2018: 6). Before the separation in 2015, the restrictions on sale of the (infertile, small land) property were creating hollowing-out villages, abandonment of agricultural land and more problematically head of the villages (representing the collective ownership of the land) selling the land of villages for construction purposes (hence creating landless peasants that have no choice but to migrate to cities) (Long et al., 2012: 13). Land conversion policies have two sides to it; "on the supply side, a lack of tenure security, the collapse of irrigation management institutions, and the lack of adequate marketing infrastructure combine to undermine the economic incentives for farmers to remain in farming, especially in rapidly urbanizing areas" (Carter and Rozelle, 2001 as quoted in Lichtenberg and Ding, 2008: 63) and on the demand side, "policies influencing government finance, residential construction, and urban land transactions combine to create a high demand for land" (Lichtenberg and Ding, 2008: 65).

There are two mechanisms of preservation of agricultural land within this ownership framework and land administration system, first one is land classification dividing the land into three classes where class 1 is prime agricultural land, strictly protected and land conversion to non-agricultural uses is only possible with national approval, class 2 is construction land which is the built-up area and land use within this class of land is controlled by Land Management Bureaus and Offices under supervision of Land Administration Bureau, and class 3 is the general land which can be utilized for anything as long as the change is approved by Land Management Bureau (Skinner et al, 2001: 333). In addition to this regulation, there is also a Basic Farmland Protection Regulation which divides agricultural land into five classes; these are: grains, cotton, and oilseeds cultivated land, irrigated cultivated land with drainage and erosion control system, vegetable planted land, experimental plots for agricultural R&D and the remaining unclassified cultivated land (this classification does not protect tree fruits, viticulture and fishponds) and this regulation is applied in county level, where county local governments decide zoning of each class (Lichtenberg and Ding, 2008: 60). The second mechanism of preservation is the system of land compensation forcing local governments to reclaim same quality and quantity of agricultural land somewhere else to compensate the agricultural land consumed for non-agricultural purposes (Skinner et al, 2001: 334; Lichtenberg and Ding, 2008: 60).

China's largest conservation policy applied is the Slope Land Conversion Program (SLCP) and it "provides various forms of payments to farmers to encourage marginal cropland conversion to forest or grassland in order to reduce soil erosion" which also converts agricultural land to ecological land decreasing already limited amount of arable land hence increasing the pressure over the productivity of the remaining agricultural land and this clearly

illustrates the conflict between agricultural production and environmental conservation (Yu and Wu, 2018: 11).

Urbanization and production of urban space while consuming agricultural land is a vicious circle of a problem in especially large coastal cities of China. Before 1987, the access to land was free based on needs, with the Land Administration Law (LAL), the land exchange is divided into two forms, paid transfer and administrative allocation which also started the marketization of land in China and the local governments utilizing this allocated land for securing the needed land for industrialization and urbanization while also capitalized the land for financing urban construction (Liu, 2018: 430). Land conversion consuming arable agricultural land creates landless peasants, landless peasants move to cities creating more urban population while villages are hollowing out and arable lands are being abandoned (Yu and Wu, 2018: 7). The 1998 change in LAL restricted the conversion of agricultural land into collective construction land and excluded farmers for using their collectively owned land for construction (apart from meeting their own residential and community needs) (Liu, 2018: 433). In order to solve the imbalance between urban and rural land uses, in 2005, 'increasing vs. decreasing balance' land-use policy (Zengjian Guagou Tudi Liyong Zhengce) were proposed, and with this policy proposal revised and enacted in 2010, balancing the increasing land utilized for production of urban space with the decreasing utilized rural settlement area (with rural to urban migration and hollowing out villages) and reclaiming the rural constructed land for agricultural production (Long et al., 2012: 14). This policy of "accelerated restructuring strategy" is implemented in county scale yet still centralized and top-down in national scale in nature (Liu et al, 2009 as quoted in Long et al, 2012: 14). This massive scale "settlement rationalization program" similar to "the rural settlement rationalization projects of the former Soviet Union" in terms of the central structure of the project yet, differently is mainly funded by local governments in county scale and this creates problems since the geography is unevenly developed and in county and province scales, the demand for production of urban space varies as well as the hollowing out rural settlement spaces (Long et al., 2012: 19). In the case of China, the land use planning system is nearly as regulated as the case of the Netherlands yet the problem is a problem of implementation and performance (Tan et al, 2009: 961). Illegal farmland conversion especially by local governments who themselves are the authorities to implement the preservation and land use laws is one of the major problems related to consumption of agricultural land in China (Tan et al., 2009: 973).

Transfer of development rights (TDR) among central government and local governments for especially enable development (residential, financial and commercial land uses) against the tight controls proposed and applied by Chinese central government (Wang, et al., 2010: 454). Development while sustaining the conservation of agricultural land and

production was aimed with this policy and according to some, it is partially successful ((Wang, et al., 2010: 454). As clearly illustrated in the text below, the TDR utilized in China takes its legitimization from different roots and utilized in a different way in terms of ownership patterns:

"Unlike in post-industrial societies, the initial driving force for development rights trading did not come from any major local preservation movement. It was rather a creative response to the central government's stringent land-use regulation. To generate more land for cities and towns, local officials in Zhejiang started to reward land development rights to regions that reclaimed farmland from wasteland or rural construction land. They also encouraged land-rich areas to trade out these rights to places with more development opportunities […] through trading, poor yet land-rich regions were able to earn financial compensations from their land development rights and narrowed their gap with rich areas. The latter, on the other hand, obtained valuable land-use quotas to attract investments and grow businesses. These opportunities in turn enabled cities and towns to accommodate more migrants from rural areas. These happened while the total amount of farmland in the province remained stable. In this sense, this innovation has allowed Zhejiang to manage both urban development and farmland preservation well" (Wang et al., 2010: 455). TDR is a policy predominantly utilized in the case of United States and hence in the US section of this chapter TDR method will be analyzed in detail.

With the land administration law enacted in 1987, defined three methods to transfer the land use rights: agreement, bidding and auction and with this law, central and local governments are both the controllers and the sole beneficiaries of the rural to urban land conversion collecting the value added income generated from the process (Liu, 2018: 435). The socialist welfare state is transforming into state capitalism with an advocacy of marketization; yet the change from central planning to market orientation ended with "the coexistence of central planning and marketization" and this dual structure creates an institutional uncertainty (Zhu, 2013: 257). Within this context, since the 1990s, urban sprawl, leapfrog development and fragmentation of urban space with private gated communities on urban peripheries are three major urban problems in China, and these problems in urbanization are initiated from two directions, first one is top-down urban development projects by local governments and the second one is bottom-up rural industrialization and construction activities operated by village communities collectively (Zhu, 2013: 266).

3.3 The United States of America

3.3.1 Land Use Policy: Settlement Patterns, Urban Forms and Spaces of Agricultural Production

Third largest country in the world, United States covers a vast and versatile geography with different landscapes and climates (World Atlas, 2019). Within this massive geography, Jefferson Grid is implemented in massive scale in the western expansion era of the United States in 18th and 19th centuries. The rural landscape, ownership patterns, settlement patterns and the urban landscape and fabric were heavily affected from this grid underlying layout, since the utilization of gridiron plan started way earlier in the 17th century in the city of Philadelphia by the William Penn's first plan of Philadelphia and this decision ended with a grid movement in all urban areas in the United States and later applied to all states (Knight, 2012)[59]. Hence, grid system is highly significant in all three pillars of this part, namely settlement patterns, urban forms and spaces of production in the United States.

The most visible element of settlement patterns, the geographic distribution of population, is the density distribution over the nation and in the case of the United States, differently from the Netherlands case and similarly to the Chinese case, most of the population is concentrated on the eastern and coastal regions of the country. Yet, compared to China the densities are significantly low due to the vast differences between the two countries populations while covering similar scale of land. The modern-day settlements in this continent started from the eastern coast and with the development of rail network, the westward expansion took place, while the expanding population predominantly located in the western coasts of the country which is consistent with the settlement patterns in many countries[60].

[59]http://www.thegreatamericangrid.com/archives/777

[60]Source: CIESIN, 2009 retrieved June 2019 from https://sedac.ciesin.columbia.edu/data/collection/grump-v1/maps/gallery/search?facets=region:asia&facets=theme:population Encyclopædia Britannica, retrieved July 2019 from https://kids.britannica.com/students/assembly/view/166203

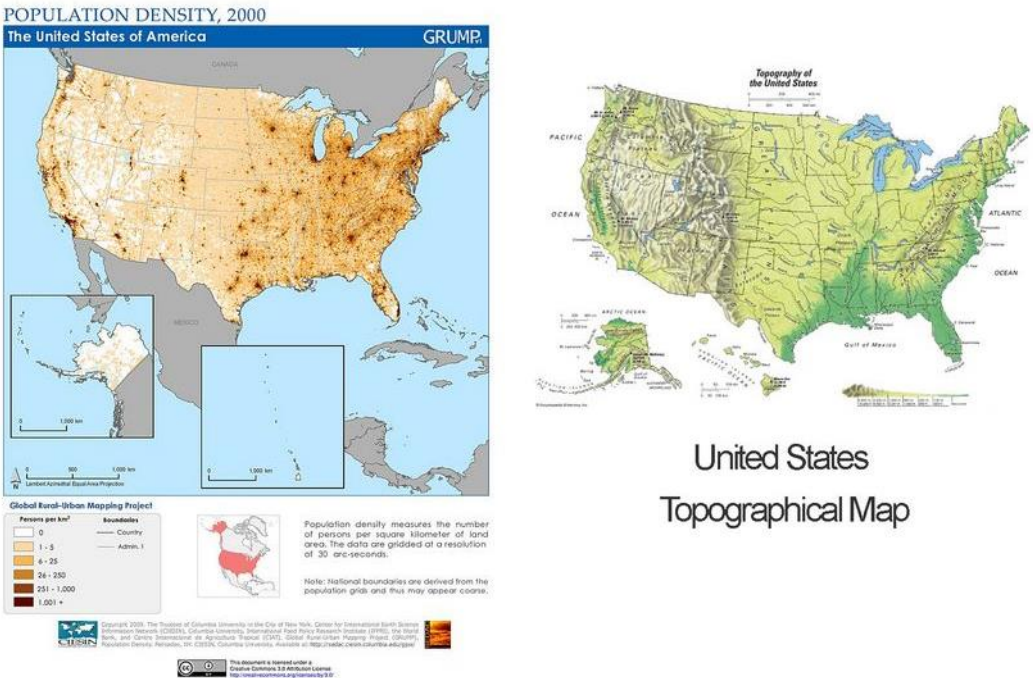

Figure 24 Population Density Distribution and the Topography of the United States

The middle-west of the country with lowest population density is a massive mountainous region (Rocky Mountains) and the rest of the country, apart from Appalachian Mountains on the east are flat and hence this made it easier to implement the grid to urban and rural landscape.

The urban population is 82,3% (2018; see 3.1 Contextual Comparison part of this chapter), which is high above the global average. There are 19495 settlements of all sizes in the United States and 16411 of these settlements have populations under 10000 people, which for most of the cases be considered as a rural settlement (Statista, 2018)[61]. The cities with a population over 1 million on the other end of the spectrum is only 10 while 250000 to 1 million are 77 and 250000 to 50000 are 688 (Statista, 2018). The small-scale cities with a population between 50000 and 10000 are 2309 (Statista, 2018). The age of these settlements is relatively new for the modern-day United States and the oldest settlement dates to 1565, St. Augustine, Florida (WorldAtlas, 2018)[62].

The human intervention to the nature and geography is highly visible in the United States similar to the case of Netherlands and the form of intervention is grid in this case. The great grid of United States, the Jefferson grid defines the settlement patterns since not only

[61]https://www.statista.com/statistics/241695/number-of-us-cities-towns-villages-by-population-size/

[62]https://www.worldatlas.com/articles/what-is-the-oldest-city-in-america.html

state borders but also infrastructure and most significantly ownership patterns follow this structure spatially.

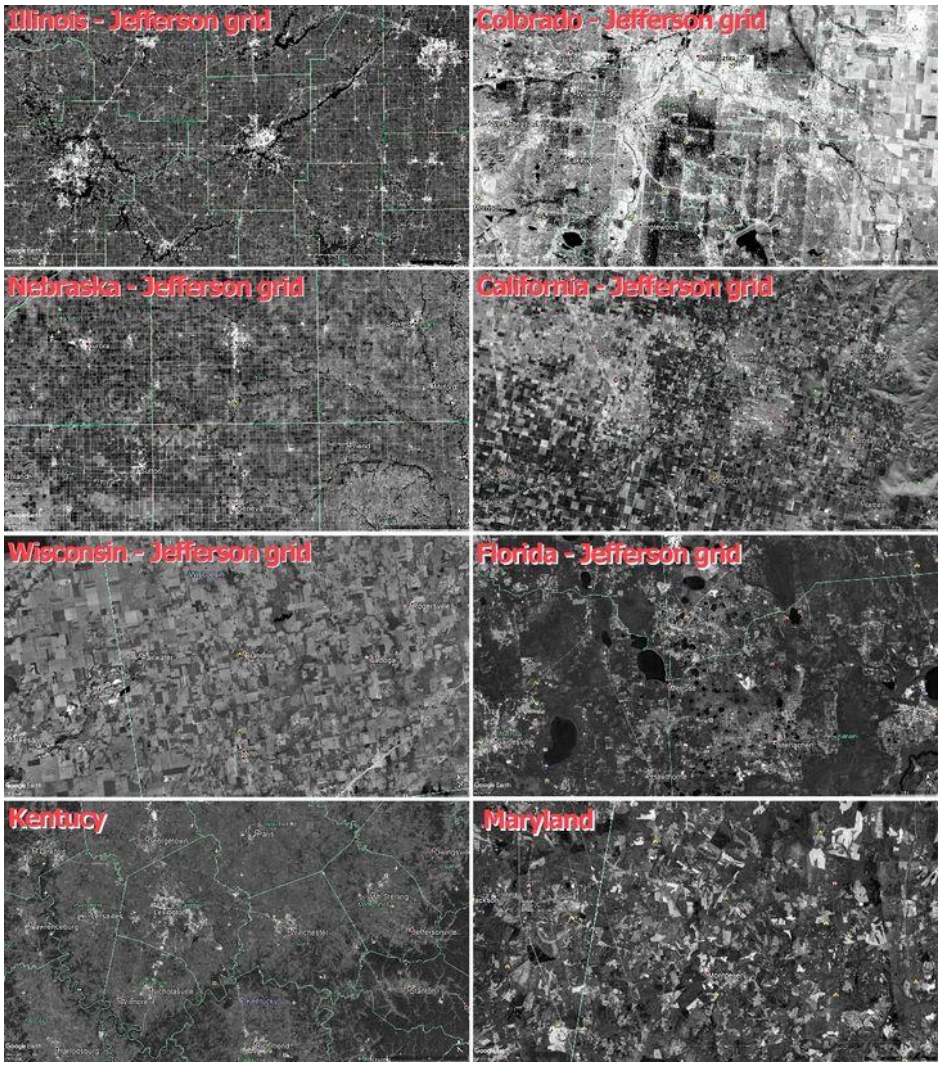

Figure 25 American Settlement Patterns – The Jefferson Grid

The grid is highly visible in nearly all over the country on the satellite view, six cases from six different regions and states are illustrated above, while the last two are not following the grid dominantly. Hence, even though grid is the dominant pattern, there are other cases as well especially on the eastern regions with earlier dates of settlements. The grid formation is applied to even the mountainous regions of the Rocky Mountains in the Mid-west.

The two keywords defining urban growth in the United States are **the grid and the sprawl**. USA is not the founder of grid, but highly fond of grid. US cities are produced in grid form and the inspiration comes from a place that we know very well, Hippodamus, one of the earliest planners in history, used grid in Prienne, and the early US planners have taken grid more seriously than any other planner. The cities, due to their relatively young age, and due to

the colonial nature of planning in the early years establishing cities from scratch, are predominantly planned ahead. This is the major reason behind the ubiquitous nature of grid (Rose-Redwood, 2010). The sprawl on the other hand, is the definitive word for the contemporary form of urban growth in US cities today. The pattern of the urban fabric fits to loose and distorted forms of grid yet the densities are too low for a legible pattern of urban fabric, and highly dispersive on the geography. Most of the population lives in fringe today and "the development in the fringe is consuming more land per person than the suburbs […] In every decade it gets worse … It's an incredible waste." (Daniels, 1999: 12). The urbanization process and the growth of US cities in history is relatively recent and this makes an analysis of urban growth in US cities more observable and legible. Similar to our (ancient) cities "most American cities began in places with rich farmland and ample water supplies; and even today some of the nation's most fertile land is within or close to metropolitan areas." (Daniels&Bowers, 1997: 10). The cities in the United States, under the impact of laissez-faire capitalism is considered as economic machines of growth and hence utilitarianism is favored against uncommodified beautification, private spaces are favored against public spaces, socially versatile society creates style eclecticism and "in reaction to industrialism, a deep anti-urban streak permeates American views of urban governance, and hence control over the production of morphological attributes is politically fragmented, the better to thwart imposition" (Conzen, 2001: 4-5). The cities with a colonial background in the US lacks the "pre-urban nuclei" and the hierarchy in the gridiron plan is sustained with two perpendicular streets intersecting in the core, the square on their intersection and in some cases streets cutting the gridiron with different angles as in the case of the Broadway street (Conzen, 2001: 5). This gridiron structure defined the macroform of cities as well, or more bluntly, the forms of urban sprawl as well. Similar to the imperial grid of China, the Jefferson grid is everywhere on the geography[63].

[63]Source: Pinchevsky, S., the Jefferson Grid project, 2019 retrieved July 2019 from https://www.instagram.com/the.jefferson.grid/ from left to right and up to bottom: Texas, Nebraska, Nevada, California, Montana, Oklahoma, Florida, Nevada, California, Texas, Iowa.

Figure 26 Jefferson Grid in different geographies and land uses

As illustrated above in the geography of the country, the Jefferson grid defines the framework of patterns yet the fabric within the grid depends on other geographical and planning features as well. The artificial water bodies, agricultural fields, small scale settlements, topography, mountains, forests, suburbs are all formed based on this one square mile gridiron. The inner patterns of these one-square-miles are another story, it can be a circle in center pivot irrigation fields, or low-density irregular (non-grid) Radburn in suburbs, radial or unorganized in some small-scale settlements as illustrated above. Whatever the case, the grid of one square mile is still visible[64].

[64]Source: Pinchevsky, S., the Jefferson Grid project, 2019 retrieved July 2019 from https://www.instagram.com/the.jefferson.grid/ from left to right and up to bottom: Fontana, California, San Francisco suburbs, Florida, Oregon.

Figure 27 Suburban patterns within the Jefferson Grid

This grid, even though regulate urban, rural and transition spaces, does not seem to help with curing or preventing urban sprawl. The case of United States is very significant in urban sprawl debate, especially after the suburban boom experienced in 1970s and massive car dependency. The irregular, low density patterns within this grid is not helping either. The fabric produced is barely urban with dramatically low densities and imbalanced solid-void and loose characteristics where public transport is nearly impossible.

Radburn is the American take on the garden city and both an early experiment of 1920s and still very widespread in the suburbs of US (Lee and Ahn, 2007: 51). Radburn pattern born out of the critiques of grid as being dull, not walkable and insecure (can be seen in the satellite views above – the upper-left one) under the impact of the garden city approach which was becoming popular at the time (Lee and Ahn, 2007: 51). Today, the suburbs are under impact of new urbanism and one exemplary case of applied new urbanism in residential areas is the Kentlands project on the suburbs of Washington D.C., streets forming interconnected grid, walkability, different architectural types of housing, a focus to streets as public spaces, higher densities, mixed land uses and higher accessibility with transit connections are some qualities borrowed from new urbanism and applied to Kentlands and some other suburbs built after 1990s (Lee and Ahn, 2007: 53). This is a step towards creating less sprawled environments, yet still the solution is not achieved fully.

Disorder and incoherence is widespread among the urban and rural landscape in the US; “individual landscape unit is seldom in visual harmony with its neighbour, so that, however

sound in design or construction the single structure may be, the general effect is untidy" and this phenomenon is tied to "the acute individualism of the American, vigorous speculation in land and other commodities, a strongly utilitarian attitude toward the land and the treasures above and below it, and government policy and law" (Encyclopedia Britannica)[65]. The two most widespread modes of transport are private cars and airplanes and hence accompanied with free market affective over space and the acute individualism, sprawl in national scale is inevitable in this case. Urban growth via urban expansion, with production of previously rural (at least non-urban) land is considered to be the American way for a long time (Badger, 2016)[66]. The preferred urban fabric in the residential areas, which is low density, detached or attached private housing with gardens and porches instead of apartments is also a problem that ended with further consumption of agricultural and natural land. San Francisco for instance, is among the least affordable housing markets in global scale and this stems from not only dramatic population increase but also the zoning ordinances regulating densities and keeping them lower with detached and attached private housing instead of apartment blocks while also limiting the land use (Palm and Whitzman, 2019).

The typical American grid has larger block sizes with longer streets in less number and fractally dependent on these larger units, tend to expand over a large (larger than European counterparts) geography (Major, 2018: 83). The grid system itself, according to Sennett, is directly related with capitalism itself and quoting from Lewis Mumford, capitalism envisions all plots and lots as commodities to be bought and sold regardless of geography, land uses and their social references (Sennett, 1992).

The problem of urban sprawl, even though is seen as a problem in the urban policy discourse and measures are started being taken against, still resists in the case of United States due to four major reasons; first, the funding allocated to the construction and maintenance of rural roads (the roads in the suburbs are considered as rural roads) are twice the size of urban roads, second gasoline is heavily subsidized by the federal government and hence cheap, third housing market prefers urban sprawl over urban renewal which is more complicated, takes more time and requires more labor and the demand for housing in the suburbs are still high and fourth, which is a universal problem, the number of stakeholders to mobilize is dramatically high to control urban sprawl and hence to not control it is easier (Schmidt, 2004:

[65]https://www.britannica.com/place/United-States/Settlement-patterns

[66]https://www.washingtonpost.com/news/wonk/wp/2016/09/15/the-ugly-choice-american-cities-face/?noredirect=on&utm_term=.75b179272b22

A627). With these four reasons, government subsidizes and enables urban sprawl and the market finds this tendency more profitable, and so complies with it.

To look closer to the elements and problems of urban form in the case of United States, the capital city, Washington D.C. is selected as a case. The population of the city within the D.C. boundary is around 702.455 as of 2018 while the metropolitan area has a population over 6 million and Washington D.C. is an ethnically versatile city with 47.75% Black or African American, White 40.67% and 11,58% other (WorldPopulationReview, 2019)[67]. The population of the city were decreasing previously, yet, after 2000, it started increasing again (WorldPopulationReview, 2019). The settlement area covered by Washington, D.C. is sprawled similar to other US cities and with the nearly continuous settlement from Washington D.C. to New York and even further north, covering Baltimore, Philadelphia and several other medium to small scale cities, it can be called conurbation. The light pollution map on the left below clearly illustrates the scale of the conurbation (light green) which is covering an axis of around 800 kilometers and massive. Decreasing densities and the low-density urban sprawl is also visible on the map (dark pink). Washington D.C. is the southern end of this eastern conurbation of the US. This conurbation is limited on the north-west axis with the Appalachian Mountains and have strong relationships with the ocean with ports, canals, bays and lagoons. The map below illustrates this well[68].

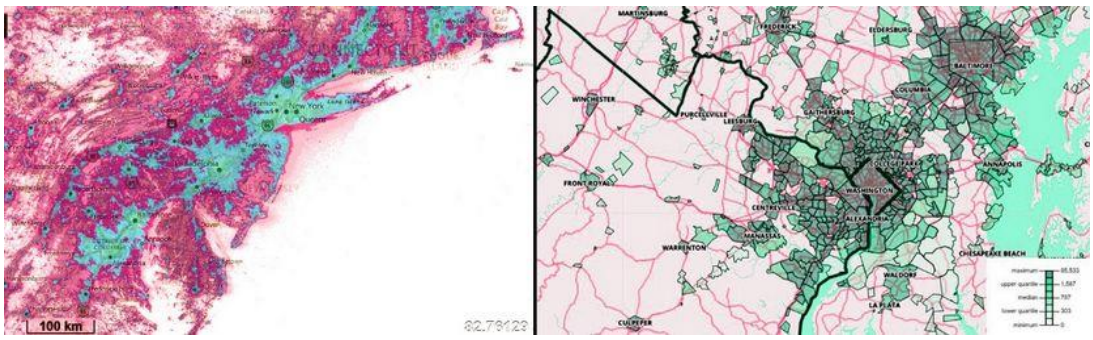

Figure 28 Urban Form in Washington D.C. – the Capital City of the United States

With remote sensing methods, in 2004, the urban form growth tendencies of Washington D.C. are calculated, and it is found out that by 2030 the space that the settlement takes up and consumes will increase 80% over its 2004 size (Schmidt, 2004: A621). As illustrated above,

[67]http://worldpopulationreview.com/us-cities/washington-dc-population/

[68]Sources: Light Pollution Map, 2019 retrieved July 2019 from https://www.lightpollutionmap.info/#zoom=6&lat=4858409&lon=-8476701&layers=0BTFFFFFFFFFF ; Open Data Network, 2017 retrieved July 2019 from https://www.opendatanetwork.com/entity/1600000US1150000/Washington_DC/geographic.population.density?year=2017

the form, macroform of the city is not legible and Washingotn D.C. is among the “American cities lacking a large-scale orthogonal super grid” (Major, 2018 :155). The urban area is far larger than the D.C. border and even connected with the city of Baltimore, hence, for the subject of urban form, I have not limited myself to the D.C. borders but rather analyzed whole urban settlement of the city-conurbation. The population density within the D.C. borders is the maximum density and the density remains similar and maximum on the two fingers lying outside the D.C. borders towards Leesburg and Gaithersburg as seen in the map above-right[69].

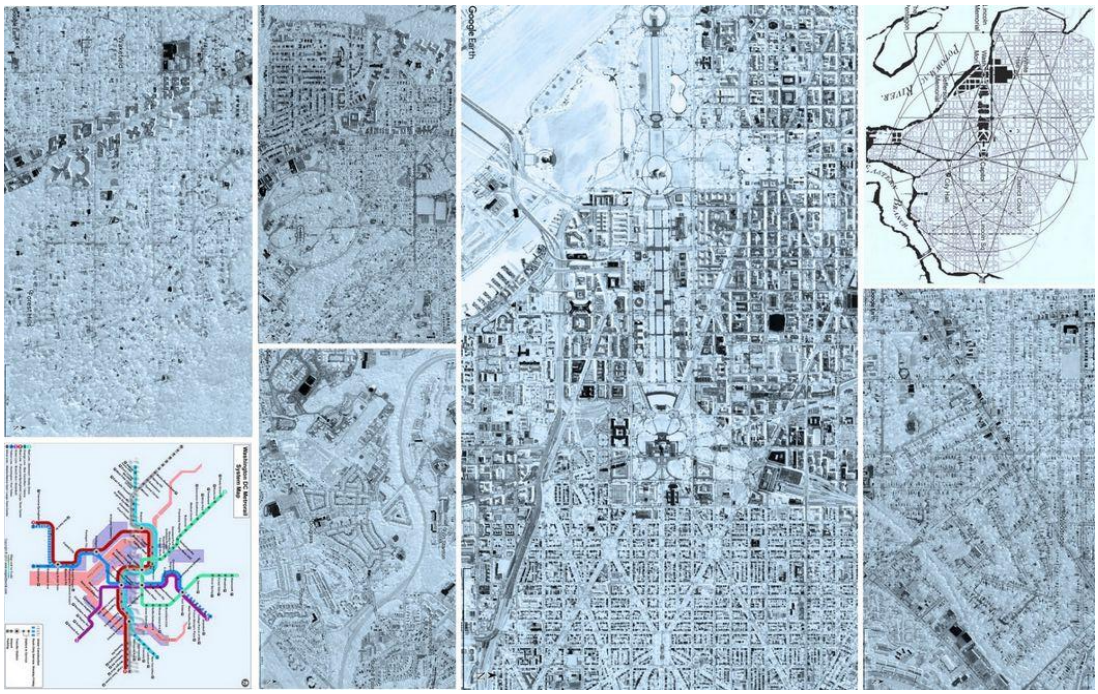

Figure 29 Urban Morphology in Washington D.C.

[69]Sources: Selman, 2018 https://www.cnu.org/publicsquare/2018/02/21/l%E2%80%99enfant%E2%80%99s-sacred-design-washington-dc ; Google Earth Satellite View retrieved July 2019 (North-East, Core, North-West, South-East, North); WorldMapStore, 2019 retrieved July 2019 from https://www.worldmapstore.com/product/wall-maps/washington-dc-metro-rail-map/

The monumental core of the city which can be seen in the larger satellite view above, is highly characteristic and have a strong identity since it has been first designed, yet the rest of the fabric, especially periphery of the city, the suburbs lack this identity (Municipality of Washington D.C., 2007: 9-1). The core of the city has a topography similar to the capital city of Turkey, Ankara, which looks like a bowl and this bowl is formed by two intersecting rivers: the Potomac River and the Anacostia river (Municipality of Washington D.C., 2007: 9-7). The main plan of Washington D.C., today defining the monumental core is the L'Enfant Plan of the year 1791. Unlike other US cities, the plan of the capital city is inspired by French planning and the plan was baroque (Fugate, 2005: 7). The geometric layout of the plan is visible on the first to left map above and as seen in the map, the layout does not only consist of grid but also triangular axes cutting through the grid. This layout is still legible in the monumental core, yet the same semantics did not repeat itself on the periphery of the city. Following the city beautiful movement another significant plan in the history of D.C. is the McMillan Plan around 1902 and the monumental National Mall, a massive linear park system surrounded by federal public buildings and museums is designed in this plan (Fugate, 2005: 13). The metro system network of the city illustrated above (last line – right) shows the overall radial nature of the city forming the macroform, even tough it is not controlled and looks more like an oil stain. The peripheral parts usually are not following a strict grid pattern as can be seen from the satellite views above.

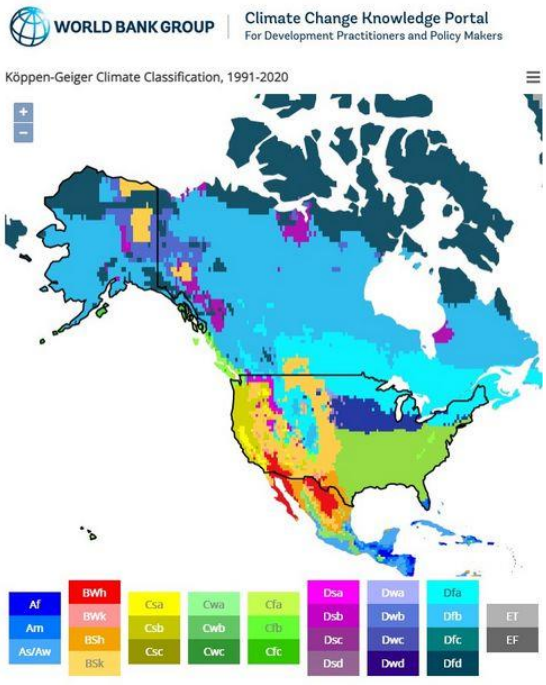

Figure 30 United States - Köppen - geiger Climate Classification, 1991-2020

The climate in the massive geography of the United States is diverse ranging from tropical in southern parts to arctic in the northern geographies. The mean annual temperature is 9.47°C and the mean annual precipitation in this vast geography is 722.19 mm for the year 2020 (WB-CCKP, 2021)[70]. Similar to China, the majority of the population dwells in the temperate zones of climate (group C in Köppen – Geiger Climate Classification – apple green in the map below). The versatility of the climate in the geography of the United States is also legible in the production patterns in agriculture all over the country.

The agricultural production patterns are predominantly formed with reference to the Jefferson Grid as in the case of settlement patterns and urban forms. One-mile-gridiron is definitive over the ownership pattern of agricultural production. United States in general does not have a water resource problem (as in the case of China) or limited land problem (as in the case of the Netherlands) in national scale, yet, especially in middle regions, in the central part of the country where the dominant landscape are farmlands and agricultural production is the main line of production, water and decreasing levels of groundwater and droughts stemming from climate change are problems severely affecting agriculture (Norwood, 2012). The problem of land, on the other hand becomes visible on the high-density coastal conurbations with increasing populations on both east and the west coast and farmland conversion into urban land uses is among major spatial problems in these regions.

Agricultural Production Patterns in the United States is supported by the federal government under the supervision of WTO and alongside OECD, and these supports take three forms: price loss coverage payments, agriculture risk coverage payments and marketing assistance loans (Angadjivand, 2018)[71]. The support system is solid, and the supports make US farmers powerful (similar to EU farmers under the protective shield of common agricultural policy) against farmers from other countries in the global agricultural market. The number of farms (hence partially the number of farmers) is around 2,05 million in the United States (USDA, 2017)[72]. The average farmland size is among the largest by 179 hectares, the farm size is getting larger in time and 671000 farmers are dealing with small scale farms

[70] https://climateknowledgeportal.worldbank.org/country/united-states/climate-data-historical accessed on May 2022.

[71]https://fas.org/sgp/crs/misc/R45165.pdf accessed July 2019

[72] https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/farming-and-farm-income/

(where small scale of US farms are relatively larger than most of other countries and hence can be considered as medium scale in the global land market) (US Farm Data, 2017)[73].

The contemporary keywords for US agriculture[74] are **land consolidation, industrial agriculture, precision agriculture, center pivot irrigation, mechanization** and nowadays **robotification of agriculture** and **agricultural zoning ordinance**. The levels of efficiency in agricultural production are among one of the highest: “Fertile soils, temperate climate, and available water have made the United States the most productive agricultural nation in the world. America has 7 percent of the world's tillable land but produces 13 percent of the world's food", yet like our problem "about one-fifth of America's prime farmland is located within metropolitan counties."(Daniels&Bowers, 1997).

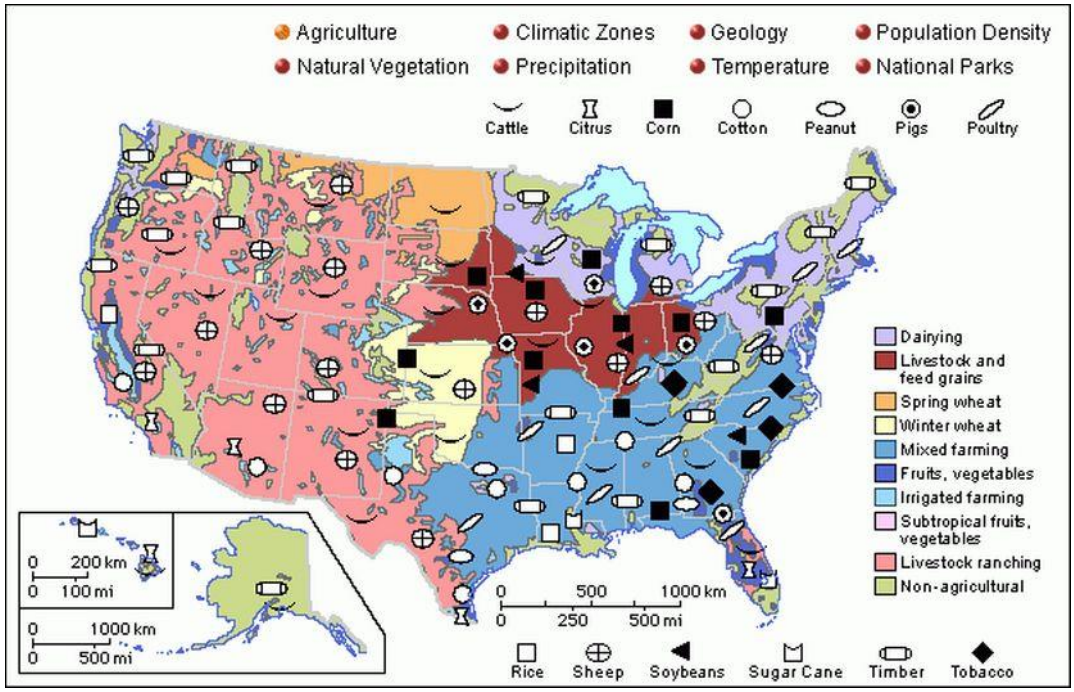

Figure 31 Agricultural Product Patterns in National Scale

Corn, cotton, wheat and grains, sugar cane, are some major agricultural products in the United States and the geographic distribution of these products are illustrated above. The land that the country covers a large area and different climate, and soil types exist all over the country and hence the agricultural products are highly versatile, from subtropical to grains, from fruits to dairying or livestock. Majority of the land use of the country is agricultural as illustrated in the map and even though relatively small in terms of percentage, there are areas

[73]https://www.usfarmdata.com/percentage-of-small-medium-and-large-farms-in-the-us

[74] Source: Scholastic Inc., 2019 accessed on July 2019 from http://go.grolier.com/atlas?id=mtlr050

that irrigated agriculture takes place as well. within this context, agricultural production patterns is the most versatile among the three cases (China and Netherlands) analyzed within this study[75].

Figure 32 Agricultural Production Patterns in the United States

The **agricultural production patterns** in the US are highly versatile, alongside climate and soil types. Still Jefferson Grid dominates most agricultural fields but there are several places that grid is not applied as illustrated above. The plot sizes are significantly larger

[75] Source: Google Earth Satellite Views, 2019.

than the cases of the Netherlands and China and hence the scale of these satellite views are slightly smaller than the other two cases. The agricultural plot sizes in middle and northern parts follows one mile Jefferson grid while on the west coast, especially in California, due to Mediterranean climate, the plots are more similar to the ones in other Mediterranean countries and Turkey. California is among the states with relatively lesser amount of agricultural land, yet the generated agricultural product is among the highest (Schiffman, 1982: 249). Due to smaller plot sizes and severe population increase pressure, California is among the regions with a higher risk of farmland conversion (Schiffman, 1982: 249). The plot sizes seem to depend on the existence of water and the more water in the geography the smaller the plots get in the case of United States (which is similar in the case of Turkey as well). East coast is another story, without the grid and with topography and forests. the agricultural fields are dispersed in forests and plots are partially formed by topography. The flat parts of the country, which is the largest portion in terms of topography are formed with Jefferson grid, and recently, in these areas the center pivot irrigation is increasing as illustrated with one mile radius or smaller circles above. As described by Waller and Yitayew (2016):

"A center pivot irrigation system is a movable pipe structure that rotates around a central pivot point connected to a water supply. Center pivot irrigation systems are the most popular sprinkler irrigation systems in the world because of their high efficiency, high uniformity, ability to irrigate uneven terrain, and low capital, maintenance, and management costs. [...] The systems move through the field by electrically powered tractor wheels." (Waller and Yitayew, 2016: Abstract).

Center Pivot Irrigation system first designed and utilized in Nebraska (third from above on the far right row) in 1950s and spread to several other states in time (Waller and Yitayew, 2016). Together with the one-mile Jefferson Grid pattern, as the residual pattern of westward expansion and due to the larger scale of agricultural plots in US (because of both the Jefferson grid and several other reasons) the center pivot irrigation system is widespread in US agriculture.

3.3.2 Planning Implementation Tools and Conservation Regulations

The tradition of planning in the U.S. cities are started with master plans for cities following newly produced regulations at the time to improve public health, city living, transportation, housing and recreation in the cities and Frederick Law Olmstead was one of the pioneers in spatial regulations and city planning (Erickson, 2012)[76]. At the beginning, the two professions

[76]https://www.citylab.com/life/2012/08/brief-history-birth-urban-planning/2365/

working in city planning field were architects and public health professionals and the first group “were focused on the city as a built environment, implementing ideas like L'Enfant's grand vision for Washington, D.C., and the New York City grid” and the second group “were consumed with infrastructure” (Erickson, 2012)[77]. With these varied priorities, comprehensive planning became inevitable and the designing activities within master plan studies were enriched with comprehensive analyses and plans (Erickson, 2012). The tools utilized for conservation of agricultural lands, preventing the farmland conversion and the tool for spatial planning differs from state to state alongside taxing regulations and zoning ordinances. Hence, the tools utilized are also localized in the case of Federal United States. Each state has its own act of zoning and taxing, and furthermore own understanding of planning within the general framework of planning and conservation defined by the federal government.

The main scale of conservation policies for agricultural production is the state governments in the case of United States, since the comprehensive view, financial resources and political local immunity of local governments are severely lower than their state counterparts, even though “land-use control is primarily a matter of local politics” (Schiffman, 1982: 249, 260). Federal government is not considered as the scale for preventing farmland conversion, and land use policy is predominantly a matter of state especially in rural areas: “States [...] do possess certain inherent powers that relate to the agricultural problem. Foremost among these are the power to acquire interests in land (the ‘spending power’), the power to levy taxes on real and personal property (the ‘taxing power’), and the power to regulate the use of private land in the interest of the public health, safety, and welfare (the ‘police power’)” (Platt, 1981: 116-117).

Preventing farmland conversion is a central element of land use policies in the United States (Pease, 1991). Zoning and tax are the two keywords for American Planning and these two land-use defining tools have also great impact on agricultural production. Zoning as a spatial planning policy was first utilized for racial segregation and control over African American populations’ settlement trends and “It is no coincidence that the initial efforts to adopt land use controls in the U.S. were aimed at enacting racial zoning—zoning that segregated cities by race” (Meck, S. as quoted in Erickson, 2012) [78]. Annexation of rural and agricultural land via tax regulations by the city is widespread among US cities. Spatial planning usually takes place in the form of zoning, creating zones with specific land uses and permissions. Until 1970s, zoning tool predominantly applied to urban areas and urban land uses and only after 1970s it has started to be utilized for rural and agricultural areas and land

[77]https://www.citylab.com/life/2012/08/brief-history-birth-urban-planning/2365/

[78]https://www.citylab.com/life/2012/08/brief-history-birth-urban-planning/2365/

uses (Platt, 1981: 117). Yet, zoning plans produced in agricultural areas created contrary results to what has been aimed (preservation of farmland) as well (Platt, 1981: 117). The suburban dwellers of the shaded areas (urban-agricultural interfaces on the periphery) used zoning "to shield themselves from the unpleasant externalities of farming" while farmers used as a means to demand development and nonagricultural land uses and more significantly, zoning plans also giving further development rights while zoning agricultural areas created an unreal expectation of development among farmers and this phenomenon discouraged them to invest in the productivity of their land and even sometimes completely abandon production all together (Platt, 1981: 117).

The major tool to prevent farmland conversion in the United States is agricultural zoning (Daniels and Bowers, 1997: 106). The reasons for this tool to be widespread are; first of all, it is under control of local governments, it is flexible, it can be applied to wide geographies and the most important of all it is inexpensive (Daniels and Bowers, 1997 as summarized in Diaz and Green, 2001). The weakness of the agricultural zoning program lies in requiring the voluntary participation of farmers; under severe pressure of urban development and increasing land prices, the farmers tend less to participate and comply with the rules of agricultural zoning (Diaz and Green, 2001: 319). Another zoning tool utilized to prevent farmland conversion and loss of agriculturally productive land is large-lot zoning where the agricultural plot sizes are encouraged to be larger, especially in the case of California and similar states with relatively smaller lots and severe urban growth pressure (Schiffman, 1982: 249). A minimum parcel size is defined for farm zones (depending on the State and the region) and this minimum parcel size helps preventing fragmentation (Pease, 1991). The rural dwelling units, farm houses, are also limited with regulations such as quarter/quarter zoning enabling a landowner to own one dwelling unit per 40 acres (Pease, 1991). The scale of the land depends on the state regulations which are defined based on production patterns, irrigation, population increase so on and so forth. In relation with this tool, the sliding scale technique defines the development rights given on farmland based on the size of the parcel where "Smaller parcels would receive proportionately more building rights than larger parcels, based on the rationale that existing smaller parcels are less important to the stability of the agricultural sector and that a broader base of political support can be established by providing an appealing program to the more numerous smaller land holders" (Pease, 1991: 338).

Urban growth boundary defined within the land use system is the next tool to limit and control urban growth while preserving farmland and as the name indicates, this boundary defines the urban growth zone (Kline, 1999). Urban growth boundaries are among the tools utilized by local governments to prevent farmland conversion (Diaz and Green, 2001). Urban service area is another measure to control urban form, and before urban development takes

place, the area is required to be defined as urban service area where urban services are provisioned (Regional Planning Commission, 2018)[79]. Urban growth boundary and urban service area boundary complements each other and work together. Urban service area draws "the outer limits of planned urban growth over a long-term planning period" while urban growth boundary defines the areas that can be utilized for production of urban space in middle-term and short-term (Regional Planning Commission, 2018). Urban growth boundary illustrates the area that can be utilized for urban space and urban service area illustrates the threshold in general. Hence, the agricultural areas outside of these two borders have greater chance to be preserved.

Tax is one of the most significant planning tools in US cities in all states, every urban element in one or other way tied with tax. tax regulations can control the development of economy and development of space in states via attracting capital investment with low levels of taxing in housing, commerce or production environments. The major reason behind farmland conversion into urban land uses in the United States is "net returns to alternative land uses" (Li et al., 2019: 380). The problem of land conversion does not remain with the conversion of agricultural land into urban land; it also includes the conversion of natural land into agricultural land in the case of United States and in nearly all other countries. This is a problem especially in endangered Northern Great Plains ecoregion of United States (Turner et al., 2017). United States is an advanced capitalist country obviously, and have plenty of national wealth, but they also have an unproductive 'real estate' problem stemming from embedding capital in built-environment: "Americans have more of their wealth tied up in real estate - about 20 percent - than any other country except Japan" (Daniels&Bowers, 1997). This high tendency to produce new urban spaces results with conversion of farmland and natural areas. Residential development is one of the major causes of farmland loss in the case of United States (as in other countries). Farmlands prone to conversion according to a data-based study, are the ones closer to urban settlements with lower slope and very interestingly larger plots (Levia and Page, 2000: 545). The scale of the plot is highly significant in agricultural production and the sustainability of the production activities and larger scale usually is considered to be more sustainable in terms of agricultural production and more resistant to urban development due to higher levels of surplus. Yet, the study conducted by Levia and Page (2000) illustrated that in the case of United States, in Sterling- Massachusetts, illustrated the contrary. Larger plots are geometrically more expensive than the smaller ones and the higher price of land makes it profitable to sell for the farmer in the short term, another agricultural producer cannot usually be able to buy it and urban developers can afford these high prices

[79]https://www.capitalarearpc.org/realizing-the-plan/plan-amendment/

and this is how larger plots (with urban settlements nearby) become more prone to conversion and urban development (Levia and Page, 2000: 547). This new perspective on the economies of scale in agricultural production and agricultural land conflicts with the policy encouraging larger plots in agricultural production. The emphasis should be on the distance to the urban settlements here and after encouraging larger plots via regulations, zoning, and taxes, the afterwards of the area, land conversion should also be controlled.

Small farmers nearby urban settlements have other kind of problems that makes them prone to farmland conversion. The economies of scale is a major reason and fragmented urban development in the middle of fields where suburban living and agricultural production conflicts with each other is another reason (Schiffman, 1982: 256). A measure developed against the farmland conversion in the United States was Williamson Act applied in the case of California (Levia and Page, 2000: 547). The core logic of the act is to determine the taxes depending on the existing land uses on the land if these land uses are agricultural, natural or open-space and not depending on the potential land uses especially in the cases where neighbor parcels are developed with urban land uses (Schiffman, 1982). Williamson Act with defining lower taxes for agricultural, natural, and open-space land uses, enables small scale landowners to keep their land natural or rent their land to other farmers for agricultural production even though there is urban development nearby (Levia and Page, 2000: 547). The land under the contract of this act is zoned as agricultural, natural, or open space in the zoning plans produced by the local governments which officially preserves the land as agricultural, open-space or natural (Platt, 1981: 119). The local governments' tax revenues decrease with this tax regulation policy and this decrease is compensated by payments from State governments to local governments (Schiffman, 1982: 256). More than 44 states have similar regulations favoring and encouraging agricultural production against urban land uses via determining taxes based on existing agricultural production land use and not with regard to potential (higher values) if urban development takes place (Platt, 1981: 117). Moreover, in majority of these states, there is also a "rollback" penalty collecting the difference of the agricultural tax from the potential (higher) urban tax if a land conversion takes place in that land and this can cover several years before the conversion (Platt, 1981: 117).

Purchase of Development Rights (PDR) is another significant tool to prevent farmland conversion especially in the Northeastern regions of the United States and it means the expropriation of the potential development right including subdivision over a farmland with market value and making the agricultural production land use perpetual (Platt, 1981: 118). Once the farmer sold the development rights to the public bodies (local governments), whatever the surrounding land uses are, the plot remains undivided and agriculturally productive. This is a strong tool for conserving farmland and agricultural production yet there

are two major weaknesses to it, first it is very expensive to expropriate development rights in plots under urban development pressure and second there is no warranty to the utilization of the land for agricultural production since it also can remain idle (Platt, 1981: 117). PDR is similar to transfer of development rights in terms of aims and approach, but with a public fund used.

Following taxes and the dominance of private property and like PDR, another keyword that have to be included in an analysis on US urban and rural policy is Transfer of development rights (TDR) enabling landowners to sell the development rights given to their land as a separate commodity. It is the mechanism that enables farmers to continue farming activities without trading off the urban rent created over their land via development rights. The same applies for parcels with conserved buildings and heritage sites. TDR first invented as a density transfer mechanism for the New York City, to protect some landmarks in the central city in 1968 and after that year its utilization increased geometrically in the US and spread to peripheries and farmlands to prevent farmland conversion (Wang et al., 2010: 455). Agriculturally productive, "ecologically sensitive or historically significant" lands are the lands that have the development rights on them separated from their location and can be sold in the market as a commodity (Messer, 2007: 47). It is designed for "generating money for conservation from" the money that is invested in urban development (Messer, 2007: 47). The cost of keeping a land, a natural area or an historical landmark is planned to be paid by the development investments (Walls, 2012). The advantage of TDR is, unlike PDR it does not require any public fund and it is a no public cost conservation policy for public policy makers (Walls, 2012). The aims of the TDR (and PDR) utilized in rural and agricultural areas are making farmlands affordable for following generations and the future while conserving agricultural production and open-spaces, and while making farmers financially more stable (Pfeffer and Lapping, 1994: 236). The logic here is that there is a bundle of rights attached to the land, and they can be used or sold separately from each other and from the land (Daniels, 1991: 421). Both in PDR and TDR, the right to develop the land is separated from the rest and sold either to local governments and public bodies or private investors. The exchange of development rights takes place between conservation zones and development zones on the geography (Pfeffer and Lapping, 1994: 236). These policies should be supported by preventive measures against fragmented urban growth (Pfeffer and Lapping, 1994: 245) and the experience of the US in TDR is not considered as of a highly successful one due to the lack of demand to the development rights sold in the market while the supply is large and due to being less widespread than expected (Messer, 2007).

In the case of United States, there is also a problem of conversion of perennial land cover (grasslands, woodlands, wetlands) into annual crops is a problem as well and to compensate

the land lost to annual crops or to rehabilitate the land utilized for annual crops for a long time and now has become infertile, Conservation Reserve Program (CRP) is designed for the last 30 years (Corry, 201: 6). CRP is a "land-retirement program" and by increasing perennial cover on the land seeks to rebalance the habitat (Corry, 2016: 6).

3.4 The Netherlands

3.4.1 Land Use Policy: Settlement Patterns, Urban Forms and Spaces of Agricultural Production

In national scale, the population of the Netherlands is concentrated on the west coast of the country, in Rotterdam, Amsterdam and The Hague ring conurbation area (Randstad). Netherlands is among countries with highest densities in national scale and the densest parts have a density over 1000 per km square (see map below[80]). The lowest density areas in the country have a density between 26-250 person per km square and which is regarded as urban-rural transition density by some scales and "urban with rural" area (Gallejo, 2004: 17). Majority of these areas (26-250 density areas) are utilized for agricultural production if not a natural preservation area and the rest is urban in varying degrees and scales.

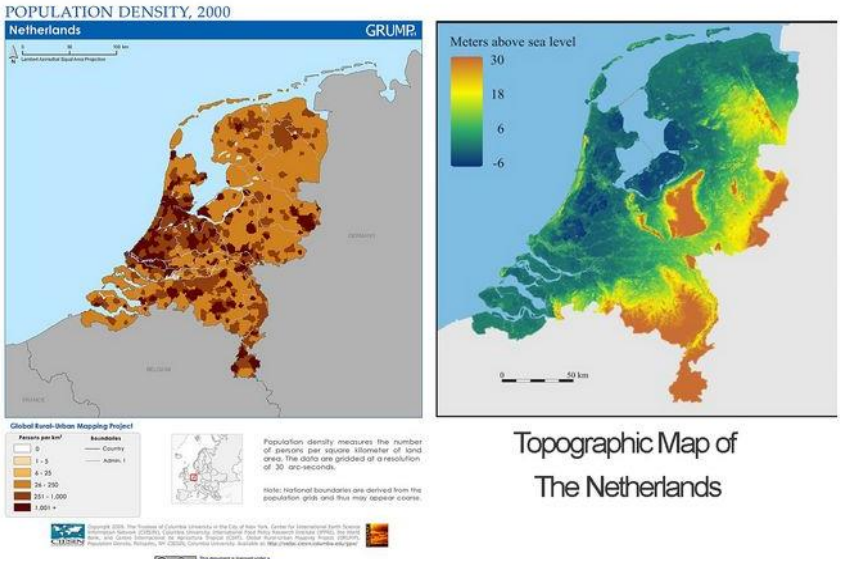

Figure 33 Population Density Distribution and The Topography of the Netherlands

The main division of settlements in the Netherlands is cities (stad) and villages (dorp) and in total there are 2500 cities and villages; at this point it is significant to clarify that the

[80]Source: CIESIN, 2009 retrieved June 2019 from https://sedac.ciesin.columbia.edu/data/set/grump-v1-population-density/maps/2?facets=region:europe and the Actueel Hoogtebestand Nederland, 2014 https://landoftherisingwater.blogspot.com/2014/06/elevation-and-population-density.html

Dutch villages the ‘dorp’s are larger than the villages in general with a population range between 1000-25000 and also includes towns as well (InfoNu, 2014; Plaatsengids, 2019)[81]. There are 200 villages and 2300 cities and other places (especially hamlets), yet in total number of settlements in the Netherlands is 6500; the remaining 4000 are called neighborhoods (buurt) (Plaatsengids, 2019). There are also settlements called **stains** (similar to oil-stain urban growth form) or spots (**vlek**) which are transition forms of rural to urban or urban to rural settlements without city rights or status, hence these places are also called **storp** (via merging dorp-village with city-stad) similar to word rurban (InfoNu, 2014). Neighborhood, villages and cities together forms the 355 municipalities and municipalities forms the 12 provinces (CityPopulation, 2019)[82]. In terms of city populations (not municipality, conurbation or metropolitan areas) there are no cities in Netherlands that has a population above 1 million, while the number of cities with a population between 1 million and 100.000 are 23 and between 100.000 and 10.000 there are 265 cities (WorldPopulationReview, 2019)[83]. On the other hand, the Randstad area, the ring conurbation of Amsterdam-Rotterdam-The Hague and Utrecht (and several other settlements) has a population around 7,5 million (Bowman, 2010). The largest metropolitan areas show the highest population increase rate in Netherlands, hence, the metropolitan scale is gaining dominancy in time (Netherlands Environmental Assessment Agency, 2016).

The **scattered settlement patter**n and continuous urbanization in the country might give the effect that settlements of all scale are sprawled in the Netherlands, yet this is not the case. In comparison with a neighbor country with some similarities, Belgium, the settlements in the Netherlands are relatively compact even though they are scattered (see map below[84]). This stems from the policies becoming a “**planning doctrine**” in the Netherlands and these doctrines are “**concentrated deconcentration**” (regulated suburbanization) and **compact cities** (see 3.4.1 spatial policy part).

[81]https://mens-en-samenleving.infonu.nl/diversen/130211-gehucht-buurtschap-dorp-of-stad.html https://www.plaatsengids.nl/kennisbank/wat-een-plaats-en-welke-soorten-plaatsen-zijn-er

[82]https://www.citypopulation.de/Netherlands.html

[83]http://worldpopulationreview.com/countries/netherlands-population/cities/

[84]Source: EEA, 2012 retrieved June 2019 from https://www.eea.europa.eu/data-and-maps/figures/example-of-different-urban-patterns

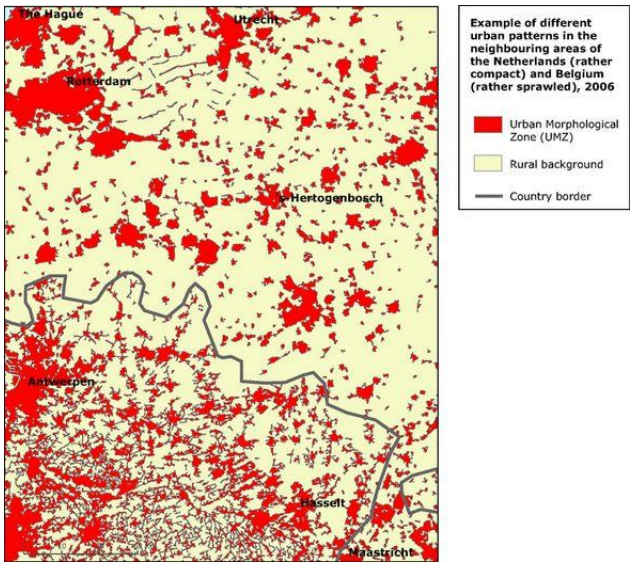

Figure 34 Settlement Patterns and Urban Forms in Netherlands in Comparison with Belgium

The dominant feature of the Netherlands' geography is it is dominantly flat, the elevation varies between -7 (below sea level) to 322 meters above sea level and 25% of the country is either below or at the sea level (WorldAtlas, 2017)[85]. The climate is temperate maritime all over the country and wetlands with higher groundwater levels dominates the country (WeatherOnline, 2019)[86]. The oldest city in Netherlands is Nijmegen with 2000 years (Roman Empire military camp) (DutchNews, 2018)[87], Amsterdam is founded in 13th Century and majority of cities dates back to those ages (AmsterdamInfo, 2019)[88]. With reference to China and Turkey, the cities are relatively younger in Netherlands. There are plenty of navigational canals and rivers all over the country between and within settlements since the 17th century and the planning and design of urban and rural spaces are heavily influenced by this canal system (Holland.com, 2019)[89].

Within this context, the **settlement patterns** are relatively homogenous all over the country and the distribution of settlements are relatively balanced even though densities and distribution of population varies dramatically between east and west of the country[90].

[85]https://www.worldatlas.com/webimage/countrys/europe/netherlands/nllandst.htm

[86]https://www.weatheronline.co.uk/reports/climate/The-Netherlands.htm

[87]https://www.dutchnews.nl/features/2018/06/dutchnews-nl-destinations-explore-2000-years-of-history-in-nijmegen/

[88]https://www.amsterdam.info/basics/history/

[89]https://www.holland.com/global/tourism/information/history-of-the-canals-in-holland.htm

[90] Source: Google Earth Satellite View, 2019 retrieved June 2019.

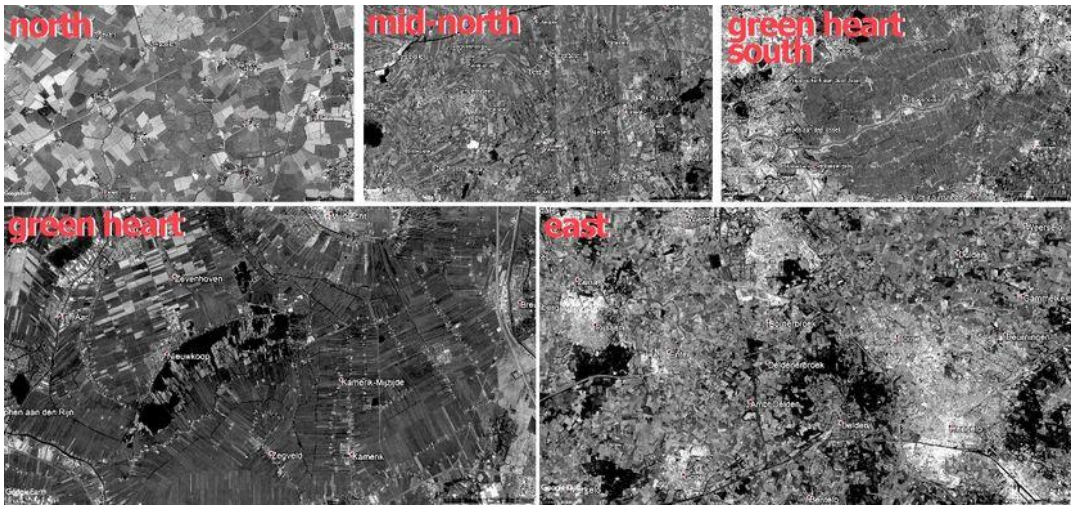

Figure 35 Dutch Settlement Patterns – Oil Stain, Scattered and Linear

As a planned country, the settlement pattern is rather scattered and urban and rural lands uses are intertwined in a juxtaposed fashion. Even in the preserved zone of the Green Heart, there are linear forms of developments alongside transportation network following the ownership patterns and the settlements are continuous. The land ownership differences in terms of geometry created differences in settlement patterns but regardless of that and the scale of the settlement, the settlements are scattered nearly homogenously over the geography of Netherlands. Unlike China's imperial grid, there is no significant country-scale geometry in the Netherlands yet the layout of urban and rural design is determined by the widespread canal system in the country.

Amsterdam, emerged in 13th century and the capital city of the Netherlands is selected as the case to illustrate the u**rban form** in Netherlands. The urban land use is nearly continuous between the four main cities of ring conurbation (the Randstad), hence the urban form of Amsterdam does not end within the borders illustrated below, yet the official municipal borders of the city is utilized to illustrate the scale of the city. Amsterdam is a high-density city (see the map below in the middle) and the form of the city is similar to a star shape with arms on main transportation network. Amstel river is the main geographic feature that defines the form and urban fabric of the city and the core of the city is located on its shore, next to the Port of Amsterdam. The city is a city of navigational canals, river and the Port of Amsterdam. The density distribution is relatively homogenous in majority of the city and it is high, similar to other European cities. The housing prices also are highest at the core and decreases with distance from the center of the city (see the last map below)[91].

[91]Sources: Amsterdam Municipality, 2018 retrieved June 2019 from https://maps.amsterdam.nl; Bell, J. (2017) retrieved June 2019 from

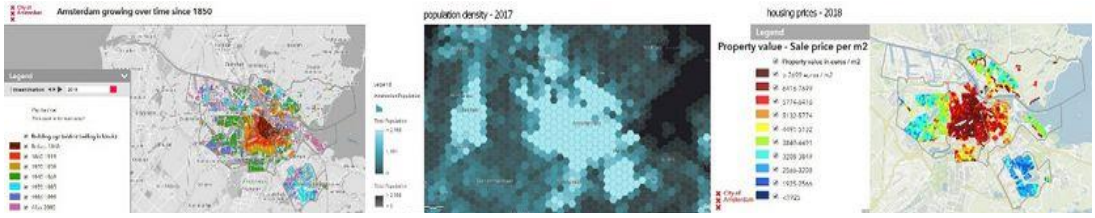

Figure 37 Urban Form in Amsterdam – the Capital City of the Netherlands

Since the settlement within the conurbation is continuous the form reminds us of a oil-stain form of urban sprawl and in general the form looks similar to Turkish cities especially the capital on a smaller scale. Yet, with a closer look, the city is heavily planned. Even though the signs of freedom of design given to private development firms within their large lots are visible from the urban fabric, in general, the overall densities, transportation network and general city framework is designed and regulated. The overall structure of Amsterdam can be seen in the collection of maps below.

Figure 36 Urban Morphology in Amsterdam

https://www.arcgis.com/home/webmap/viewer.html?webmap=b97780479b004339aa7d2a36b192780d ; Amsterdam Municipality, 2018 retrieved June 2019 from https://maps.amsterdam.nl

In the first map above, the canal layout of Amsterdam alongside the river of Amstel and the Port of Amsterdam can be seen. The layout of the design of the city is a radial grid and at the heart of this radial grid lies the central station of Amsterdam.

The **canal system** is nearly as widespread as the road network and the canal is utilized for navigational purposes. The fabric formed by this structure is visible on the right in the first row above. The middle and below-left visuals are illustrating fabric examples from the peripheral parts of the city. The high density continues in the middle one while in the below left one, the transition from urban land use to rural land uses is visible and hence the density is relatively lower and the vertical density of buildings are decreasing as well. The patchwork like pattern is visible in both, and unlike the central part they do not speak the same spatial language (like Çayyolu-Ankara in Turkey) even though the frame (the transportation network) is well defined. The last map, the light railway and metro network of the city clearly illustrates the radial grid utilized in the design of Amsterdam. In short, Netherlands, as a "planning paradise" is a highly planned country, yet, due to limited land, the urban forms are not as compact as expected. The medieval historic cores of majority of the cities are (if not torn down by WW2) conserved, and the radial form and core/inner ring roads (replacing or encircling old city walls) are a remainder of that era.

Figure 38 The Netherlands - Köppen - Geiger Climate Classification 1991-2020

The smallest among the countries analyzed within the framework of this study, whole Netherlands is located within a single climate zone, Group C temperate in Köppen – Geiger Climate Classification (WB-CCKP, 2021). This lack of versatility makes the country more fragile against the climate crisis. Mean annual temperature is 10.40°C and the mean annual

precipitation is 790.94 mm for the year 2020 (WB-CCKP, 2021)[92]. The mean temperature is the second highest following Turkey and the precipitation is the highest among the four countries analyzed. The agricultural production patterns in the Netherlands is not varying based on the climate and geography since both are more or less the same but rather based on technologies and approaches to agricultural production. The production pattern in the whole country is planned and under strict control. This tradition of strict control stems from the long history of flood prevention and control in the Netherlands, where the water is the major threat to life and production.

As one of the major actors in agricultural production worldwide, majority of land in the country is agriculturally productive and utilized for intensive agriculture. Significantly different from the case of China or Turkey, the problem is not water in Netherlands, it is the land; the land is severely limited and the competition among land uses are high. The average size of an agricultural plot in the Netherlands is 25,9 hectares and shows a tendency to get larger because number of holdings (families, individuals and firms holding the land) is decreasing (Eurostat, 2010). The Dutch agriculture is relatively small-scale dominant (58% of all farms are under 20 hectares; EuroStat, 2010) and highly intensive supported with R&D and technology[93].

[92] https://climateknowledgeportal.worldbank.org/country/netherlands/climate-data-historical accessed on May 2022.

[93] Source: Diogo et al, 2015.

Figure 39 Agricultural Product Patterns in National Scale

Land size of the Netherlands is small hence, the agricultural patterns expected to vary less than other case studies, China and United States, yet different soil types, namely sand, clay, peat and loess, creates differences (Reinhard and Linderhof, 2015). Climate is not changing much due to small distances, yet the level of ground water varies alongside strong winds from the Ocean. The dominant production pattern is dairy farming in the Netherlands which is followed by arable farming as seen above. fruit grooves are predominantly located in the South Holland Region and Green Heart, while flower growing (predominantly tulips) is located on the western coastline. Within this context the agricultural patterns are illustrated below[94].

[94] Source: Google Earth Satellite View, 2019.

Figure 40 Agricultural Production Patterns in the Netherlands

Nearly all landscape in Netherlands is controlled and agriculturally productive lands are regulated. The first three views from the map above are from the Green Heart, strictly preserved (until 2000s) agricultural and relatively rural part of the Netherlands within the ring conurbation. The scales are all the same for all views (and the same applies for China for comparison, U.S. is another case, since the plot sizes are significantly larger in average, the scale is smaller for the case of the U.S.). The green heart plots are smaller, linear and highly regulated, and the irrigation canals are more intense there. In the southern part of Netherlands (Zuid-Holland Region) the linear form of plots is getting distorted when going to the inner – eastern parts of the country. The water is getting relatively scarcer getting to east with the decreasing number of irrigation and navigation canals and rivers and the rural fabric of agricultural plots also becomes more distorted alongside the increase in scale. The same tendency is visible in Turkey as well; plots get larger with the decreasing amount of water to sustain production since the productivity falls with the decrease in the amount of water. There are plenty of hamlets and sprawled single farm-settlements within rural and agricultural fields in the Netherlands. Only in the Green Heart they are concentrated linearly on the transportation network.

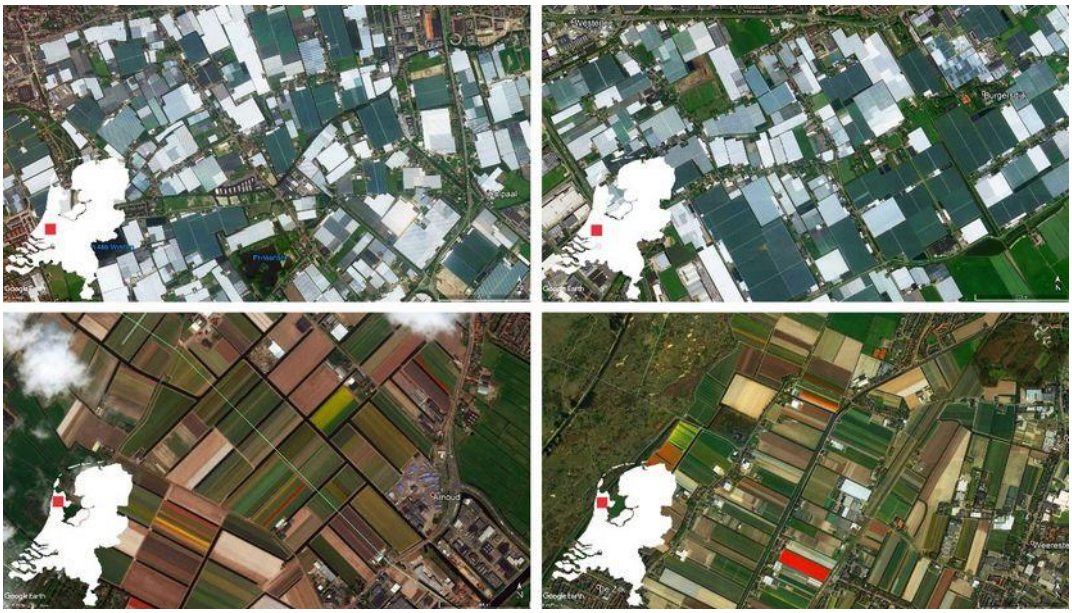

Figure 41 Agricultural Production Patterns in the Netherlands: Greenhouses and Tulip Fields

Clearly visible on the satellite views[95] selected above, greenhouses are also dominant in the agricultural patterns of the Netherlands, especially around Rotterdam, Amsterdam, the ring conurbation in other words, where all the major ports are located. The scale is the same with other satellite views, hence it can be said that the plot sizes are slightly larger in greenhouses and tulip fields. The agricultural production in these greenhouses is highly industrialized, engineered and controlled. Tulip fields are also attracting tourist flows as well.

3.4.2 Planning Implementation Tools and Conservation Regulations

Netherlands, "the planning paradise" (Faludi and Van de Valk, 1994; Gerrits et al., 2012), has a strong tradition of planning with five central principles: "the concentration of urbanization, spatial cohesion, spatial diversity, hierarchy, and spatial justice" (Bogaerts et al, 2007: 32). Scenario based Models and input-output based systems are utilized for spatial decisions and policies such as land use, transportation network and other forms of Dutch spatial planning. Within the framework of spatial visions drawn by central state, plans produced by governments, provinces and municipalities in different scales, municipalities are the main actors to implement the spatial plans, policies, and decisions (Government of the Netherlands, 2013)[96]. Land use plans consisting of "the rules and regulations for the area

[95] Source: Google Earth Satellite View, 2019.

[96]https://www.government.nl/topics/spatial-planning-and-infrastructure/spatial-planning-in-the-netherlands

concerned" and "an illustration (planning map) that indicates and explains the various zones" are the main tools of Dutch spatial planning (Government of the Netherlands, 2013). In Dutch planning, not only spatial or regulatory but also economic and social tools are utilized while producing and implementing policies. To start with the housing policy, Netherlands has the largest share of social housing among European Countries with a percentage of 32% of the total stock and 75% of rental housing (Housing Europe, 2010)[97]. Provision of housing and rental supports and regulations are major housing policies in the Netherlands, and it is one of the strongest economic tools for urban problems. Urban restructuring for the disadvantaged neighborhoods is another tool utilized after 2000 and this tool includes "social mix" of different income groups and ethnical groups and on the other hand this restructuring policy also includes decreasing the amount of the social housing in a neighborhood since social housing is seen as a variable decreasing the quality of life in the neighborhood (Uitermark, 2003). This conflicting tool aiming to decrease the amount of social housing and increase the percentage of privately-owned housing is changing the social and economic fabric of Dutch cities after 2000 (Uitermark, 2003).

With the deindustrialization process taking place in the advanced capitalist countries, brown fields remaining from mining areas, ports and industrial areas have become a problem of spatial planning and repurposing of such places are proposed and implemented in Dutch planning (Geurs et al., 2003). Within this context, brownfield and waterfront redevelopment including designing interfaces between ports and urban land uses, and rehabilitation (from the remaining pollution of the previous land use) are two other significant tools in spatial planning for Netherlands (Van den Berghe et al., 2018). The repurposing of these areas is affected by the massive recycling culture and economy of the country and previous production and transportation nodes tend to include recycling facilities and network elements with these redevelopment policies (Van den Berghe et al., 2018). By directing the urban development to the brownfields via repurposing, agricultural areas and natural areas are more easily preserved (Geurs et al., 2003). Concentrated deconcentration doctrine directing urban growth to specific subcenters and prohibiting small rural settlements' uncontrolled growth (Schwanen et al, 2004: 580) and "compact greenfield housing" understanding in the planning is also utilized for the same purpose, hence it is also a tool for conserving agriculturally productive land alongside "restrictive planning measures" (Geurs et al., 2003). Retail geography control is also problematized within the comprehensive spatial planning framework and spatial retail policy prohibiting "the development of large out-of-town shopping malls" is utilized to control retail spaces (Schwanen et al, 2004: 580). Network city concept replaced the concentrated

[97]http://www.housingeurope.eu/resource-117/social-housing-in-europe

decentralization after 2000s and decentralization, even if in a compact fashion, is not encouraged for the network cities anymore (Geurs et al., 2003). Prior to network city concept, the A-B-C location policy based on the access to and encouragement for public transport system and directing economic growth (new firms) to A and B locations was proposed, yet this policy ended with economic growth in C locations with access to highways and motorways while lack of access to public transport, which eventually defeat the initial purpose of encouraging public transport (Schwanen et al, 2004: 582).

Another significant planning tool effective over both production of urban space and preservation of agricultural space is the environment explorer. Operating similar to system theory, the environmental explorer "is a dynamic land-use/transport interaction model for the Netherlands, developed to design, explore and evaluate long-term spatial policies relative to the development of the physical environment in an economic, social and ecological context" (Engelen et al, 2003 as quoted in Geurs et al., 2003: 9). Land use is strictly controlled in the Netherlands and conflicting land uses are under control, and in the case of an encounter, agricultural land uses and natural preservation have the upper hand. Yet, one major and longtime problem of Dutch agriculture is small land sizes and fragmented agricultural parcels, too small for profitable and "sustainable" production, and one another major policy line revolves around this problem (Pease, 1991: 338). The highly comprehensive nature of Dutch planning handles these conflicts in a highly regulated fashion. For instance, in the case of wind energy, which provides Dutch railway network's energy need in 100%, due to spatial planning regulations, and not to consume needed and limited land, the wind turbines and new wind energy projects are dominantly proposed in the offshore (Jay, 2010: 494). The offshore areas are also within the planning borders, hence planned (Jay, 2010).

The prevention of farmland conversion in Dutch policy is provided by three direct ways: "reclaiming land from waterbodies, reorganizing existing agricultural areas, and regulating land use through a national-provincial-local system" (Pease, 1991: 338). Spatial planning act controlling production of urban space and the land use geography is the core tool for farmland conversion in the Netherlands, yet the main authority in farmland conversion is the municipalities since they are the ones who produce detailed land use plans in local scale and implement these plans (Tan et al., 2009: 962-963). Containing urbanization is the major way to prevent unwanted farmland conversion and preserve open spaces both agricultural and natural (Koomen et al., 2008: 362). There is no upper limit for farmland conversion in the Netherlands or a specific farmland preservation policy yet they are regulated and preserved with the detailed and powerful land use plans (Tan et al., 2009: 963). Farmland preservation is categorized under open-space preservation in the Netherlands and it includes not only agricultural lands but also natural lands as well with significantly different conservation

policies and "this changes the 'open space-versus-urban-development' dichotomous model into a triangular model of 'agriculture-versus-nature-versus-urban-development'" (Koomen et al., 2008: 363). The transformation of natural land into urban land is harder than agricultural land into urban land, yet in some cases the transformation of the natural land into agricultural land is more problematic due to scale (Koomen et al., 2008). Following the status change of the land by farmland conversion, there can be two separate processes, one is active land policy where municipality expropriates/develops the land directly via buying it from the owner and the second one is passive land policy with market – private actors taking the role of the developer (Tan et al., 2009: 963). Time span is longer for the passive land policy and hence, private actors are not eager to be involved in the process and prefer the public actors take the lead in farmland conversion process (Tan et al., 2009: 963). Farmland conversion was mainly a public act before 1990s due to low probability (private actors entered the process after the actual land conversion by the hand of municipalities takes place at the time) and after 1990s with especially the decrease in the asymmetry of land development medium and long term knowledge and plans between public and private actors (with the Memorandums) and the decrease in the percentage of subsidized welfare housing in the housing market, private actors also started to be involved directly in the land conversion process (passive land policy) even though the land conversion is still dominated by municipalities' "investments, which account for 58% of the total developed area, or 68% of the total dwellings". (Tan et al., 2009: 963-964).

Common Agricultural Policy (CAP) of the EU keeping the rural economy alive, agricultural production intact and providing farmers a reasonable living since 1962 (European Commission, 2019) is one of the major protective mechanisms against the conversion of agricultural land. Strengthening agricultural production economically is one of the most needed tools to preserve agricultural land and keep agricultural production going. CAP gives low priority to the natural land while focusing on agricultural production in economic terms and even though the focus of the policy is transforming into a more nature-sensitive and climate change oriented in time, the focus remains as agricultural production still. The problem of agricultural plots getting smaller in time and fragmented ownership patterns for farms were predominantly solved with the process of land development in previous years and with this act like a land reform also distribution of irrigation network and access to water have been solved as well (Grossman, 1989: 103). Since the 1970s, area management for agricultural and natural zones integrating these two land uses harmoniously are existent in the Netherlands and the two forms that are subject to area management are reserve areas (predominantly natural) and management areas (predominantly agricultural) and the management of second one is done by

local governments in cooperation with farmers, hence it is similar to the governance understanding with public-private partnership (Grossman, 1989: 104).

The two major agricultural and open space conservation zoning policies are green heart protecting the open space consisting of agricultural areas and natural areas in the heart of Randstad ring conurbation and ten "buffer zones" in varying scales (from 3 hectares to 8700 hectares) keeping cities separate preventing linear and continuous urban sprawl between cities (Koomen et al., 2008: 365). Majority of these ten buffer zones are in the Randstad area to prevent urban areas becoming solid belts with continuous urban fabric between cities (Koomen et al., 2008: 365). The decisions on buffer zones and green heart are all spatial planning and zoning decisions and hence the main tool of conservation of agricultural land in the Netherlands is spatial planning itself. Natural areas are more easily protected than the agricultural areas in the Netherlands since they are under protection of laws, international directives and regulations but more significantly with the help of ownership patterns; majority of natural areas in the Netherlands belong to nature conservation organizations, and it is the fragmented ownership patterns in agricultural fields that is the main obstacle beyond the preservation of agricultural land (Koomen et al., 2008: 365). Agricultural development effects natural environment negatively with water and land consumption while conservation of natural areas usually creates an economic disadvantage for the farmers within and around the protection zones (Grossman, 1989: 103-104). The major resource for agricultural land was the natural land obviously and more than 1000 years, the transformation of natural land to the agricultural land is taking place and today this trend is reversed for the purpose of increasing the amount of natural land in the Netherlands (Nienhuis et al., 2002: 219). The triangular model of land conversion offensively protecting natural areas from transforming into both agricultural and urban areas and partly conserving agricultural areas from urban land uses alongside the offensive instead of defensive policies not limited only to the preservation of existing natural land but even increasing the amount of natural land results with decreasing amount of agricultural land (Koomen et al., 2008: 365). In this triangular model, the amount of urban land increases due to urban growth and population pressure and natural land increases due to offensive natural preservation policies and hence since the amount of land is limited, the one decreasing is agricultural land among the three forms.

3.5 Turkey

3.5.1 Land Use Policy: Settlement Patterns, Urban Forms and Spaces of Agricultural Production

The population of Turkey, apart from major urban agglomerations, Especially İstanbul, is more close to being evenly distributed than the cases of China and United States. The area of the country is neither as massive as US or China nor as compact and dense as the Netherlands. The topography is predominantly mountainous with fertile basins and plateus here and there. The western part of the country is larger in terms of population and expectedly level of development. Istanbul creates a massive imbalance in the distribution of the population in the country and as can be observed from the density map below[98], it is now a conurbation covering several cities. The population density distribution follows the fertile basins in the country.

As of 2022, there are 81 provinces, 973 districts and 18211 villages in Turkey

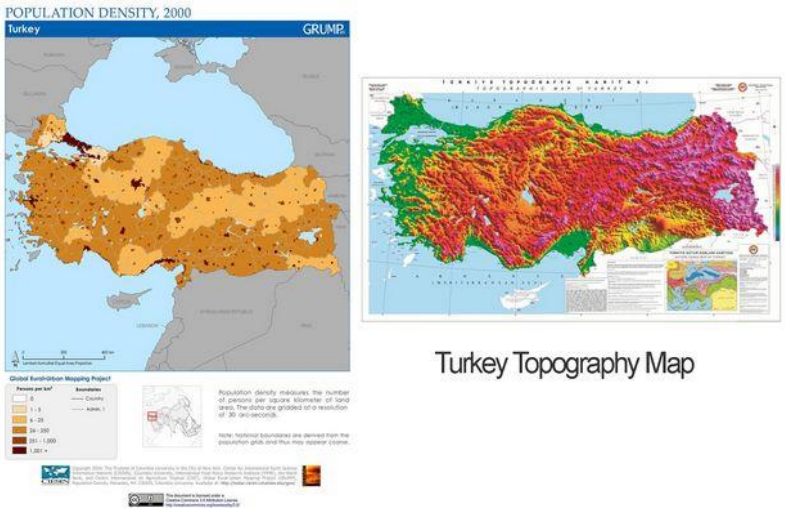

Figure 42 Population Density Distribution and the Topographical Map of Turkey

(TURKSTAT, 2021). 51 provinces are governed by special provincial administrations and municipalities while 30 metropolitan provinces (with provincial population over 750.000) are governed by metropolitan municipalities. The number of villages are also related with the metropolitan municipality status because the 15892 villages (nearly the half of all villages in the country) in those 30 metropolitan provinces are regarded as neighborhoods after the enactment of the 6360 Law. On the other hand, 442 Village Law (enacted in 1924 and still in

[98]Source: CIESIN, 2009 retrieved January 2020 from https://sedac.ciesin.columbia.edu/data/collection/

grump-v1/maps/gallery/search/21 and www.mta.gov.tr accessed on April 2022.

effect) divides the settlements by the size of their population and names places with less than 2000 population as villages while places with populations between 2000 and 20,000 are named as casbahs (kasaba, town) and the settlements with a population over 20,000 are cities.

Istanbul, by far, is the largest city, the largest for Europe the third largest for the Middle East region with a population of 15,840,900. The publicly available population statistics are administrative borders based instead of being settlement based and this especially creates problems in understanding the city sizes-ranks and rural populations within the metropolitan municipalities. Within these limitations, there are 9 provinces with over 2 million population. 14 provinces have a population between 1 and 2 million while 19 provinces have a population between 1 million and 500,000. 35 of them have a population between 500,000 and 100,000 and three of them have a population below 100,000.

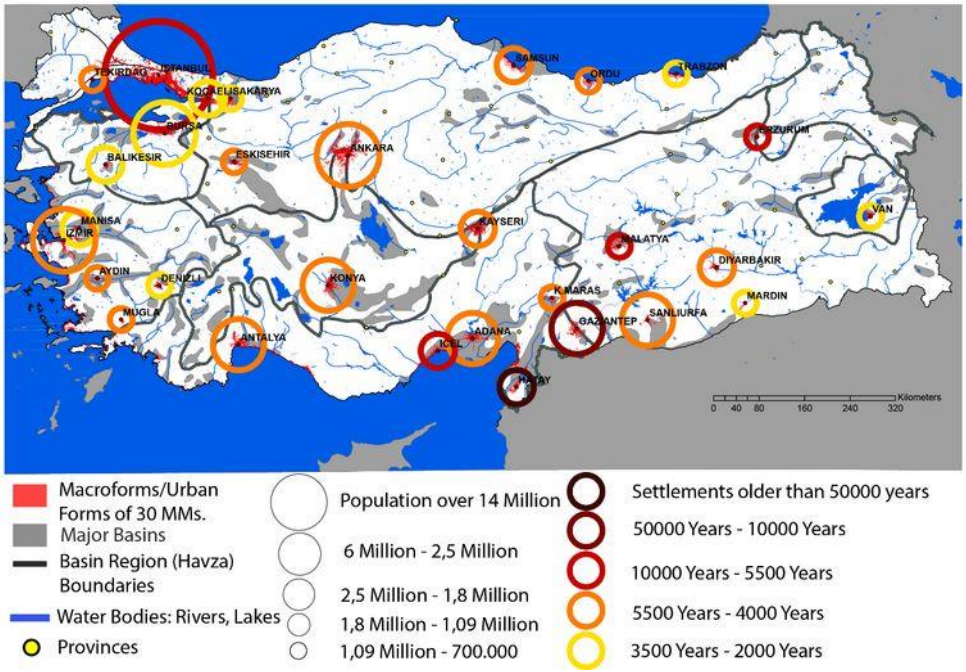

Figure 43 Ages of 30 Metropolitan Cities' Settlement Areas

The youngest MM is older than 2000 years old in Turkey. Our cities are literally old and ancient, even for the global scale. From yellow to dark reed, the cities become older, the pattern is hard to read, and with only 30 cities, we cannot say that one part of Turkey is urbanized before the rest. In order to make such a deduction, all the living and dead ancient cities, ancient sites, caves and other places (sacred places like Gobeklitepe) have to be counted. The sole purpose of this map is to show how old our cities are, and how much effective the geographical features are in location selection of cities, since they are ancient cities, in an age with less transportation, less technology and less accessibility. Cities are always located close to the water bodies and mostly located either close by or on the basins. This is what is expected

and natural considering the age of the cities/cities' locations. The basic needs, back in time, were hard to provide, hence people have chosen to settle down in such places. The ages of 30 MMs in Turkey can be seen below with their population size distributions[99].

Apart from Trabzon, Ordu and Diyarbakir, almost all MMs have access to one or more major basins. Based on the differences between the population of 2020 and 2021, the 36 provinces have a population increase rate between 1% and 5.94%, 29 provinces have an increasing population with a rate between %1 and 0 while 16 provinces have decreasing population (TURKSTAT, 2021). The lowest rate of decrease is -2.02% experienced in Agri (on the eastern most borders of Turkey). The metropolitan municipalities (with populations above 750,000) apart from Van, Ordu and Erzurum have increasing populations (TURKSTAT, 2021). The provinces with decreasing populations are distributed randomly within population classes and the decrease or increase is more of a locational thing rather than a scale-based rescaling in the population.

Problematized throughout this study, the enactment of the 6360 Law transformed the urban rural categorization of settlements in Turkey in a problematic way and the villages in the 30 MMs are considered as urban neighborhoods without differentiation. The urban population is calculated (for the last time) as 77% in 2012. the 2021 urban population, due to this legal shift is put forward as 93.2% while according to World Bank and the Ministry of Environment, Urbanization and Climate Change (MoEUCC) the 2018 urban population of Turkey was 75.1%[100]. Rural population in Turkey is declining slowly apart from statistical blindness problems originating from legal changes.

The climate of Turkey is Mediterranean in general with hot and dry summers and mild and rainy winters yet there are also different zones within the country. The mountainous geography of the country creates differences in terms of climate where due to east-west dominant axis of mountain ranges covering the country in the north and south shores are humid and have mild transitions between seasons, the higher mountainous plateaus on the eastern part are cold and snowy and the inner plateaus have significant differences between day and night temperatures. Rainfall is also the minimum in the inner middle regions while the north shores have plenty of rainfall. The groundwater reserves also vary among the regions therefore

[99]The ages of cities are collected from http://www.sehirtarihleri.com while the populations are compiled from TURKSTAT.

[100]https://cevreselgostergeler.csb.gov.tr/kentsel---kirsal-nufus-orani-i-85670 accessed on April 2022.

the water is not evenly distributed in the country and also Turkey is on the verge of water scarcity status with increasing stress in time (Hakyemez, 2019)[101].

The settlement patterns in Turkey are more similar to the settlement patterns in the Netherlands than China with the Imperial Grid and the US with the Jefferson Grid. The majority of urban forms consist of oil-stains, scattered and linear (if topographical thresholds are existent and the overall pattern that these settlements form is like the constellations as in the case of the Netherlands. To illustrate the settlement pattern in the country scale, the centers of the districts are marked in the map below. As a base map, agricultural basins (green) are marked[102]

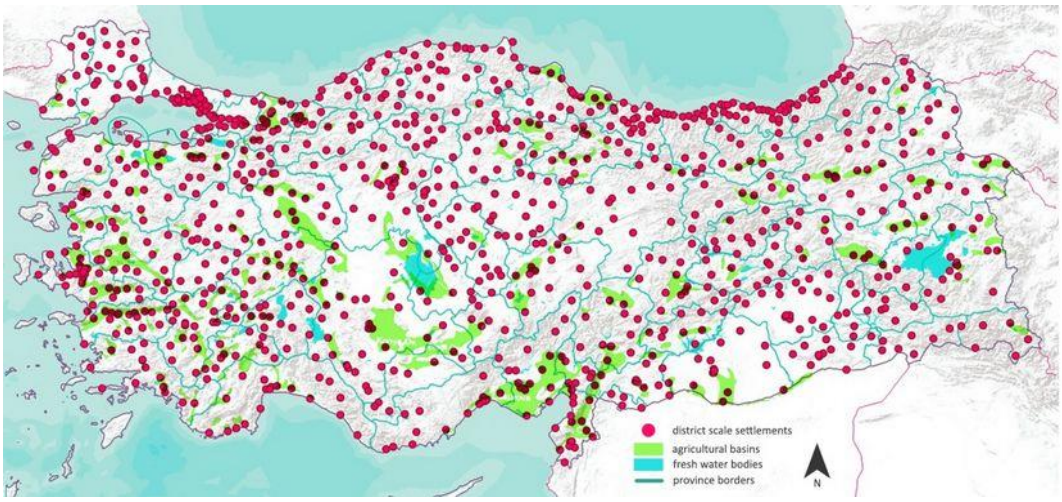

Figure 44 Settlement Pattern by District Centers Distribution

The settlement pattern in general is balanced in the country apart from specific concentration areas such as Istanbul, Ankara and Izmir Metropolitan Areas and largest cities. The density of number of settlements seems to increase to the west and north of the country in general. In the northeast part of the country, in the Black Sea region, the settlements tend to agglomerate on the coastline (where the mountains lie parallel to the shore) yet the population is the scarcest in this region. Apart from the large and sequential agricultural basins on the Aegean shore and the eastern most part of the Mediterranean, the settlements' location seems to be nearly evenly distributed. These two regions are among the most fertile parts of the country and therefore it explains the density of settlements. The population of these settlements on the other hand is another issue.

[101]Hakyemez, C. (2019) Water is the Next Diamond, TSKB. https://www.tskb.com.tr/i/assets/document/pdf/TSKBThemeLook_WaterIstheNextDiamond.pdf

[102]Layers: Esri Terrain Basemap for QGIS, General Command of Cartography, Administrative Maps https://www.harita.gov.tr/urun/turkiye-mulki-idare-sinirlari/232,

A closer look for the settlement patterns illustrates the widespread patterns for the spatial distribution of population with reference to produced spaces and produced settlements in general. The distribution of villages over the geography and the formation of ownership patterns surrounding those villages is highly representative for the settlement patterns in the countries. From the housing units (whether it be attached or detached apartments or detached traditional village houses) to the settlement forms and even to the settlement patterns that the settlements together form with their environs, there is a flow of form, and this flow is sustained with the ownership patterns.

The form of villages, which can be considered as the basic unit of the country scale settlement pattern, is divided into three (natural) categories by sociologists and agricultural economists for research purposes and these three categories are compact, linear, and dispersed[103] (Türkdoğan, 1977: 107 and Özensel, 2015: 35). The difference lies in not only the forms of the villages but also the relation that they have with the land. Compact ones[104] as the name suggests are agglomerated into small geographies and the land is not attached to the dwelling of the farmer but rather in a far-off place. It is easier for this villages to get service provision for its people since farmers are in proximity while the production costs are higher due to the distance between the farmer and the land (Türkdoğan, 1977: 107-8). Yet, the scale of land tends to be larger and hence the efficiency of production increases. This form is usually observed in foothills in the junction of basins and mountainous ranges and directly on basins. This is the most widespread form and 24520 villages out of 34063 (for the year 1977) were (and still are) in this form (Türkdoğan, 1977: 108). This is also the form that our urbanization forms most resembles (this form is known as oil-stain in the urban realm).

The second one, the linear one usually follows geographical and spatial features such as streams, rivers, roads, valleys or ridges. The land is attached to the house in these forms of settlements, yet the scale tends to be dramatically smaller than the compact villages' detached lands. Therefore, even though this model brings the attached land and easy service provision advantages together, the scale of land becomes an obstacle beyond subsistence agriculture. The third one is the dispersed one and usually is observed in the eastern Black Sea Region of Anatolia. In this form, the house is attached to the land of the farmer, and the housing unit acts as a production unit. This form of agricultural production is usually sustained with tea

[103]The fourth one is the circular village which is the planned combination of the dispersed and the compact villages to increase the advantages (Türkdoğan, 1977: 107 and Özensel, 2015: 35)

[104]At this point, it is useful to note that this `compact` term is not used as the compact in the meaning of cities with high densities and no sprawl. It rather implies that the houses of farmers are detached from their land and constructed in closer vicinities to each other, yet it does not have to be really compact, the village can be sprawled using the land inefficiently, yet if they are detached from their large scale agricultural land it is still considered as compact.

production even though the land is smaller in scale than the compact settlements' agricultural fields. This form is highly disadvantageous for service provision to the residents.

These forms will be further evaluated in the following `urban form` focused parts of this section and the accumulated pattern that these settlements create coming together are exemplified in several cases below.

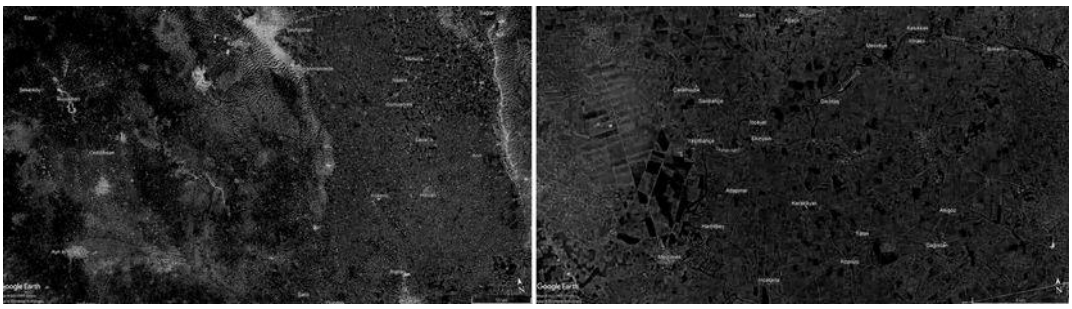

Figure 45 Constellation of Compact Rural Settlements

The first settlement pattern, which is also among the most widespread is the constellation like settlements dispersed over basins. The flat parts of the country such as inner Anatolia and some relatively larger basins like Cukurova (east Mediterranean Region) shows these forms of settlement patterns.

Unlike the Jefferson Grid in the US and the Imperial Grid in the case of China, this constellation form follows more radial forms in ownership patterns beaming from the core of the settlements to the peripheral agricultural lands with parcels getting larger with distance from the core. The aggregation of these patterns results with a combination of triangles and radial forms. The villages are surrounded with orchards and vegetable gardens and surrounding these areas are the fields (Türkdoğan 1977: 108). In this form, the villages are detached from their agricultural lands while the scale of production and the scale of agricultural land tend to be larger and hence the capital accumulation in these settlements tend to be larger. These geographies are also more prone to irrigation provision due to the easiness level and in return this tends to increase the capital accumulation even further. The livestock on the other hand, is limited with the space provided in the compact settlements while the meadows are used as commons hence it is more efficient (Türkdoğan, 1977: 108).

The second settlement pattern is the foothill agglomerations which also tend to be the older settlements. This settlement pattern is usually observed on the foothills of mountain ranges neighbor to the fertile agricultural basins. This form is most widespread in the Aegean and the Mediterranean region on the western and the southern parts of the country.

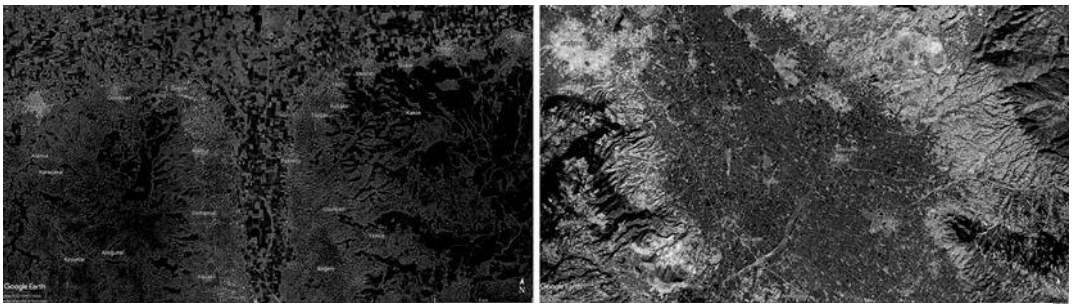

Figure 46 Foothill Settlement Patterns

The basins are highly fertile, and the production tends to be large in scale in these forms of settlement patterns and by being on the foothills, the settlements did not consume agricultural land historically, while in recent times these settlements tend to expand to the fertile basins due to dominant land use policies in the country, land speculation and construction and housing market dominance in the economy of the country.

The third form of settlement pattern is the dispersed patterns of dispersed settlement forms. This pattern is predominantly observed in the eastern Black Sea Region, and the house and land together act as an agricultural production unit in this pattern while the service provision levels are significantly low. The livestock is also kept within the perimeters of attached housing and land and in most of the cases meadows are lacking (Türkdoğan, 1977: 108).

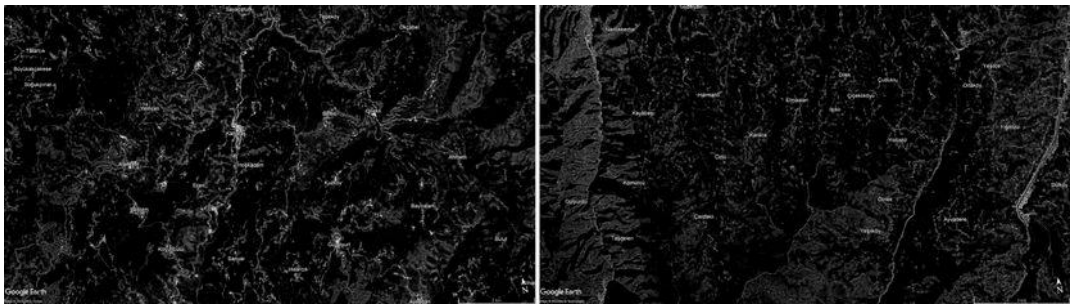

Figure 47 Dispersed Patterns of Dispersed Settlements

The region where this form and pattern is the most dominant is also the least developed part of the country which indicates the disadvantages of this form in service provision and also the scale of agricultural production is also not sufficient enough for local development and for the region to prosper. This fabric is accompanied with mountainous geographies which decreases the level of accessibility as well.

The fourth settlement pattern that is observed in the case of Turkey is the linear one and this form almost always is accompanied with geographical and/or spatial thresholds. This form is less frequently observed yet can be observed in almost all regions.

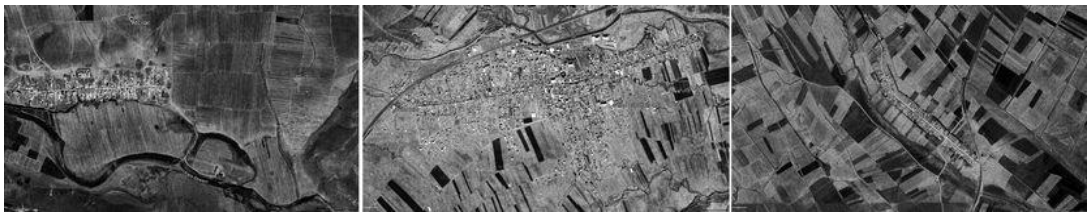

Figure 48 Linear Rural Settlements

The linear settlements do not usually form a linear settlement pattern in general in the context of Turkey and there are not much linear settlements existent to begin with. Even the cities like Mardin with natural thresholds that mold them into a linear form historically, with the urban expansion taking over growing cities, linear cities sprawled far beyond their natural thresholds and their linear forms long gone.

Following the modernization of agriculture in the rural settlements with the Marshall plan and the population inflow to the urban settlements, the urbanization of labor (Şengül, 2009), the growth in the cities in Turkey became erratic (Ünlü, 2019). This rush combined with the partial approach to planning (more like a de-planning) resulted with the planned **sprawled cities** of contemporary Turkey. The city is produced bits by bits with piecemeal plans on a building scale without considering the accumulation of the forms since the "planning decisions are developed within routine procedures without thinking about the qualities of the urban space or the needs and expectations of its users" (Ünlü, 2019: 42). The planning activities, the production of space in other words takes place in small scale by "the formation of buildings, plots, blocks, and street patterns" yet these bits form the "urban form" of the cities from inside out (Ünlü, 2019: 42). The two forms of residential development dominated Turkey's urbanization after the massive population increase in urban areas and these are squatter development on public land and the apartment block (Tekeli, 1998) and the overall urban form is formed by these units (Ünlü and Baş, 2019: 113). This form of urban growth results with an urban pressure over the surrounding rural and agricultural areas causing uncertainties and distrust to the future corrupting the rural landscape (Altaban, 1984: 77). This problem not only creates a sprawled consumption of agricultural land, but also agricultural production is exposed to urban pollution, decreasing production because of future rent expectations of farmers, an increase in land exchange values causing land speculation and fragmentation and an expansion of municipal adjacent area increasing the tax burden on farmers (Altaban, 1984: 76-7).

Under this circumstances, majority of cities, especially larger ones not limited with natural thresholds are sprawled. Majority of the land consumed by these cities for urban sprawl is allocated from agricultural land for the historical and geographical context in the country. To understand the widespread urban form, sometimes named as oil-stain, the sprawled Turkish

city, as done in the other three cases, the capital city is analyzed. The capital city of Turkey is Ankara which is among 5 planned capital cities famous in the planning history, yet this planning notion today is not legible on the periphery of the city. The plans prepared by Löscher in 1924 (Cengizkan, 2018) and following these plans' trails the plan produced by Jansen in 1932 cannot be fully implemented due to massive land speculation, local stakeholders keeping the land market at their hands, corruption and lack of financial resources in the central government (Yavuz, 1980: 11-13). The level of sprawl is severe (see Yaşar, C.G. 2010) and interestingly enough most of the time stems from the planning activities on the edge of the city. There are several plans produced for the city of Ankara, some implemented some not (1985 structural plan) yet the amount of land with development rights has dramatically been increased in recent years. In the early years of the Republic and even up until 2000s the population of the city was increasing rapidly, yet recently the pace has decreased therefore the population estimations are not that large anymore. The scale of developed land continued to rapidly increase even though the population increase cannot keep up with this pace.

The city of Ankara with her urban development in time (with reference to planned development limits), density distribution over the urban geography and the housing transactions in the housing market can be seen in the three maps below.

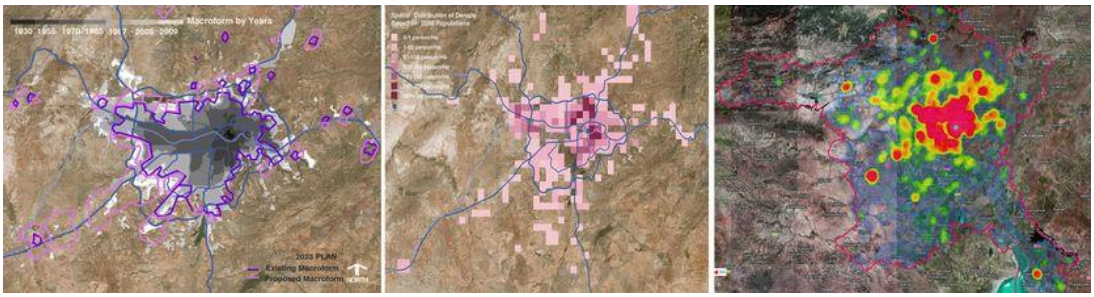

Figure 49 Ankara Urban Form in Time, Population Density and Housing Market Transactions

The form of Ankara sprawled more in scale in time and the density distribution, due to being the capital city with massive public land uses in the core of the city, is more like a torus than a concentric one. The housing market is dynamic (TKGM, 2022) and following İstanbul, it is among the most expensive following İstanbul. Land and housing prices as well as housing rents are increasing for a long time now as in the case of whole country (since these are used as main means of investment) and the rate of increase is also dramatically increasing with the recent dramatic decrease in TL value after 2021. As of May 2022, for the last month

the increase in housing prices is 11.72%, for the last three years 191.5% and for the last 5 years 230.5% (Zingat, 2022)[105].

Figure 50 Urban Morphology in Ankara

The urban morphology of Ankara does not follow a regular grid or any specific urban form but rather a distorted geometry following the topography. The core with massive scale public land uses is surrounded by residential high-density lad uses and the urban core is surrounded by high rise yet low density urban sprawl on the periphery. The underlying layout of the core city is inherited from the Lörcher and Jansen plans from the early years of the republic, yet the compact form produced in the Jansen plan could not be implemented and the city has been sprawling ever since. The urban morphology can be seen in the Jansen Plan, a satellite view from the core and a satellite view from the periphery below in the figure[106].

The city of Ankara is a city of ridges and valleys, and the overall form is highly affected by the bowl shape of the core city topography. This form created both a concentrated core and with the problems raised around 1980s, an urge to sprawl the city beyond the walls of the bowl (Altaban and Güvenç, 1990: 153).

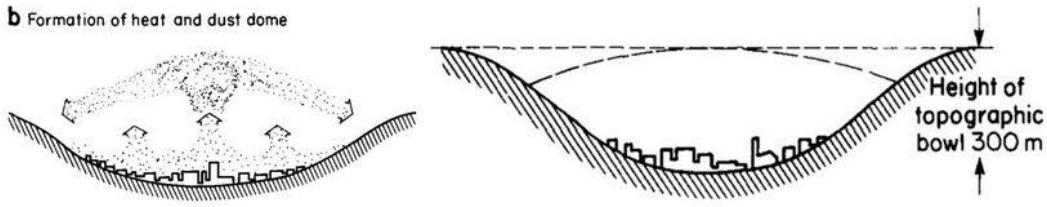

Figure 51 The Bowl of Ankara, Altaban, Ö. and Güvenç, M. 1990

The bowl resulted with leapfrog development on the west and south parts of the urban form and later the north direction as well. The urban form of Ankara, alongside many other

[105]https://www.zingat.com/ankara-bolge-raporu accessed on May 2022.

[106]Jansen Plan, 1932, Çankaya satellite view, Google Earth, accessed on may 2022, and Yaşamkent Satellite view, Google Earth, accessed on May 2022.

cities in Turkey is considered severely sprawled (for further aspects of this sprawl please see Yaşar, C.G., 2010) and the urban fabric produced outside of the bowl has been sprawling for the last twenty years beyond repair (the satellite view on the right in Figure 34).

The climate and the geography of Turkey are versatile enabling a variety of different forms of agricultural production and hence a variety of agricultural products. Situated between the subtropical zone and temperate zone, Turkey has four different major climate areas and characteristics (WB-CCKP, 2021)[107]. These zones are Mediterranean, Black Sea, Terrestrial Climates and Marmara Climate as a transition zone among all three (WB-CCKP, 2021). The mean annual temperature is 11.69°C and it is the highest in all four countries analyzed here. The mean annual precipitation is 576.82 mm for the year 2020 and this value is the lowest among the four countries analyzed (-CCKP, 2021)[108]. The versatility of the climate and the geography increases the resilience of the agricultural production in the country, yet the low levels of precipitation and high degrees of mean temperature increases the risk in the climate crisis that we are facing. According to the analyses illustrated in Seventh National Communication of Turkey under the UNFCCC (2018)[109] water stress and the disruptions in the water cycle will be in the most urgent climate agenda of the country creating severe droughts in several basins. Combined with the heat waves, the drought problem will likely to deepen. Since both the climate and the geography varies in the country, the impacts of the climate crisis also vary from basin to basin.

[107] World Bank, Climate Change Knowledge Portal, 2021, https://climateknowledgeportal.worldbank.org/country/turkey/climate-data-historical accessed on May 2022.

[108] Ibid.

[109] https://unfccc.int/sites/default/files/resource/496715_Turkey-NC7-1-7th%20National%20Communication%20of%20Turkey.pdf accessed on May 2022.

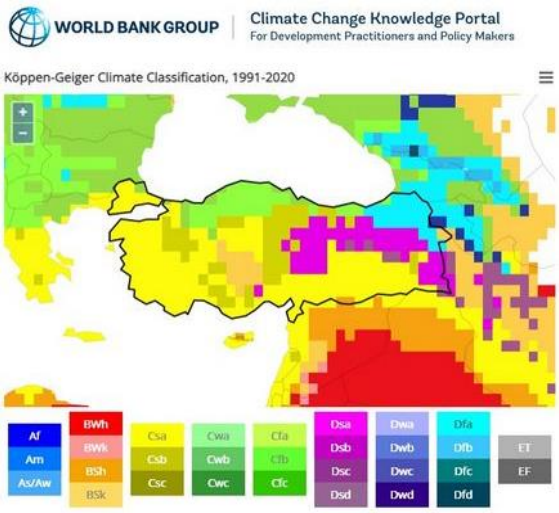

Figure 52 Turkey - Köppen - Geiger Climate Classification 1991-2020

Whole country, apart from the agricultural basins in between and shores, consists of mountain ranges lying on east-west axis and this is the major reason of the climate zones in the country. The high plateaus of Eastern Turkey have terrestrial climate while Northern shores are temperate Black Sea climate. The Aegean and Mediterranean coast alongside South-East regions of the country shows signs of Mediterranean climate. This versatility creates a vastly versatile agricultural production in a relatively compact and smaller geography (in comparison with the massive scales of China and the United States).

The distribution of agricultural products, even though varies from year to year for annual crops, is illustrated in the map below[110]. The product versatility is high in Turkey and in terms of caloric values, Turkey is nearly self-sustained. In recent years, according to FAO reports, it was more than self-sustained, yet the percentage is decreasing. The agricultural products listed below are the major ones and the most dominant agricultural production patterns in the geographies of these seven regions.

[110]Layers: Topography, CartoDB database, 2022; 7 Regions of Turkey, General Directorate of Cartography; agricultural products, Doğan, Z., 2022, https://www.sosyalciniz.net/turkiye-tarim-urunleri-haritasi/ accessed on May 2022.

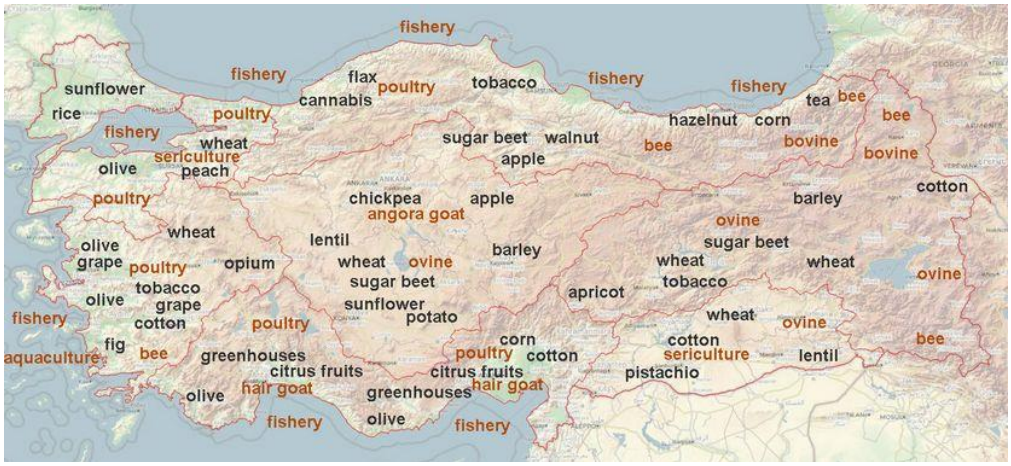

Figure 53 Agricultural Production Pattern

The agricultural supports in national scale are formed based on agricultural basins within these seven regions and the existing patterns tend to reproduce themselves in time due to these supports. Within this multilayered product pattern, there are four major plant product groups which are:

- orchards and olive grooves
- industrial crops
- legumes
- cereals

The 29.6% of whole area of Turkey is agricultural land and 18.7% is meadow and pasture (TURKSTAT, 2020). 85% of agricultural land is used for annual crops while 15% consists of perennial plants and 67% of this 85% is covered with cereals, industrial crops and legumes (MoAF, 2021)[111]. 39.7% of plant production value is created by cereals and legumes, 37.8% by fruits, beverage, and spice plants and 22.5% by vegetables (MoAF, 2021). Livestock value consists of 64.2% livestock value and 35.8% livestock products (MoAf, 2021). The total amount of land that can be irrigated is 8.5 billion hectares and by the end of 2020 6.7 billion hectares of this land is already irrigated (MoAF, 2021).

Due to reasons such as agronomic features, used technologies, scale and climate, majority of the farmers in Turkey cannot compete with the farmers in the core countries (Keyder & Yenal, 2013: 208). Hence, agricultural support is a must in Turkey, and it is already supported in European Countries (Common Agricultural Policy), United States and other major producers anyways since agricultural production is the field where the myth of free market visibly does not exist (Keyder & Yenal, 2013: 208-9).

[111]Ministry of Agriculture and Forestry (MoAF) (2021) National Rural Development Strategy 2021-2023

The scale of land used for agricultural production is in a trend of increase after the 2000s with the fastened land consolidation in the recent years. In 2001, the average scale of an agricultural enterprise was 61 decares while it was 76 decares in 2015 (KKB, 2019)[112]. 80% of the agricultural enterprises use their own land for agricultural production (which is the 60% of all agricultural land) while 17% of enterprises rent the land and this is equal to the 36% of whole agricultural land (MoAF, 2021). The remaining 3% of enterprises rent the land for livestock production (MoAf, 2021).

Within this national context, the versatile agricultural production patterns form the space (and formed by space) in a highly versatile way. The production patterns legible on space are exemplified with the help of satellite views. Olive, grape, cereals, legumes, orchards and grooves, annual crops, perennial crops, all have different fabric which can be read from satellite views. A selection of these agricultural patterns and fabrics can be seen below[113]. The examples can be vaguely grouped into four categories which are annual crops with historic and traditional ownership patterns, annual crops with land consolidation touch and irrigation infrastructure enhancements, orchards and groves, and greenhouses. Meadows is also a hidden fifth group yet the mapping of meadows as of 2022 is still not complete in country scale and they are hard to locate as the commons of villages/ rural settlements. After the enactment of lasw 6360 analyzed within this study, the common meadows of the villages that has transformed into v-neighborhoods within the provincial borders of MMs are transferred to MMs and therefore under severe risk of urban development. The invasion of meadows by urban and agricultural (crop production) land uses is a long and ongoing process in Turkey (as in the case of whole planet) and the amount of meadow land is halved from 1970 to 2020 (MoAF, 2021)[114].

[112]Kredi Kayıt Bürosu (2019) Türkiye Tarımsal Görünüm Saha Araştırması, https://www.kkb.com.tr/Resources/ContentFile/2019_KKB_TURKIYE_TARIMSAL_GORUNUM_SAHA_ARA%C5%9ETIRMASI.pdf accessed on May 2022.

[113]Collected from Google Earth Pro Satellite View, May 2022.

[114] https://www.tarimorman.gov.tr/Konular/Bitkisel-Uretim/Cayir-Mera-ve-Yem-Bitkileri accessed on May 2022.

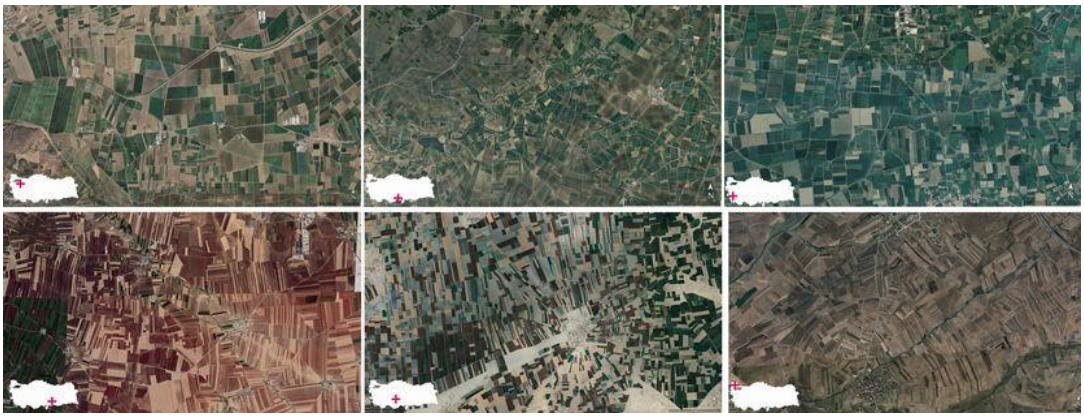

Figure 54 Turkey Annual Crops with Traditional Ownership Patterns

The four groups that are analyzed spatially below are illustrated in order with a reference to their economic strength that is creating a resilience for them against the expansion of urban (housing, tourism, industry) and extended urban (mining, energy) land uses.

The annual crops are usually distributed over agricultural basins on the southern, western, and north-western regions of the country. These varies in form yet there seems to be two sub-groups which are radial distorted with topography and geographical thresholds (upper row) and linear Sabre like (kılıcına) patterns (bottom row). The shared feature is the relationship between the land and the village. Village is the center of the land, and the plot sizes increase with the distance from the village as in the case of other compact villages. Also, the plots seem to be divided more and more with time. Both dry and irrigated agriculture can be observed under this category.

The second group of annual crops are the ones that have experienced land consolidation and provided with irrigation infrastructure. Majority of these plots are located in the Central Anatolia, especially in Konya and in the South-Eastern Turkey, especially in Şanlıurfa. The shared feature of these agricultural patterns is, whatever the form is, plot sizes are more or less similar. Some regions have larger plot sizes, some have center-pivot irrigation with even larger plot sizes, and some have perfect grids while some others have more irregular forms. These forms are increasing due to the projects designed and implemented by State Hydraulic Works (DSİ) and land consolidation is accompanied with irrigation projects. It even can be said that the land consolidation follows the irrigation project and not the other way around. The problem here is the amount of water utilized in agricultural production is 74% of all water usage in the country (DSİ, 2020) and Turkey is already a water stressed country (TSKB, 2019) which needs to use its water budget wisely.

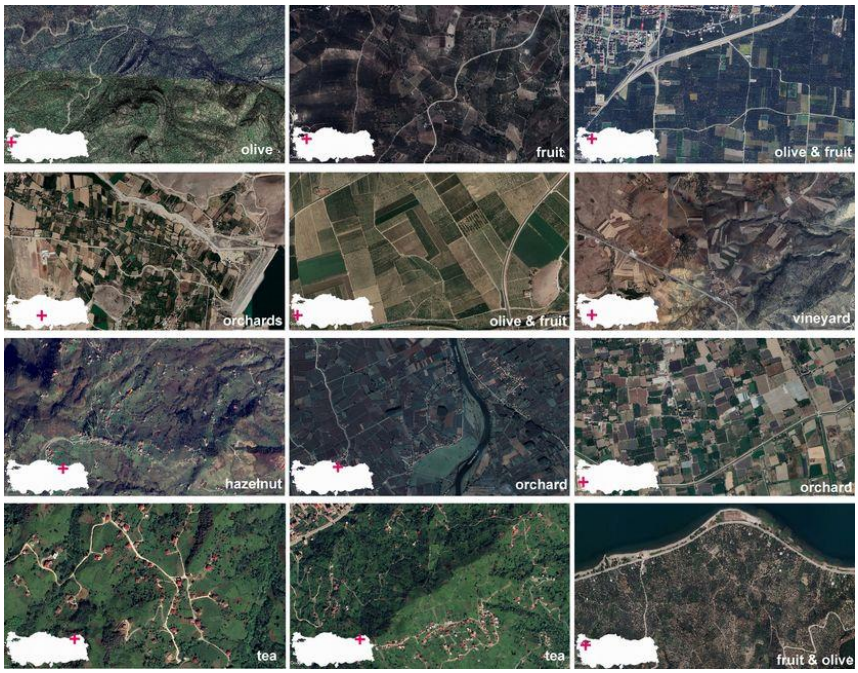

Figure 55 Turkey Grooves, Vineyards and Orchards

The third group consists of olive groves, fruit orchards, vineyards, tea fields, nuts orchards. The fabric of these products' spaces of production is highly versatile due to the varying nature of plants yet the common principle is the existence of water. Whatever the product is (apart from probably vineyards) the orchards and groves are either irrigated or are located in regions with either higher levels of groundwater and/or higher levels of precipitation. The different patterns for different agricultural products can be seen below in the collection of satellite views.

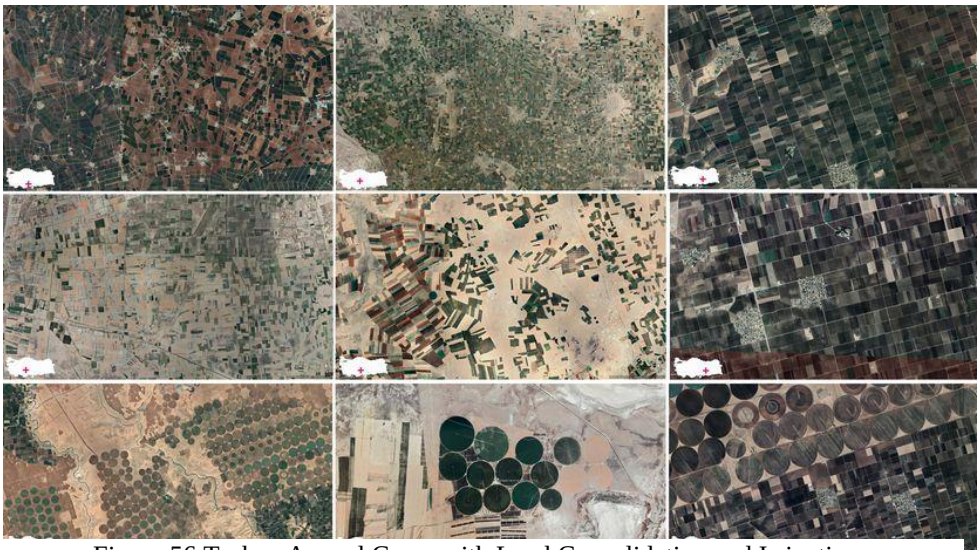
Figure 56 Turkey Annual Crops with Land Consolidation and Irrigation

These are predominantly located in western or northern parts of the country either on slope or at the bottom of fertile basins and valleys. These topographical forms also ensure the existence of water in these forms of production. Tea production, hazelnut production and some minor orchards are located in the northern parts of the country on the black sea region coast and mountain range while olive groves, vineyards and major fruit orchards are located in the western half of the country, predominantly in Aegean region and partially in Marmara region. These patterns are under the threat of urbanization rather than expansion of land used for annual crops. The economic resistance for these perennial agricultural areas is higher than the annual crops but not high enough against the pressure of tourism based urban development (summer houses and hotels) and more significantly and much more dramatically against the pressure of mining (especially coal) and fossil-based energy production activities (thermal power plants). This applies to the Aegean part especially, where both tourism takes place, olive groves are located, and coal exists alongside existing and planned thermal power plants. The agricultural pattern in the Black Sea region is already intertwined with the dwelling pattern in urban and rural settlements of the region (see settlement patterns in Turkey part of this section) since the farmers are dwelling right next to their hazelnut orchards or tea fields. The pressure over the agricultural production in these regions is formed with the use of water. Urban development pressure is existent yet due to low levels of economic growth and population growth in the region, and the naturally limiting thresholds, it is not as much of a problem as in the case of other parts of the country. The problem of usage of water, on the other hand is a major problem for this region. Most varying scales of hydropower plants are located in this region, and they allocate the water isolating it from the environs which creates decrease in the productivity of the fields and orchards. This decrease weakens the agricultural productions' resistance against further growth of urban land uses.

The last group is the greenhouses, and the majority of greenhouses are located in Antalya, on the Mediterranean coast of Mediterranean region. The climate is the most suitable for agricultural production where even 4 harvests is possible every year, the greenhouses does not need much heating and water stress levels is low. There are also minor regions with greenhouses in other regions yet only significantly large one is in Büyük Menderes Basin in Aydın (the one on the right below).

Figure 57 Turkey Greenhouses Patterns

The greenhouses are mostly used for fruits, vegetables and flowers and even though the agricultural fabric of greenhouses is tightly woven with rural and urban settlements, this is the most resilient agricultural pattern against the urban growth pressure even though Antalya being the fortress of mass tourism and five-star hotels. This stems from the high exchange values of agricultural products produced in the greenhouses and the investments put into greenhouses yet this does not mean that urban sprawl does not take place in these regions. It is still a major problem and continues to get deeper. The pressure of land development via speculation remains high in this region as well.

3.5.2 Planning Implementation Tools and Conservation Regulations

For urban policy and land use policy there are five main lines of bearing for reference and these five axes are relevant for both planning implementation tools and conservation regulations within the framework of urban policy. These are:

- localization – centralization
- favoring spatial concentration/compactness – favoring urban sprawl
- following developmentalism – following clientelism
- conservation of land / nature – consumption of land / nature
- favoring small scale – favoring large scale

There are several paradigm shifts and break points in the transformation of public administration in Turkey.

Ottoman Empire, with a time span of 624 years and changing borders from Western Anatolia to at its maximum the Balkans, Caucasia, Levant, Mesopotamia, partially Arab Peninsula and North Africa, was the antecedent state before the modern-day Republic of Turkey.

The approach of the Ottoman Empire to production of space, ownership, urban and rural settlements, and agricultural production was well documented even though not systematized and structured in the famous Ottoman Archives. For production of space, the core keywords for ottoman urban policy were imar (development, revitalization, construct) and nafia (public utilities, public services, public infrastructure) and the meaning of imar

evolved in time over the ottoman, Anatolian, and modern-day Turkish geography (Ersoy, 2017: 1-2). Today the word imar means urban development (with development rights given by development plans) with its most narrow meaning in the Ottoman and Turkish history of Asia Minor. The usage of the term started with agriculture and land legislation within the context of feudal society for purposes such as: making the land arable, revitalizing the land and later on used for revitalizing urban spaces alongside production of urban space and for even development of both urban and rural areas implying economic growth and population growth (Duyguluer in Ersoy, 2017: 2, Ersoy, 2017:2 and Tekeli, 1991 in Ersoy, 2017:2).

The legal framework of production of space embodied in the term imar can be divided into two categories within the timeline of the Ottoman Empire and these are first era with local and hyper-local subject-based imperial ordinances (ferman) and the second era with centralized regulatory framework development era following the Tanzimat reform era until the foundation of the Republic of Turkey (Ersoy, 2017: 4). Starting from 15. century until 19th century Tanzimat Reform Era, the main object of interest in the regulations for production of space was İstanbul, the capital city of the Ottoman Empire and the largest urban agglomeration in Asia Minor (Ersoy, 2017: 7-18). Fires and provision of urban public utilities alongside public health issues were the three aspects of focus between 15th and 18th centuries (Ersoy, 2017:7-11). In the 18th century, sprawl has become an issue and the form followed was garden cities, with houses on the edge of gardens and orchards (Ersoy, 2017: 12) and the existence of agricultural gardens within the core, the walls of the city (Suriçi Bostanları) continued uninterruptedly from 5th century up until 20th century (Sayar, 2022: 76). In other words, urban and agricultural land uses were intertwined in İstanbul until 20th century.

Tanzimat era was the era with the first plans produced for the urban settlements under the impact of French understanding of development and French Ecole of planning (Ersoy, 2017: 26-27). Grid and radial forms were used for planning urban fabric showing the characteristics of organic urban form of Ottoman settlements that had been lost due to massive urban fires (Ersoy, 2017: 28-30). the technological advances in Europe, the Ottoman admiration to these advances, population growth, the need for further urban development, urban risks especially fires, urban security problems (especially lootings and revolts) and urbanization of society were the characteristics of the Tanzimat and post Tanzimat era of the Ottoman rule over the production of urban space and the first municipalities were established with this perspective (Ersoy, 34-36).

The rural geographies and rural settlements have experienced the Ottoman rule slightly differently than the urban core of Istanbul. Until 17.th century the ottoman rule over the rural geographies within the empire was categorized as a military feudalism and Sancaks (state) were the unit of administration (Geray, 2011: 21). Tımarlı Sipahi (landed soldiers) were

the essential part of the system, and the ownership of land was not on the farmer, but they were rather renters of the Empire paying taxes in return. The village administrations, mukhtars at the time were authorized with public utility provisions yet lack most of the time in provision and with the Celali Revolts in the 16th century, this local structure had been dramatically destroyed and the production of space, provision of public utilities (for both urban and agricultural land uses) was hyper-localized (Geray, 2011: 22-23). Celali Revolts, affecting the 16th and 17th centuries of the Ottoman Empire were considered by some environmental historians as a result of Little Ice Age creating droughts, famine, epidemics and the results of this age are considered as the reason for even the Tanzimat era of the Ottoman Empire (Mikhail, 2019: 11-12) From 16th to 18th centuries, Egypt under the rule of the Ottoman Empire was the space of production that feed a dramatic percentage of the empire's population and this gave the farmers in Egypt with a sophisticated and highly technological irrigation a relative autonomy and power against the center of the Empire (Mikhail, 2019: 21-37). agricultural production gave this power to the villagers and the decisions made (that are relevant for rural settlements, agricultural production and more specifically irrigation) were bottom-up and local (Mikhail, 2019: 21-37).

1858 was a major turning point for the land use policies in the Asia Minor with the new land regime accepting the private ownership of land and after this point the monopolization of land hand in hand with deterritorialization and not only agricultural land but also urban plots and urbanization in general were affected by this massive change (Geray, 2011: 24). At this time, national scale transportation was in the agenda of the central government of the Ottoman Empire and the transportation of raw materials and agricultural products from Anatolia to especially Europe was drawing the framework and with the connection of agricultural production to Europe with new ports and rail networks the product patterns in the agricultural basins started to transform (into cotton, industrial crops and tobacco) (Geray, 2011: 24-25).

With the foundation of modern Turkey as a Republic in 1923, the history of contemporary public administration began with both disruptions and continuities from the Ottoman Empire's heritage of public administration and spatial planning both for urban cores and rural peripheries. Following the Independence War years, while major societal changes were taking place, the world was in an economic crisis and lack of resources was also limiting for the Modern Republic of Turkey. Development was the aim, and the very first Development Plan for Five Years was produced back in 1934 and the implementation of this plan was partially realized via credits from the Soviet Union. Pre-planned era of 1930s was dominated by national scale industrial plans for selected Anatolian cities and the planning process of the capital city (Keskinok, 2010). After the economic crisis, the following years of the Republic

were tainted with WWII and the public lead in development especially in industrial production continued. The rural settlements were also included in this development vision and these were the years that village institutes providing education, development (with enhancing human resources) and organization among villagers with an enlightenment approach were designed and implemented.

1948 was a major turning point for the country, for both urban and rural areas since it was the year of enactment for the Marshall Plan by USA following the Truman Doctrine with massive anti-Soviet/anti-communist propaganda. This was the beginning of the cold war era and Marshall Plan was implemented for empowering west Europe while economically revitalizing it for encouraging consumption of US commodities while strengthening anti-communist and anti-Soviet propaganda (Oran, 2002: 538). Turkey was not included in the plan at first but due to strong impact of the Soviet Union over the Turkish economy, United States counted Turkey in. In European Countries the aim of the plan was to reconstruct the war-torn cities, production of space in general while in Turkey, agricultural modernization was the goal, to feed the Europe alongside modernization of transportation to move products and goods and mining investments to provide raw material for the flourishing and supported (by Marshall Plan) industry in Europe (Ay, 2021: 59-61). Not only this external support but also equity resources were also spent in same areas, modernization of agriculture and transportation and mining activities, therefore the impact has become more dramatic (Ay, 2021: 60) with a population surge from rural areas due to modernization making agricultural production less labor intensive, and massive migration waves resulting with unplanned urban growth. This period of Turkish urbanization was called the urbanization of labor and State could not be able to keep up with this pace, ending with unplanned production of space in the form of squatter housing (Şengül, 2009).

Village institutes exist no more, and the governing party was the right-wing Democrat Party. The following years of the Turkey politics were a story of invasion and succession with military coups and coalition governments. 1980 military coup is regarded as the foundation of current political climate in the country alongside public administration approach, the breakpoint for the neoliberalization of Turkey. Between 1933 and 1985, spatial planning was dominated by holistic approach (Duyguluer, 2012) and as comprehensive as it can be, resisting high pressure of land speculation. Following this coup, in 1983 and 1984, plenty of laws and regulations have been modified towards a more neoliberal understanding of public administration and production of urban space is among major fields of interest. The number of laws, relevant for production of space and agricultural production that has been shifted towards more to consumption of land, favoring larger scales (in space, economy and society), favoring sprawl, favoring clientelism against developmentalism and partially and slightly

localism was 6 and the number of modifications to the laws were 86 in total in 1983-84 (Yaşar, 2017). A vast movement of urban development and growth was experienced under the military rule of municipalities in Turkey between 1980 and 1984.

Metropolitan Municipality System (MMS), with its history dating back in 1980s after the coup, is a cornerstone in public administration structure of Turkey. In 1981, with the 2561 The Annexation of Nearby Settlements around Metropolitan Cities to Main/Metropolitan Municipalities Law[115], annexation of neighbor municipalities and villages was made possible. This was the first law with the word metropolitan city (buyuksehir) and the first step taken towards MMS (Cinar et al., 2009). In 1982, with the new Constitutional Law of the post-coup era, in Article 127, it is enabled to introduce special administration forms for large settlements. In 1983, following the Constitutional Law, Law no 2972 on Local Government Elections enabling the election of mayors for metropolitan municipalities (MM) was enacted (Cinar et al., 2009). In 1984, with the Law no 3030 on Metropolitan Municipalities, the MMS was officially enacted as a system. In the same year with the same law, 3 largest cities in Turkey, Ankara, Istanbul, and Izmir were enacted as metropolitan cities with metropolitan municipalities. There were several changes on budget, responsibilities and authorities made in the legal framework between 1981 and 1987 to draw the framework for MMs to operate (Cinar et al., 2009).

The most recent breakpoint creating a paradigm shift in Turkish public administration was back in 2004, after the election of first single-party government following 8 years of coalition governments between 1992-2002 and post-crisis. 2004 was marked as the year of public administration reform with a massive movement in the legislation and it is also the year of the enactment of 5216 metropolitan municipality law. The number of changes in agriculture production and production of space related laws between 2004 and 2014 was 13 and the total number of modifications in laws is 695 all shifting the paradigm of agricultural production and production of space to more local, more clientelist, more sprawling, more leaning towards the consumption of space and favoring larger scale (settlements, production patterns, etc.) more (Yaşar, 2017).

For the year 2008, the number of bodies with planning authority has risen to 28 (Colak, Uyaniker, Doganc, 2008) and for 2018, three bodies are added, 31 bodies now have planning authority. The core actors for production of space in both historically urban and historically rural areas were the Ministry of Public Works and Settlement (modern day Ministry of

[115]2561 Büyükşehirlerin Yakın Çevresindeki Yerleşim Ana Belediyelere Bağlanmaları Hakkındaki Kanun, 08.12.1981.

Environment, Urbanization and Climate Change), The Bank of Provinces (ILBANK) and municipalities[116].

Table 8 The Authority of Production of Space in Urban/Municipal Areas

year	production of space/planning in metropolitan municipalities municipal borders / in urban agglomerations	scale of authority
1930-1945	Municipalities	local – not applied
1945-1984	The Bank of Provinces Ministry of Public Works and Settlement	central
1984-in use	Metropolitan Municipalities	local

These are the public bodies where spatial plans are produced. In contrast with the table above, the distribution of planning authority for non-metropolitan and rural areas is summarized in the table below.

Table 9 The Authority of Production of Space in Rural/Non-Municipal Areas

year	production of space/planning in non-municipal areas	scale of authority
1924-1985	not regulated – autonomous	local – not regulated
1985-2005	The General Directorate of Rural Services Ministry of Agriculture, Forest and Rural Works	central
2005-2012	Special Provincial Administrations	local - central
2012- in use	Metropolitan Municipalities	local

In 2012, with the law no 6360 reforming the MMS, metropolitan municipalities have become the responsible authorities on all of the above. Presumptively in coordination with other bodies related with these areas and issues, MM is the controlling body. There is a monolithic structure of power in local governments (Akbulut, 2007) with the frame drawn by this law and rather than localization or centralization, it is the expansion of authority/responsibility area of a local government. Tracing back the distribution of planning authority over the rest of the province, before metropolitan municipalities, and before 2012 (the 6360 Law), Special Provincial Administrations were authorized for planning these areas. Special Provincial Administrations are still existent in provinces that are not metropolitan municipalities, yet the plan of the government is to increase the number of MMs and provinces might all turn into MMs in time (T24 news, 15th of Jan. 2018). Special Provincial

[116]The two tables below listing major planning authorities and scales in urban/metropolitan and rural/non-metropolitan areas are a summary of laws of each body. Feridun Duyguluer's Master's Thesis (2012, METU) on the Turkish Spatial Planning Practice in the Neoliberal Era: Over-Fragmentation and Çınar, Çiner and Zengin's book on the Integration Process of Metropolitan Government (TODAİE, 2009) are the sources of inspiration.

Administrations are dual-structure bodies with locally elected provincial assembly and governor as an approving authority. Therefore, it is both part of local and central power structure. The authority of Special Provincial Administrations over the remaining provincial areas had started with first the law 5197 on Special Provincial Administrations in 2004 and the authority of the production of space in these areas had transferred to this administration with the law no 5286 on the Abolition of the General Directorate of Rural Services.

Going back in time, the General Directorate of Rural Services was established in 1985 and was a part of Ministry of Agriculture, Forest and Rural Works (old name of Ministry of Food, Agriculture and Livestock with a change in focus). Hence, between 1985 and 2005, it was the General Directorate of Rural Services who was responsible for production of space and land use decisions in the rest of the province. Differently from the Special Provincial Administration, the General Directorate of Rural Services did not have an elected body and was a part of central organization of state. Therefore, the planning of the non-metropolitan/non-municipal areas at that time was a centralized act rather than a local one. Before 1985, the most important law on the non-municipal areas was 442 Village Law enacted in 1924, among the first laws of Republic of Turkey. Yet, the production of space in these non-municipal areas was not regulated in that law and at that era (Eminagaoglu&Cevik, 2005).

Settlement plans for villages was not in the agenda of state before 1985 and hence it is not regulated. The production of space in villages and within the villages' boundaries can be considered as autonomous at that era. Plateaus, meadows, ranges, fields, and all related areas were included in villages' limits. To summarize the authority shifts over the non-municipal areas, it was autonomous and not planned between 1924 and 1985. In 1985, the General Directorate of Rural Services had gained the authority over the production of space in non-municipal areas. The directorate was a branch of Ministry of Agriculture, Forest and Rural Works and did not suffering from methodological cityism (Angelo&Wachsmuth, 2014) where the bodies responsible for urban policy were highly suffering from it. With a comprehensive agricultural and rural perspective, the Directorate was responsible from the non-municipal areas and settlements. In 2005, Special Provincial Administrations have become the responsible authority over the production of space in non-municipal areas and in 2012, in metropolitan municipalities, the authority has passed to metropolitan municipalities. Today, it is the MMs in MMs and Special Provincial Administrations in the rest of the provinces that are responsible of production of space in non-municipal areas. In MMs, the rural and the urban ways of planning now are a whole. The unofficial pseudonym of the law no 6360 on Metropolitan Municipalities is the complete city law, and the complete here is highly illustrative.

The planning and plan implementation tools were listed in the table below by Duyguluer, 2012 (p.57) and some of these tools can also be utilized as a conservation tool for rural land uses depending on the focus of the local and central planning authority holder. These planning tools are predominantly form the urban perspective like the spatial planning experience of the country. Majority of these tools operate in contrast and antagonistically with the conservation tools. Urban invades agricultural. This invasion is becoming more dramatic in time, and MMS is a step towards deepening the problem.

Regionalization instruments:
•Forming special sectoral zones
•Announcement of statistical regional units
•Regional financial incentives for the new regional divisions in 2012 (exemptions and loans)
Planning instruments:
•The authority to be able to make plans at every scale
•Ex-officio entry into force of non-ratified plan after 3 months
•Plan making without subjecting tourban legislation restrictions
•Sectoral facilitations (for instance: if no opinion given in due time in plan-making, it is accepted as having given the positive opinion)
Implementation instruments:
•Transfer of construction rights
•Construction permit convenience (according to preliminary project in 15 days)
•Bidding exemptions
•Expropriation by installments
•Urgent expropriation
•Authorization to execute all city development operations
•Revenue sharing in return for land sale
Operating instruments:
•Housing permit (residence permit) simplification (max 15 days)
Governance instruments:
•Partnerships
•Incorporations affiliated to municipalities
•Project-specific administration
•Notice-dependent special administrations
Financial instruments:
•Securitization
•Financial exemptions

Figure 58 Planning Tools in Turkey by Feridun Duyguluer, 2012

There are several laws on the conservation of natural and rural areas in Turkey, yet these are in a flux, changing in time. The core law is 54 Soil Protection and Land Use Law (2005), agricultural land is classified, and the degree of protection is determined by this law. The classification of land based on agricultural production potential is a related conservation tool and the prime farmland (most probably irrigated) is conserved based on this categorization.

Environmental plans (çevre düzeni planı) in 1/100000 to 1/25000 scales are also tools for zoning the land uses in relation with each other and in a more comprehensive way in a spatially larger geography taking urban, rural and natural areas all into account. In addition to

that, these plans are predominantly produced by Ministry of Environment, Urbanization and Climate Change (MoEUCC) which is most of the time freed from local interests and conflicts and this gives the Ministry a larger movement range. Metropolitan Municipalities are also authorized to produce these plans covering and planning the whole province with it's natural, rural and urban areas yet these plans should follow the frame drawn by the environmental plans produced by MoEUCC. These plans use the conservation zones, agricultural classification of land, existing land uses as a basemap therefore have the potential to become a major tool for the conservation of agricultural land and agricultural land uses. Yet, planning is a see-through tool formed by the ideology and approach of the authority holder like a sketch paper, and the approach is pro-growth, pro-urban and pro-urban development. In addition to that, the modifications to the plans are an age-old tradition partializing and fragmenting the plans and even if a plan following ideal urbanism principles and a conservatory approach for agricultural and natural areas is enacted, there is no guaranty for no modification. Most of the time it will be on the contrary. Land speculation and rent are among two problems that results with modification in plans.

Another tool for preservation of agricultural land and agricultural land uses is land consolidation usually implemented with irrigation. The main player is State Hydraulic Works (DSİ) in this tool and in strategic plans and previous documents, DSİ states that the reason beyond majority of irrigation projects is to trigger or enhance local development for rural settlements with agricultural production. Irrigation makes agriculture more profitable for the farmer households and which in return increases the resistance of rural populations. Land consolidation, with increasing plot sizes, increases productivity and resilience of farmers with economies of scale. These two policies – tools are usually implemented together since irrigation requires a more grid like or planned ownership pattern for utility provisions and it is easier to implement land consolidation which transforms existing ownership patterns into a new one when irrigation is in the picture. Not only economic resistance but also spatial resistance of agricultural land uses and areas increases with irrigation and land consolidation, yet even though this is the case, even the irrigated and consolidated land cannot resist urban development pressure as observed in the case of Konya and as problematized in the strategic plans and performance plans of DSİ putting forward the statistics illustrating the change in time for irrigated areas (both increases with the expansion of irrigation projects and decreases with the expansion of urban land uses).

3.6 Conclusion

The farmland conversion policies in each country depends on "the unique legal and land tenure structure" (Pease, 1991: 340) yet there are still some shared elements and problems in

all cases. The historically established legal and spatial framework of conservation of agricultural land and controlling production of space is affected from plenty of factors. The widespread ownership patterns and structure in the country is among the core ones, while the structure of local governments with reference to central-local balance is another. Ownership patterns within its historical-geographical context, is also effective on urban form, agricultural production scale and the scale of production of space. In the case of United States for instance, both production of urban space and agricultural production first have taken place on a blank canvas, since the Native Americans were either wiped out or relocated and the geography was not divided with ownership borders at the time. This created one of the largest average scales of agricultural production in the global agricultural scene. Urban sprawl and oil-stain urban growth is also widespread in this country.

China on the other hand, has one of the oldest ownership patterns in the world and both rural settlements, agricultural geographies and urban settlements are still under impact of the forms suggested by these ownership patterns. Interestingly, land is owned by public (central state, local governments, and villagers-farmers) but this does not change the physical dominancy of the previous ownership patterns defined by the imperial grid. The rural settlements, agricultural production and the rural daily life were designed like a cell system functioning within an organism for hundreds of years and the agricultural and settlement patterns are still valid and visible. The scale of agricultural production is amongst lowest, and the average agricultural plot size is amongst smallest where China has also one of the largest rural populations.

State and local government structure enabling or disabling conservation policy making and implementation is another significant aspect. China is highly centralized while US is decentralized in federal scale and Netherlands is closer to centralization due to natural constraints and risks in production of space subject (the risk of sea-level and groundwater level is central and determining in the Dutch policy). Turkey is centralized and hyper-localized at the same time in conservation policy, the regulations set are central in scale while hyper-localized decisions are made over conservation zones with presidential decrees, plan revisions from central bodies and local bodies.

The dominant ideology in Netherlands and United States are formed by advanced capitalism with different facades, in China, on the contrary, the dominant ideology is communism even though some call their form “state capitalism”. Turkey, the core case of this study is a relatively underdeveloped, peripheral capitalist country. These differences created differences in the legal framework of prevention of farmland conversion yet not much as expected. The highly centralized state of China is not performing well in the prevention of farmland conversion on urban peripheries, urban settlements swallowing villages and severe

urban sprawl. The same applies to the US the other end of the spectrum as well. The scale of urban sprawl problem in the case of US is amongst highest and massive. Netherlands, despite being a capitalist country favoring development, is performing relatively good at conserving farmland and controlling urban growth due to the tradition of fighting against geographic risks historically. Turkey, where in some cases considered as the little US by some, is predominantly centralized country with semi-strong rules and regulations defined to prevent farmland conversion and to control urban sprawl, yet the problem arises in the implementation phase in this case.

The approach to development is also significant in understanding the balance between the production of space and agricultural production and the strength of conservation policies in agricultural areas. All four countries are pro-development yet especially in the case of China and Turkey the support to development is more severe. The policy objectives of conservation of agricultural land, the reasons beyond preventing farmland conversion in other words, can be grouped into four main categories borrowed from Pease (1991: 340): fiscal and social objectives which are "of reduction of infrastructure and service costs to taxpayers by limiting urban sprawl, the provision of visual open space, and the preservation of farmland for future generations", and stability of the agricultural sector of the economy, stability of farm operator and stability of rural community are the three other categories, spatial/urban objectives and ecological objectives for managing urban macroform, to contain urban problems and to keep balance in ecology and nature can be added to these four as fifth and sixth categories. Conservation (ecological and agricultural) objectives alongside sustaining agricultural production objectives are dominant in the case of the Netherlands while fiscal and social objectives are dominant in the US case. In China, the most severe problem is sustaining food production and feeding the massive scale of population with the limited agricultural land and limited water to irrigate, hence conserving agricultural land (but not ecology) is the focus. In the case of Turkey, the focus is on production of urban space and construction economy under the impact of the dominant ideology, hence development rights, urban growth and housing market dominates the conversion of farmland. Reading from the three cases and the case of Turkey, settlement patterns in relation with the geography of the country is also significant in agricultural production and production of urban space balance. The constellation like and condensed settlement pattern of the Netherlands created an intertwined urban-rural culture as well as small scale production patterns with medium scale agricultural plots while the massive, dispersed and stark rural geography of the US created a massive scale in agricultural production even though the fertility levels and the productivity levels of the small number of agricultural workers are similar in both cases. The historic ownership patterns and constellation like settlements on transportation nodes in Turkey and China on the other hand,

despite the relatively larger land of countries, created a small-scale production dominant environment in agriculture. The contextual comparison of the countries with reference to the summary of the case of Turkey can be found below[117]:

Table 10 Contextual Comparison of Three Countries and Turkey

	dominant settlement patterns	urban form in metropolitan/medium scale/rural settlements	agricultural production average land size (hectares)	urban/rural following the same/compatible underlying system	dominant sprawl form	number of farmers	dominant scale of agricultural production
China	leapfrog and sprawled nodes in grid layout with short distances (Imperial grid), linear and compact in higher slopes	sprawled/ varied/ varied	0.5	yes - imperial grid	absorbing villages, leapfrog, ribbon, oilstain	250 million	small-scale
United States	leapfrog and severely dispersed nodes in partially grid layout with long distances (Jefferson Grid)	sprawled/ sprawled/ sprawled	179	yes – jefferson grid	leapfrog, oil stain	2.05 million	large-scale
Netherlands	constellation-like sprawled and close urban-rural settlements with compact cores	sprawled/ sprawled/ sprawled	25	no	ribbon	72320	small-scale
Turkey	sprawled constellation-like settlements with long distances and with leapfrog development in some regions and ribbon development in some others, linear and compact settlements in higher slopes	sprawled/ varied/ varied	0.6	no	oilstain, leapfrog, ribbon	697000	small-scale

Turkey and China are severely more “agricultural” in terms of employment and the scale of production supports this phenomenon. The US and the Netherlands, on the other hand, have an agriculture which is less labor-intensive and larger in scale. Netherlands and United States are the two where farmland conversion is relatively more successfully prevented in comparison with Turkey and agricultural production and farmers are stronger than the ones in Turkey in these two cases especially with supports and state policies to empower agricultural production.

In terms of urban sprawl, all four countries have problems in urban forms, US being the most severe case. In all scales of settlements, urban sprawl accompanied with car-dependency is a problem and most of US citizens are captive drivers. In the case of the Netherlands, the pioneer country in bicycle transportation (green modes of transportation) and a country with a developed railway and public transport network, settlements of all scales are still sprawled, yet in a more planned fashion. Hence, even the sprawl in the Netherlands is carefully tailored to fit the needs and designed for the geography. The scale of the sprawl is

[117]Sources: Summarized by the author, statistical data is collected from TURKSTAT, Statista, World Bank agricultural indicators, EUROSTAT for the year 2018.

not as massive as the case of US and nearly all Netherlands is accessible by at least one type of green modes of transport. The sprawl in this case, is likely to stem from preferred low-density settlement with detached houses with gardens. A similar fabric is visible on the peripheral parts of the US as well and this is no coincidence if the European (and the Dutch especially on the East coast) roots of US planning and architecture approach is considered. Unlike US cities, the core parts of Dutch cities are predominantly historic, and they are also low-density as their peripheral counterparts as well. The problem of sprawl in the case of China and Turkey are more varied on the other hand. The versatile geographies of both countries created different forms of settlements in different regions and even though nearly all large – metropolitan cities in both cases are sprawled, the small-scale urban settlements and rural settlements the villages can be compact or linear due to either historic or geographic reasons.

In terms of forms of sprawl, leapfrog development exists in three cases except for the Netherlands and in China and Turkey it is the most severe. The dominant form of urban sprawl and urban growth is ribbon development located linearly on the side of the roads connecting the settlements. Oil-stain and the ribbon urban sprawl are also existent ubiquitously in Turkey, China and the US. The overall settlement patterns in Turkey and the Netherlands are like constellations without any macro underlying structure while both China and US have grid systems implemented in (nearly) national scale. The grid in the US is called Jefferson Grid which has a history of more than 200 years while the grid in the case of China is called the imperial grid and have a history of more than 4000 years. These two grids determine plenty of elements in production of space and agricultural production yet, within these four cases did not show any significant correlation with the strength of the prevention of farmland conversion. Yet, it is interesting that, the urban forms in these grid-formed environments are still resembling oil-stain predominantly and they are still facing severe sprawl. The comparison table of these four countries in terms of the balance between the production of space, agricultural production and conservation can be found below.

Table 11 Comparison table of countries in terms of production of space, agricultural production, and conservation balance

	planning tools and strength of planning and is spatial planning pro-development or pro-conservation	conservation tools and strength of conservation	production of urban space and agricultural production balance - in terms of land conflicts
China	weak, pro-development	strong tools - strong implementation	space production dominant
United States	strong, pro-development	semi-strong tools, strong implementation	space production dominant
Netherlands	strong, balanced	strong tools - strong implementation	balanced
Turkey	weak, pro-development	semi-strong tools, weak implementation	space production dominant

There are plenty of planning and conservation tools utilized in these three countries to learn from. Among these four countries, the Netherlands is the most balanced one in terms of production of space and agriculture and the conservation measures and the implementation of these regulations are the strongest. This predominantly stems from the need to plan against sea-level and ground-water level rises, floods (existent for hundreds of years). The scale of the country, which is the smallest in terms of land, is the second reason for such high levels of control over the land use. In the case of China, the state is powerful in establishing rules and regulations over production of space, agriculture, and land use decisions, yet the perspective is not as comprehensive as needed in decisions made on urban form and preventing urban sprawl. The legal tools for prevention of farmland conversion are strong, yet both implementation problems and the lack of comprehensive planning in some cases creates problems of excess consumption of farmland by growing cities. Another aspect that is significant especially for the case of China is, China is a heavily pro-development state and now the major industrial producer of the world. The level of energy and natural resources consumption and the pollution by industrial production is severe and hence the limited water and land resources of China are under severe threat of pollution. This pro-development tendency, hence, decreases the strength of conservation tools and mechanisms as well as planning tools and mechanisms.

The case of United States cannot be understood without understanding federalism, the regulations differ by state and hence it is harder to summarize the general approach in the country. Yet, there are some fundamental dominant-ideological elements in local and urban policy in the case of US that is widespread among all states. These are the dominancy of private ownership, the large scale of production affected from the one-mile scale of the Jefferson grid, the pro-development approach, captive drivers, and urban sprawl. The US system has two flexible tools: transfer of development rights and purchase of development rights and tax is the central planning tool in this country. The system and conservation tools are more financialized with reference to other three.

Production of space is strong in all cases and more powerful than agriculture in the three of them apart from the Netherlands. This result is valid on the edge of cities, where urbanization, urban growth and production of space become most powerful. Getting further away from cities decreases this power. Yet, the strength of agricultural production is also higher when closer to cities in most of the cases since they are historically more accessible, usually more irrigated, and less marginal. The locationality is one of the key problems in farmland conversion in all examples and rent theories alongside historical geography of settlements are good at explaining this phenomenon. The problem of farmland conversion is hence more of a problem of quality (location) rather than vague and overall quantity.

CHAPTER 4

THE CONTEXT OF PRODUCTION OF SPACE AND AGRICULTURAL PRODUCTION IN TURKEY

Turkey, with her population over 84.6 million (2021) is the 18th largest country of the world while in terms of land with 769600 km^2 is the 37th largest. Turkey has the 19th largest GDP by the year 2020 while in GDP per capita ranking, the rank falls to 68th (World Factbook, 2020) and GDP growth rate is decreasing for the last 15 years (UN, 2018) and in terms of real GDP growth rate (0.98% for 2019) Turkey is 173rd (World Factbook, 2020). Turkey is an active battleground of land and sources struggle between production of space and agricultural production[118].

The aim of this chapter is to decipher and illustrate the black box of policy making in both production of space and agricultural production in the case of Turkey. The foundation of this deciphering process consists of state, local government, and public administration structure of Turkey. Inputs and outputs of the black box of policy making process are easier to observe than the black box itself. Inputs are public financial resources, public human resources, public technical resources, regulations by national, supranational, international, and local authorities, market financial resources, market pressures, dominant ideology and approach of the government, and public opinion. Outputs of the process are policies and implementations.

4.1 State, Local Government Structure and Planning System

According to the constitutional law, Turkey is a secular, democratic republic; judicial power resides in the hands of courts, legislative power resides in the hands of the parliament while executive power is the president himself. Public Administration in Turkey is highly centralized with a president who holds both executive and legislative powers. Justice and Development Party is the single ruling party for the last 20 years. Public administration system has two main branches in terms of authority and locality, central and local. With the

[118]Not to mention the pressure over natural areas by both urban and rural land uses.

presidential system, the central government in Turkey transformed into a more centralized structure, the central organs are Presidency of Republic, Policy Councils and Presidential Cabinet within the Presidency structure, the Parliament and the Ministries. Elected local governments consists of metropolitan municipalities, municipalities, district municipalities, special provincial administrations, villages while there are also appointed local branches of central government bodies. Metropolitan Municipality, the core scale of administration in this study, is the recent form of local government existent in largest 30 (in terms of population) out of 81 provinces. The rest 51 provinces have municipalities and special provincial administrations.

There are 519 metropolitan district municipalities, 403 district municipalities, 386 town (belde) municipalities, 18291 villages and 32164 neighborhoods (including former villages – still rural settlements- in metropolitan cities) (Ministry of Internal Affairs[119]). The public administration system is locally centralized in metropolitan cities with metropolitan municipalities having wide authority over the district municipalities and within the provincial borders. The spatial-statistical system used by European Union, Nomenclature of Territorial Units for Statistics, NUTS in short, is also used in Turkey. Based on this categorization, Regional Development Agencies are established, and they operate on regional scale within NUTS-2 regions.

The tendencies of flexibility and post-Fordism in production processes followed by governance tendencies in public administration increasing the participation of capital and civil society, neoliberalism in general, affected the planning system in Turkey as well. The planning system nowadays, leans towards strategic planning following global and predominantly global north examples. The legal basis of institutional strategic planning is the Law no 5018 on Public Financial Management and Control enacted in 2003 (Sınacı and Büyükgöçmen-Sat, 2016: 5). Spatial strategic planning on the other hand (1/100000 or 1/250000 Scale, regional and abstract) is defined in the legislation back in 2014 in Spatial Planning Preparation Code (Mekansal Planlar Yapım Yönetmeliği) yet not produced until today.

Hectic planning system of Turkey consists of plenty of laws, regulations, and codes (changing frequently) and national and regional scale are neglected in terms of spatial plans while the scales below 1/1000 implementation plans are not considered as a part of city and regional planners' work (Ersoy, 2005: 4). Both the legislation and planning experience reduces spatial planning into a narrow developer framework (Ersoy,2005: 4). The planning system in Turkey, has "lost its feature of being holistic due to laws" and the attempts to institutionalize

[119] https://www.e-icisleri.gov.tr/Anasayfa/MulkiIdariBolumleri.aspx accessed in June 2020.

planning ended with “multi-institutionalization” with several public bodies with planning authorities (Duyguluer, 2012: p.52).

The core actor of planning is the MoEUCC, defining the regulatory framework and producing Environmental Plans in 1/100000 Scale which defines the spatial planning framework for metropolitan municipalities and municipalities. The authorities relevant for production of space are land use decisions, approval of plans of all scales and construction related permits and licenses and these authorities are held by several public bodies from ministries and municipalities to administrations, governorates, and even pre-defined private bodies (Duyguluer, 2012: p. 53).

The planning system in Turkey is rather a fragmented and partially centralized system giving multiple bodies planning authorities for different forms of planning. For the sake of legibility, I have divided the plans produced within the Turkish public administration system into two main categories which are spatial plans and socio-economic, strategic and action (non-spatial) plans. Within these two categories, there are multiple numbers of public bodies producing these interrelated plans.

Figure 59 Turkish Planning System 1 – National and Regional Scales

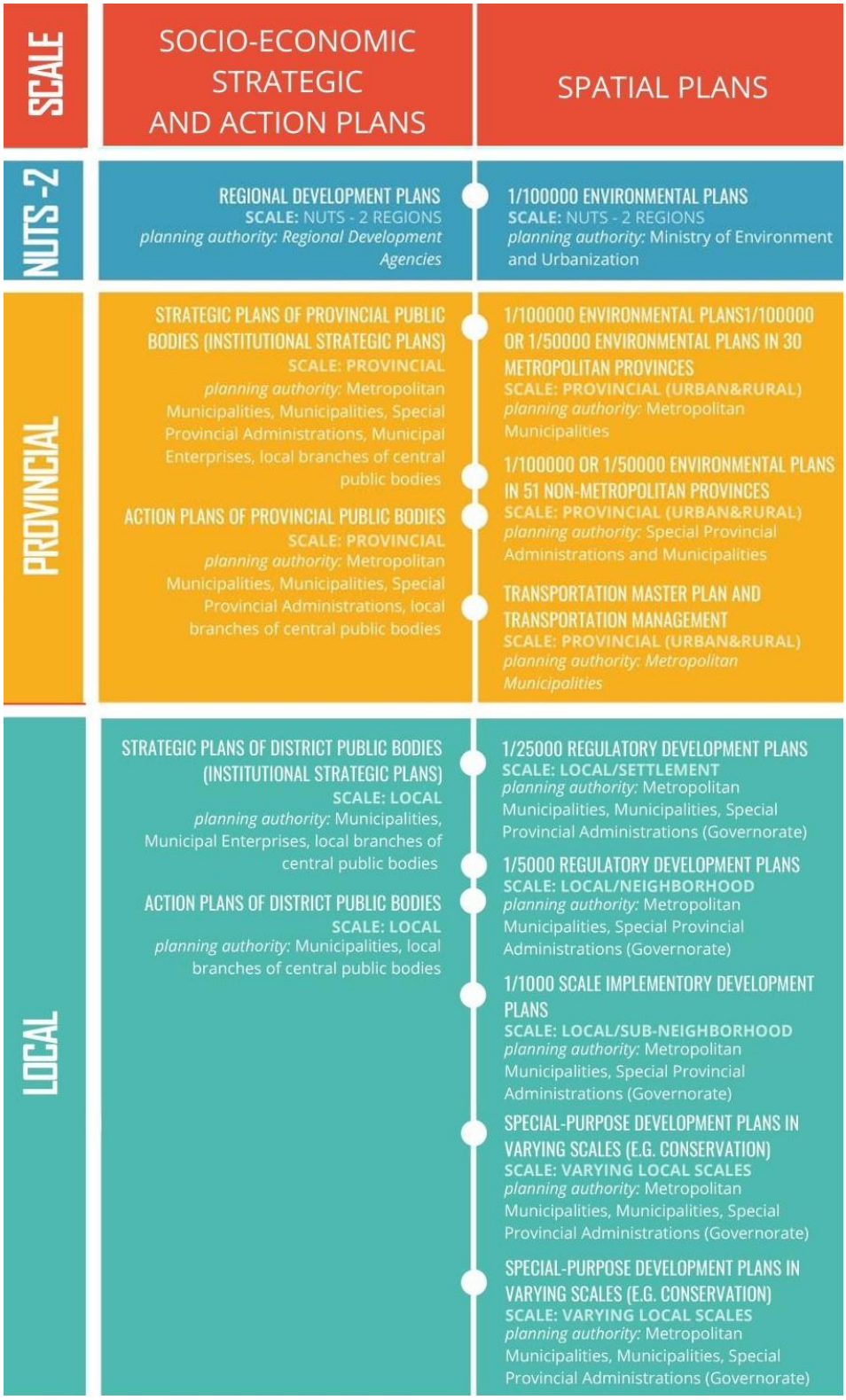

Figure 60 Turkish Planning System 2 - NUTS 2, Provincial and Local Scales

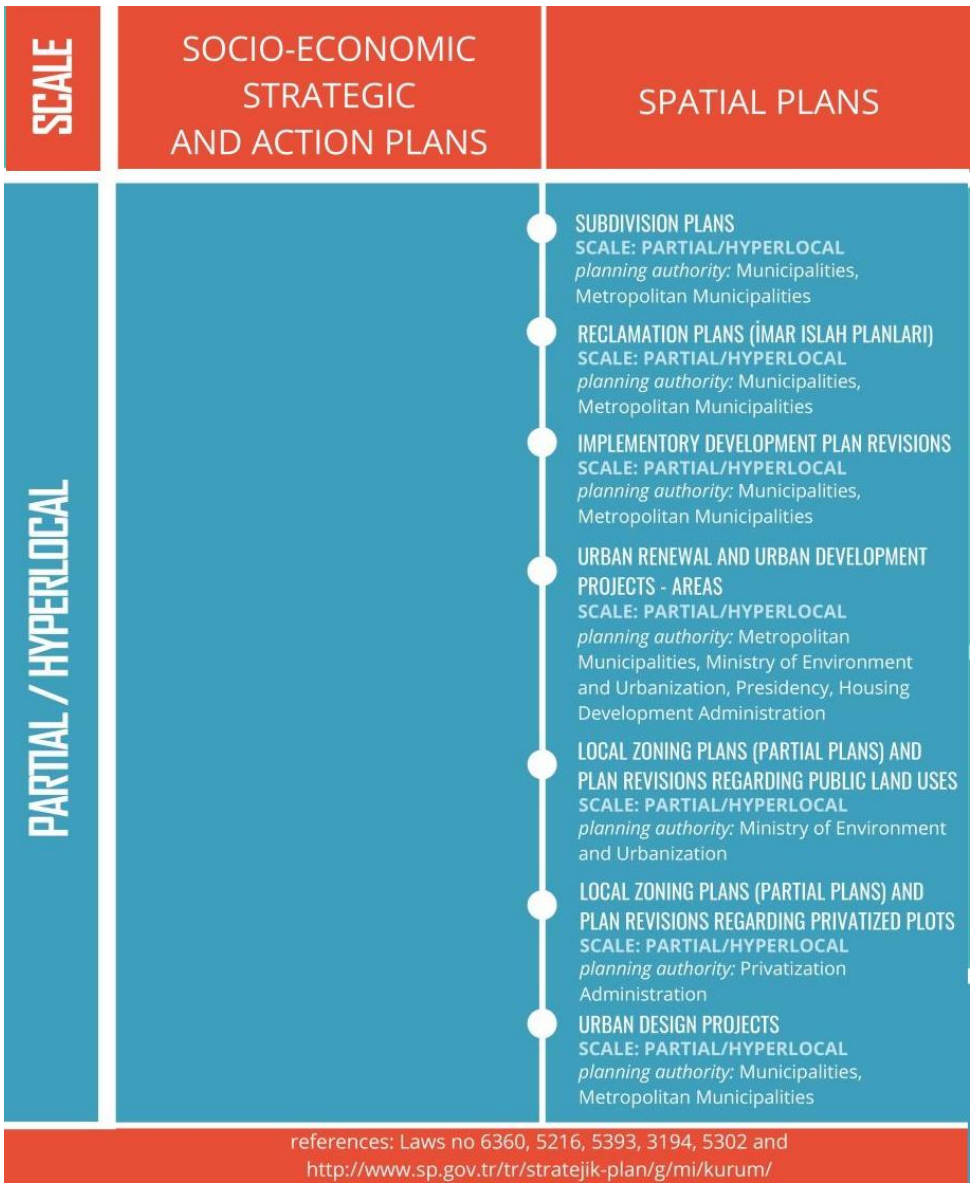

Figure 61 Turkish Planning System 3 – Hyperlocal and Partial Scales

The structure of the planning system illustrated above is fragmented between different scales and the spatial and non-spatial forms of planning, meaning the consistency within different types of plans are usually neglected. Moreover, the partial and hyperlocal interventions to plans occur in all scales of spatial plans and the implementational power of non-spatial plans are significantly low. There is a lack of binder medium between the non-spatial national scale plans and the implementations, and this creates problems in implementing national strategies for instance on climate change like national/global issues. "The identification of goals and objectives and bringing them to reality through plan

implementation tools constitute the two basic phases in every planning process" (Ersoy, 2005) and transforming the goals and objectives into plan implementation tools is where the process is disrupted. This planning system favors and predominantly empowers urban land uses and rural areas are usually utilized as hinterlands for urban development, urban economies, and urban sectors.

The first axis of the problem in this structure is the interruption between spatial and non-spatial plans in implementation. Agricultural policy, climate action, development policy, water policy and land use policy are determined in usually national scale development plans, strategic plans and action plans which lack the spatial dimension while, parallel to these plans (and not intersecting with these plans) the space is produced with spatial plans yet in a very partial fashion. In other words, production of space takes place in environmental development plans, regulatory development plans, development plans of 1/1000 scale and predominantly with partial and hyperlocal changes to these plans, and all these plans are divorced from the principles, strategies, plans put forward in non-spatial strategic and action plans. Agricultural production spaces are formed in more hyper local scales, partially with land consolidation and irrigation projects, with basin-based product supports, with farmer supports and with market price mechanisms.

The second axis of problem is the largest section of Turkish Planning System illustrated above with three figures consists of local and hyperlocal scales and this is dominating both production of space and agricultural production. This brings a de-planning and de-regulation approach in the planning experience of Turkey and the de-planning of the planning action itself. Not only partial scale plans and projects but also modifications to the larger and upper scale plans are the reason beyond this for production of space while for agricultural production it is project scale partial approach and other non-spatial tools such as financial supports, agricultural input supports and market mechanisms. This planning approach is formed by the historical-geographical relations in the society and economy and is now partially forming the settlement patterns, agricultural production spaces and patterns and urban forms, urban growth patterns within the context of the capitalist market relations of the country.

4.2 Development Discourse in Relation with Production of Space and Agricultural Production

Turkey, after the establishment of the Republic, for a long time has had a mixed economic system with a "centralized development plan" understanding. In 1980, after the coup d'etat which was the major breakpoint of political and administrative history of Turkey, changed the centralized developmentalist discourse and transformed the qualities of the mixed

economic system transforming the planning approach into a more market dependent (Övgün, 2010: 176-7). Eventually and recently, the developmentalist planning approach which is highly comprehensive is replaced with a strategic planning approach which is non-comprehensive (Övgün, 2010) and more significantly non-spatial while spatial plans continued to be produced uninterruptedly. Market preferences are prioritized over the public interest and regulatory authorities gain ground while privatization processes accelerated (Övgün, 2010: 189). Marketing and competing cities and regions discourse also became popular alongside strategic planning approach and within this approach, main goal is not "to develop" via industrialization but rather to be ready for competition with other institutions, cities, regions, etc. (Övgün, 2010: 194). The impact of strategic planning over the non-spatial planning system of Turkey is various; organization of the planning system transformed as well as the act of planning is partially decentralized into various institutions and this creates a partial and small leap forward to bottom-up planning (Övgün, 2010: 195-6).

The planning approach is a blend of capitalist planning approaches with traces of socialist planning approach of the early years of the Republic, yet today, this approach is transforming into a more "strategic" approach with institutional strategic plans, and more significantly with private sector and civil society becoming more central in the black box of planning decision making while public interest and public-centered perspective are losing their grounds (Yazıcı, 2015: 76).

The economic growth in Turkey since 1923, the establishment of the Republic, has taken place hand in hand with development even though the process is relatively slower and with several problems (Yardımcı, 2006). Throughout the course of the history of economic development in Turkey, there have been several paradigm shifts in the economic structure and development discourse. Development in national scale, since the early days of the modern-day Turkey, has strong impact over the government decisions and public discourse. The approach on the other hand varies and one categorization can be planned and unplanned approaches to development (Ekiz and Somel, 2005). Another categorization can be made based on the target core player who sets development in motion, and this can be either public or private players.

The case of Turkey shows the signs of a capitalist understanding of development after the Soviet supported initial years of the young republic of 1930s aiming industrial development. Yet the development planning in Turkey was always (and partially still is) an understanding of planning that aims to construct technical, financial, social and spatial infrastructure for enhancing private sector development and this provision of infrastructure is provided with public investments (Ekiz and Somel, 2005: 103).

The evolution of the development approach in Turkey in time can be seen below in 6 episodes categorized based on Ekiz and Somel's study on the Planning in Turkey and the Change in the Approach to Planning in Time (2005).

- Industrial development planning of the 1930s under Soviet impact and support
- Development understanding of the 1940s under Marshall plan impact focusing on agriculture, mining, and transportation infrastructure
- Unplanned 1950s with inflation, scarcity, and foreign borrowing
- Industrial and social development planning of the 1960 -1980
- Unplanned 1980s-1990s with inflation, foreign borrowing and export-oriented development approach
- 2000s company-based planning of market with supranational and national models

In the first era, state led industrialization was aimed and agriculture was not among supported production patterns, yet agriculture-based industry was prioritized. Hence, the support for agriculture even though indirect was partially there with ensuring the consumption of the product. Production of space was in the agenda of the government, yet the activities were limited to the capital city. In 1940s, with the push of the Marshall Plan and the opportunity to cease the European market for agricultural products and raw materials, the focus of development shifted towards agricultural production, transportation infrastructure to move the goods and mining to provide raw material for the development taking place in Europe. The resources of the state were still inefficient for production of space in country scale and the activities targeting production of space remained limited to the capital city in this era as well.

In the unplanned 1950s, without planning the development also did not take place and economic recession, inflation and foreign borrowing took over the economy. Neither agricultural production nor production of space flourished in this era. Starting from 1960 to 1980 military coup, Turkey experienced one of the most planned eras of all time with a significant growth. Industrial development was the target of development this time and the approach was import-substitution in industrial production. Similar to the zeitgeist of the era in the world in general and a agricultural production dominant economy was viewed as a sign of under development in the discourse. Social welfare was also among the targets of the development discourse of this era and even though the resources of both public and private bodies are not enough for production of space that is severely needed in urban agglomerations due to rapid population increase and industrialization.

Following the military coup in 1980, the planning activities were put on hold and similar to the unplanned era of 1950s, the economy had become unstable with high levels of inflation, foreign borrowing and export-oriented development approach. Production of space

has taken over with urban renewal taking place in former squatter areas that are the remnants of the urbanization of labor solving their own housing problem. Agricultural production, even though supported, is considered as the opposite of development and the share of agricultural production in the economy, in terms of revenues and employment must be decreased by decreasing the labor intensity and encouraging industry and tourism to increase their share in the economy eventually decreasing the share of agriculture.

With 2000s, after the coalition governments of the 1990s, a single party took over the government and with the spillover effects of the economic developments in the developed world, the development approach of the country has entered a new phase. Production of space became the heart of this new understanding of development. The approach is named as company-based planning of market by Ekiz and Somel and this illustrates the difference of this era in terms of target of the development. In this era, production of space, land development, urban growth, housing market, real estate has become the focus. The legal framework, the production relations in both agriculture and urban space, the settlement patterns, the urban forms in the country analyzed within this study are all a part of this picture. As of 2022, with revival of the unstable economy and inflation problem we seem to be on the verge of another breakpoint.

4.3 The Players in Production of Space and Agricultural Production

The players in the black box of urban policy making are divided into four groups: public players, market players, civil players and international/supranational players. Within the market dominated realm of urban policy, public players are the core and decisive actors in local governments. Supranational and international players mainly affect regulations, market and capital flow either directly or indirectly. Market in general and local market players, creates pressure points in the local economy and on the geography both in urbanization process and in agricultural production process. Civil players are the weakest of all four, yet essential. The roles undertaken by civil players are criticizing, monitoring, consulting, and supporting. Civil players represent different organized groups within the society and among some groups there are also market players' organizations as well. They are the non-governmental organizations and autonomous semi-governmental organizations without authorities in the policy making process. The lines drawn between these four groups are usually blur and groups are transitive and more significantly, all groups are background players for each other group of players. Market players and public players are the main background players in all fields.

4.3.1 Public Players

Public players in urban policy making process in the metropolitan scale varies from national to local players. The main division among public players are whether they are elected or appointed. There are appointed bodies supporting elected bodies and ensuring policy making and implementation. A national player, the Policy Councils replacing Cabinet of Ministers after the enactment of then Presidential System, is interestingly became one the most powerful players in urban policy making process, urbanization, settlement pattern and agricultural production. With the new presidency system enacted in 2017 with a referendum, the president, supported by the policy councils, now holds the same authorities with the Cabinet of Ministers, previously the central body of the government. Presidential Cabinet consisting of Ministers is now a part of the presidential body and the policy councils are consisting of the members of the presidential cabinet. This highly centralized structure in the national scale is supported by the highly centralized structure in metropolitan – provincial scale. Metropolitan Municipalities (MMs) are elected local government bodies now controlling urban policy making process in metropolitan provinces. Within these two poles there are supporting appointed bodies where the real process of policy making, and implementation takes place. Central bodies regulate, structures, decides and implements in national scale (and sometimes directly in local scale as well) while local bodies decide, regulate, support, implement and research in local scale. The public players are divided into four main groups: elected central bodies, appointed central bodies, elected local bodies and appointed local bodies. The structure of public players is similar in all metropolitan provinces, yet there are differences as well. The system is substantially complex; therefore, the mechanisms will be abstracted to simplify and illustrate.

4.3.1.1 Elected-Central Bodies

The core elected-central player in all Nation is the president with centralized and powerful authorities over the decisions made in both local and national scales. With the recent change, the enactment of the presidential system, presidential decrees overrode the authority of the Parliament, the core elected body and the core organ of legislation. The presidential decrees (Cumhurbaşkanlığı Kararnamesi) and the presidential orders (Cumhurbaşkanı Kararı) are the tools of the presidential body to form the legislature, and both are relevant, on both national and local scales for both production of space and agricultural production. The issues covered by 20 presidential decrees as of 2020 January are administrative structure of Turkey, geographical information systems' utilization in public bodies in coordination and public access to these geographical coordinated database, national palaces and their spatial assets,

national strategies and budget, insurance and retirement, labor legislation, space agency and interestingly and highly locally the establishment of Kapadokya Area Management Administration (mevzuat.gov.tr, 2020). The issues covered by a record number of 702 presidential orders enacted from 14th of July 2018 to 7th of January 2020 are more versatile (mevzuat.gov.tr, 2020). These highly centralized orders, enacted by the head of the Republic himself, are interestingly heavily local in scale. 48% of these 702 orders are decisions directly made in local scale, some even in hyper-locally parcel scale (mevzuat.gov.tr, 2020). 31% of these decisions are directly "urgent expropriation (acele kamulaştırma) decisions for several land use changes in local and hyper-local scales and 12,25% of all orders is directly related with production of space (mevzuat.gov.tr, 2020).

The second elected-central body is the parliament which was the sole elected-central body of the system before the enactment of the presidential system. Parliament has legislative power and the regulations proposed by the parliament becomes official after the presidential approval. The president as a member of a political party is the representative of the largest party group in the parliament which gives him/her indirect right to form a regulation proposal via his/her party.

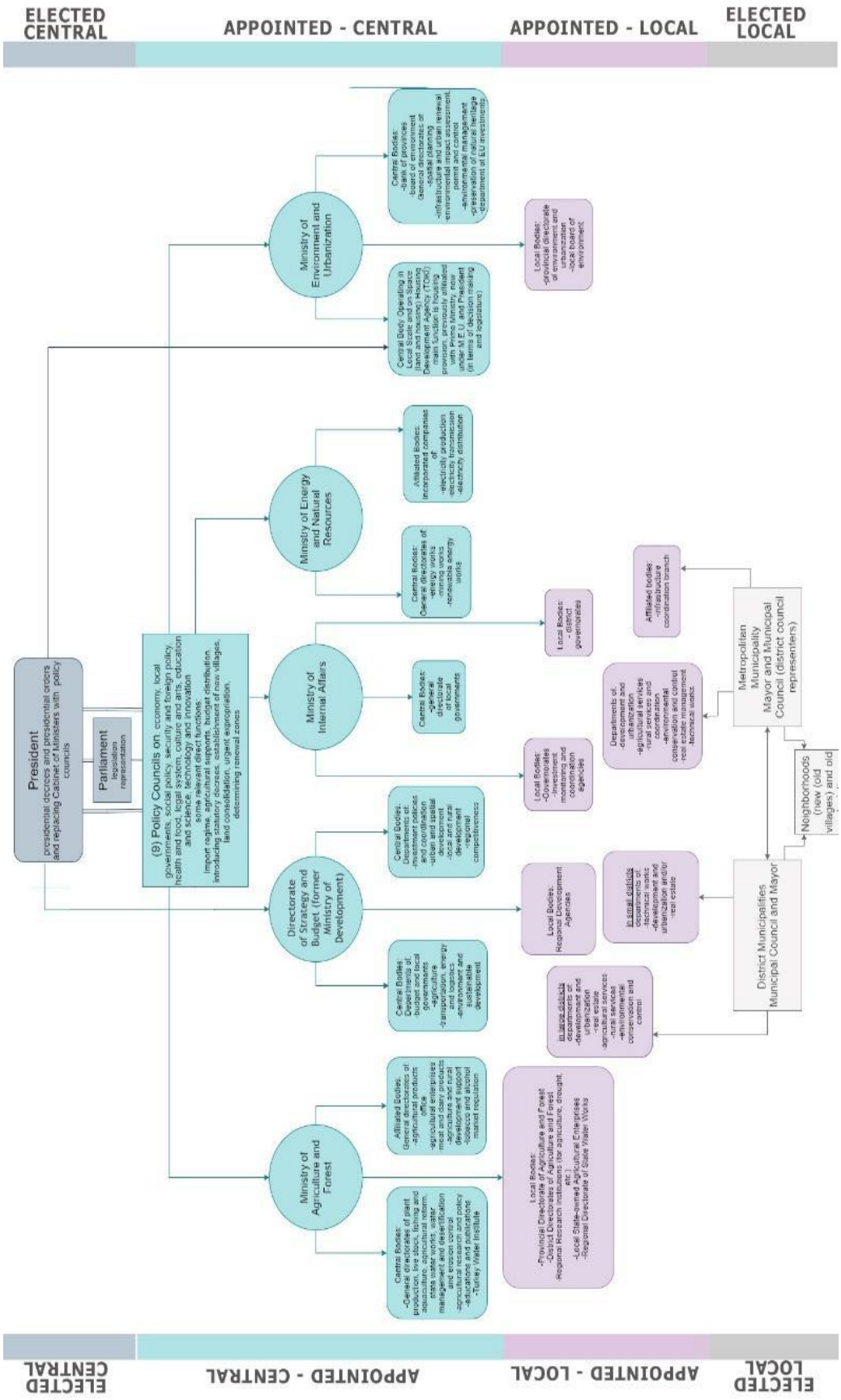

Figure 62 Central-Local and Elected-Appointed Public Players of Urban and Agricultural Policy Making in Turkey

This massive structure of public players is a summary of Turkish administrative system hiding in plenty of laws, regulations, and bodies. Main legislation organ is the Parliament while the President supported by Policy Councils also has legislative power. Since we are focused on agricultural production, settlement patterns and urban form under metropolitan municipality system, within the structure the bodies relevant are summarized above.

4.3.1.2 Appointed-Central Bodies

Policy Councils replaced the Cabinet of Ministers that had vast amount of authority defined piece by piece in substantial number of laws and regulations (Aktalay, 2014). Introducing statutory decrees in a variety of issues is the most powerful authority of. Some relevant functions with direct effects are import regime, agricultural supports, budget distribution, establishment of new villages, land consolidation, urgent expropriation and determining renewal zones. Agricultural supports are fundamental for agricultural production and the decisions made on this defines the production pattern all over the country. Import regime, especially customs taxes of foreign agricultural products are also fundamental for agricultural production.

There are for ministries and one directorate (former ministry) directly relevant for agricultural production, settlement patterns and urban form. All ministries and the directorate have indirect effects yet these five are central to the subject. The decisive ministry for settlement pattern is the Ministry of Internal Affairs with its core role in public administration and local governments. The MoEUCC is central for urban growth and urban form, via regulations, environmental plans and projects. For agricultural production, it is the Ministry of Agriculture and Forest. The black box of government, translating the dominant ideology and party programs into public policy and implementation, Directorate of Strategy and Budget, former Ministry of Development is central for all three pillars. Ministry of Agriculture and Forest also controls the water and hence fundamental for agricultural production as well as life. Ministry of Energy and Natural Resources controlling the natural resources and energy production where both are usually located in rural geographies is also significant for agricultural production since its functions are usually competing with agricultural land uses.

On central level, plant production, livestock, fishing and aquaculture, agricultural research and policy, agricultural reform, agricultural enterprises, meat and dairy products, agriculture and rural development supports, base prices for agricultural products and food and beverage regulations and supportive functions: water management, water infrastructure and network, desertification and erosion control are controlled by specialized directorates of the Ministry of Agriculture and Forest. Following urban growth (both with housing and industry,

more with housing and less with industry) one of the most contesting land uses for agricultural production is energy production and mining.

General directorate of local governments, a body under Ministry of Internal Affairs is responsible from controlling, auditing, coordinating, regulating and managing local governments, therefore powerful over the urban policy making in local governments. With the Bank of Provinces (ILBANK), general directorates of spatial planning, infrastructure and urban renewal, environmental impact assessment, permit and control, environmental management, preservation of natural heritage, department of EU investments and board of environment, Ministry of Urbanization and Environment is the key player of production of space in central scale. The last group of appointed players on central scale are departments of budget and local governments, agriculture, transportation, energy and logistics, environment and sustainable development, investment policies and coordination, urban and spatial development, local and rural development and regional competitiveness of Directorate of Strategy and Budget.

Another central and appointed body working for production of space in local scale is Housing Development Agency (TOKI). TOKI is a central body working in national scale, yet, since the major function of this body is housing provision which is bounded to space and therefore localities, TOKI is described among local and appointed public bodies. The decision-making process and funding are highly central, even the projects are central and usually not designed to fit local needs, geography, climate, culture of that locality so on and so forth. The implementation on the other hand is inevitably local due to being bounded to space. This tension between the function and authority reproduces itself in the tension between the metropolitan municipalities, municipalities and TOKI as well. The massive housing projects designed and implemented by TOKI does not have to be in accordance with the environmental and regulatory plans of MMs and municipalities; not even environmental plans produced by the MoEUCC. TOKI is the decision maker for land development, housing provision and expropriation for land development and housing provision. The body was previously affiliated to Prime Ministry, yet due to the acceptance of the new presidency system, Prime Ministry is abolished and TOKİ is transferred to Ministry of Environment, Urbanization and Climate Change. TOKİ is amongst the largest players in the housing market of Turkey and even though it is a public player, the impacts of TOKİ in the housing market is massive. Having established financial relations with contractors, construction material firms, infrastructure providers, with land market players via land development activities, TOKİ is one of the most dominant players in the housing market.

4.3.1.3 Appointed-Local Bodies

Hierarchically most powerful local appointed body is the governorate. Ministry of Internal Affairs manages governorates. Investment monitoring and coordination agencies (IMCAs) replacing special provincial administrations are affiliated to the governorates. Agricultural supports, regulations and services are provided by provincial and district directorates. The departments of the directorate are land consolidation and agricultural infrastructure, plant production and health, livestock health and breeding, coordination and agricultural data, rural development and organization, food and forage, pastures, meadows and forage plants and aquaculture. The provincial and district branches of the Ministry of Agriculture and Forest and the regional branch of State Water Works are some bodies working in local scale with delegation of power.

The local bodies affiliated to the Ministry of Environment, Urbanization and Climate Change are Provincial Directorate of Environment, Urbanization and Climate Change, Preservation of Natural Heritage Regional Commissions and Local Board of Environment. First body functions for production of space while, antagonistically second and third bodies function for conservation of nature. The same tension exists on central level as well, previously environment and urbanization were subjects of two separated ministries (Ministry of Public Works and Settlement and Ministry of Environment and Forests) until 2011. Structurally antagonist functions meeting in the same body fastens the urban policy making in a problematic way. One of the most significant functions of provincial directorate of environment and urbanization is the coordination, regulation and control of environmental assessment report processes. There are several regional research institutions that are affiliated to the ministries as well and especially the ones working on agriculture, water or land are relevant for agricultural and urban policy making processes.

Planning acts of regional development agencies (RDAs) are not directly spatial yet since they are coordinating the investments and funds on the geography, they have spatial results. The regional development agencies were established in 2008 as units of governance bringing together the public players, the civil players and the market players. The financial resources of RDAs are shares collected from several local public bodies in the region, chambers of commerce and industry, the share from the national budget, EU funds and international funds and donations. The shares collected from district municipalities creates problems from time to time.

The last elements in the appointed-local bodies are structurally different from the ones described above, they are the units functioning under the municipalities, district municipalities and metropolitan municipalities. The focus, variety and the number of these units depends on the scale of the city that the municipality manages. In larger cities, there are units on

development and urbanization, real estate, environmental conservation and control, agricultural services, rural services and infrastructure, and in smaller cities, on development and urbanization and/or real estate. Hence, smaller scale settlements' municipalities have less authority over their rural hinterlands since they lack the needed units in the municipality. The authority over rural and agricultural hinterlands of cities are centralized in metropolitan scale with the 6360 law and before this change, it was the central power dealing with these areas via Special Provincial Administrations.

4.3.1.4 Elected-Local Bodies

Metropolitan Municipality (MM) is at the heart of elected local bodies in metropolitan provinces. With 5216 Metropolitan Municipality Law and 6360 Law the municipal boundaries are expanded to provincial boundaries. With a directly elected mayor and representative municipal council (consisting of district mayors and district council representers) MM spatially plans the province, produces urban policy, regulates urban, rural and agricultural geography, coordinates district municipalities, provides services in villages, districts and core cities, in urban and rural areas, supports agricultural producers, provides technical and social infrastructure, coordinates environmental, historic and cultural conservation. The organs of the MM relevant for our study are the Departments of: development and urbanization, agricultural services, rural services and coordination, environmental conservation and control, real estate management and technical works. Villages are transformed into neighborhoods and annexed to MMs and district Municipalities (DMs). Agricultural services department, rural services and coordination department and environmental conservation and control departments are new departments established after law no 6360 to fulfill the roles inherited from special provincial administrations (SPAs). 30 out of 81 provincial municipalities are now metropolitan municipalities, and the rest 51 municipalities still work with SPAs and SPAs are the main authorities over the decisions made on agricultural and rural hinterlands of these cities. Ministry of Internal Affairs are the central body behind the Metropolitan Municipality System (Interview with experts in the Ministry of Development, 2013). There are plans to change 12[120], 21[121], 30[122] more or all province's municipalities to metropolitan municipalities even though there are also backward steps to the former structure for the villages located on

[120] https://t24.com.tr/haber/nufusu-500-bini-gecen-12-il-buyuksehir-olacak,535450

[121] https://ilerihaber.org/icerik/arkeolog-cigdem-koksal-schmidtten-gobeklitepe-isyani-bir-de-korumayi-dusunun-109660.html

[122] https://emlakkulisi.com/guncel/buyuksehir-olacak-iller/59428

the peripheries of provinces with “rural neighborhood” additions to the law. Therefore, a thorough analysis of the MMS is much needed.

4.3.2 International and Supranational Players

There are two main supranational bodies that dominate the international and supranational players in agricultural production, urban form and settlement patterns. Washington D.C.-centered United Nations and Brussels-centered European Union. These two supranational bodies with their sub-bodies, affiliated bodies, partnership unions, supported bodies, international treaties, and charters, regulates, dominates, supports, encourages, funds, and implements agricultural and urban policies in Turkey.

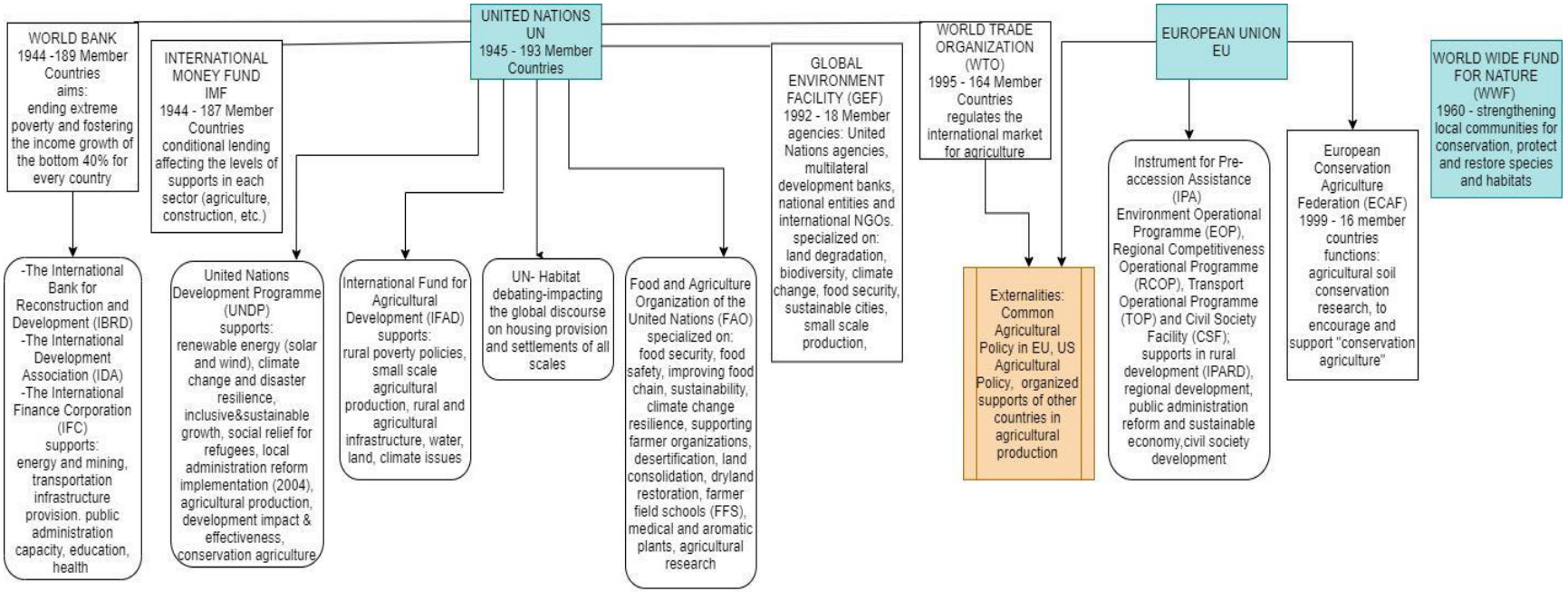

Figure 63 Supranational and International Players of Urban and Agricultural Policy Making in Turkey

United Nations related bodies are World Bank, International Money Fund (IMF), Global Environment Facility (GEF) and World Trade Organization (WTO), and affiliated bodies are United Nations Development Programme (UNDP), International Fund for Agricultural Development (IFAD), UN-Habitat and Food and Agriculture Organization (FAO). With the International Bank for Reconstruction and Development (IBRD), World Bank supports energy, mining, transportation infrastructure, public administration capacity, education, and health in Turkey with a total of 238 projects (IBRD, 2018).

UNDP supports renewable energy, climate change and disaster resilience, inclusive & sustainable growth, social relief for refugees, local administration reform implementation (2004), agricultural production, development impact & effectiveness and conservation agriculture[123] in Turkey with a total of 2700 projects (UNDP, 2018). IFAD supports rural poverty policies, small scale agricultural production, rural and agricultural infrastructure, water, land and climate issues in Turkey. FAO is specialized in food security, food safety, improving food chain, sustainability, climate change resilience, supporting farmer organizations, desertification, land consolidation, dryland restoration, farmer field schools (FFS), medical and aromatic plants and agricultural research. GEF, in international scale, is specialized in land degradation, biodiversity, climate change, food security, sustainable cities, smallholder agriculture.

The main tool for European Union on the other hand is the Instrument for Pre-Accession Assistance (IPA). Since Turkey is a candidate for membership, the candidacy process is funded and coordinated by IPAs specialized in different sectors. Rural development (IPARD), regional development, public administration reform, sustainable economy and civil society development are some relevant fields that IPAs function. European Conservation Agriculture (ECAF) and Worldwide Fund for Nature (WWF) are two international bodies that are not directly affiliated to neither World Bank nor European Union. These two are among civil players, yet since they funded plenty of civil players in national scale and direct plenty of projects, they are analyzed among international players. These two bodies and EU through IPAs have plenty of projects on Turkey.

The main body promoting Conservation Agriculture all over the Europe, European Conservation Agriculture Federation (ECAF) conducts agricultural soil conservation research and encourages and supports conservation agriculture. Similarly, European Union's Common Agricultural Policy (CAP), United States' Agricultural Policy and other countries organized supports in their agricultural production and custom tax policies create externalities for

[123]The term conservation agriculture refers to soil surface protection in annual and perennial crops where tillage prohibited and groundcover is encouraged. Main body promoting conservation agriculture is ECAF.

agricultural market of Turkey. International Money Fund (IMF), on the other hand, with conditional lending, affects the levels of supports in each sector (agriculture, construction, etc.).

In addition to these supranational scale regulatory bodies, there are treaties, conventions and charters signed by Turkey that regulate and limit both urbanization and agricultural production. RAMSAR Convention on wetlands is one of them. Worldwide Fund is the last international body that has impacts over the agricultural policy making and production of space in the case of Turkey. The core works of this body concentrates around "protecting and restoring species and habitats" and enhancing the power of local communities for the sake of conserving habitats (WWF, 2018). Research and campaigning on fragile geographies are the main tools of this body.

4.3.3 Civil Players

Civil society has plenty of players in national, local, and international scales. International civil players usually work through funding national and local scale civil players and governmental organizations, and they are partially covered in international players part, hence we will be focusing on national scale and local scale civil players. The six main groups of civil players are organizations, foundations, universities, chambers, producers' associations, and unions. There are a vast number of relevant organizations, foundations, university departments, associations, chambers and unions in Turkey. The civil players evolved in time and bodies show different characteristics in different periods in the timeline. Borrowing from Hill (2004)[124] and Vasak (1977)[125], the civil players are categorized in three generational subgroups and first, second and third generations of civil players are studied below.

[124]Hill, T. (2004) Three Generations of UN-Civil Society Relations, https://www.globalpolicy.org/un-reform/31824-three-generations-of-un-civil-society-relations.html , accessed 2018.

[125]Vasak, K. (1977) "Human Rights: A Thirty-Year Struggle: the Sustained Efforts to give Force of law to the Universal Declaration of Human Rights", *UNESCO Courier* 30:11, Paris: United Nations Educational, Scientific, and Cultural Organization.

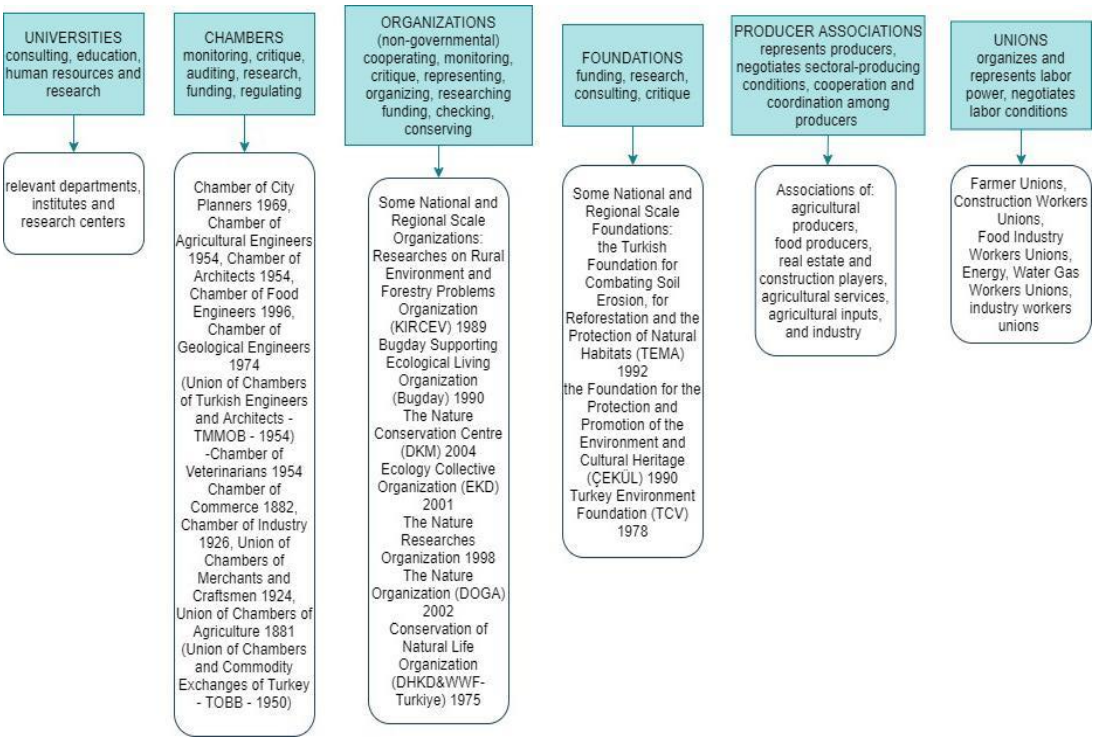

Figure 64 Civil Players of Urban and Agricultural Policy Making

Universities are where the experts raised, and the knowledge is produced within predefined schools of thought. Even though the transfer of knowledge produced in the universities to the public realm is low, they are still effective over the process via joint projects with public players or market players.

Union of Chambers of Agriculture (1881) and Chamber of Commerce (1882) are two oldest chambers of sectors. Union of Chambers of Merchants and Craftsmen (1924) and Chamber of Industry (1926) are the two other sectoral chambers. The sectoral chambers are among the oldest elements of civil society in Turkey, and they can be considered as the first-generation civil players in modern Turkey. These chambers audits, monitors and registers the sectors and the sectoral players. The second group of chambers are Chamber of City Planners (1969), Chamber of Agricultural Engineers (1954), Chamber of Architects (1954), Chamber of Food Engineers (1996), Chamber of Geological Engineers (1974) and Chamber of Veterinarians (1954). Majority of them are established between 1954 and 1970s and they are the second-generation civil players. These chambers regulate professions, audit, monitor and register professionals, critique, monitor and research the implementations in their field and take legal actions against. There are two groups of chambers active in Turkey, first one is the chambers of sectors and the second one is the chambers of professions.

Some National and Regional Scale Organizations working in urban and agricultural policy fields are Researches on Rural Environment and Forestry Problems Organization (KIRCEV) (1989), Bugday Supporting Ecological Living Organization (Bugday) (1990), The

Nature Conservation Centre (DKM) (2004), Ecology Collective Organization (EKD) (2001), The Nature Researches Organization (1998), The Nature Organization (DOGA) (2002) and Conservation of Natural Life Organization (DHKD&WWF-Turkiye) (1975). There are plenty of other organizations as well. These organizations mainly function in conservation field. Majority of organizations are established after 1980s and they are the third-generation civil players.

Organizations are the most complicated civil players. There are plenty of (non-governmental) organizations in Turkey working in urban and agricultural policy related fields in national and local scales. They are the cooperating, monitoring, critique, representing, organizing, researching, funding, checking and conserving bodies in the policy making.

The establishment of local and national foundations dates to the Ottoman era, yet, the environment related foundations are relatively new, most of them are established after 1980s. Foundations are also among first generation of civil players.

The fifth group of civil players, producer associations are also market players at the same time. They represent producers, negotiate sector/production conditions, cooperation and coordination among producers and produce directly. There are associations of agricultural producers, agricultural input players, food producers, real estate and construction players. GYODER, TUSIAD and MUSIAD are some examples of this category. They are effective over the discourse setting in markets in production of space and production related with agriculture. Agricultural services and agricultural inputs associations are also among significant civil and market players. These associations work in irrigation(closed), seed (2005) and forage (1998) fields. Irrigation associations are different from the rest, they are public associations at first, then with 1993 World Bank decision, they were transferred to other parties and in 2018, they are now again part of State Water Works. Seeds and forages are significant inputs for agricultural production and the associations are established in 1998 and 2005. The last group, real estate and construction players related associations significant for urban policy are contractors (1952), shopping malls (2013) and real estate -GYODER (1999). contractors' and food producers' associations are among oldest associations; therefore, it can be said that these two fields have started organizing before other fields.

The last group of civil players are workers' unions regulating and negotiating the working conditions in urban policy and agricultural production related fields. They organize and represent labor power and negotiate labor conditions. The unionization in Turkey is low, only 11.9% (Ministry of Labor and Social Security, 2017) of all workers are union members, while in agriculture the percent rises to 24.4% and in construction falls to 2.6% for 2016). Majority of unions are established in 1950s and 1960s therefore they are the second-generation civil players.

4.3.4 Market Players

In the capitalist society, market players have utmost importance. The game is sophisticated and hard to summarize structurally. Market players act in global, international, national and local scales with visible and invisible hands. For practical purposes, we are focusing on local and national scale players within this part. Yet it is crucial to remind that categorizations and borders are not that limiting for market players and plenty of local and national players have international and foreign structural elements in their capital. Market players for our case are divided into five main groups working in five different fields/categories. The five groups for five fields are as follows: Leading market players, the key (most dominant) market players, Large, Small and Medium Sized Enterprises (SMEs) and Smallholder Producers (all market players with statistics), Cooperatives, Regulating and Auditing firms and bodies and Sectoral Support and Consulting Firms and bodies. The five fields of interest are agricultural production, agricultural production-based industry, real estate, construction and energy and mining fields.

Table 12 Market Players of Urban and Agricultural Policy Making in Turkey

Market Players' matrix	Agricultural Production	Agricultural Production Based Industry	Real Estate	Construction	Energy and Mining
Leading Players: Large Scale Firms&Companies and production groups	contract farming companies, certified (genetically modified) seed production companies,pesticide companies, fertilizer companies, agricultural machinery companies, newly emerging: agricultural energy production contract farming companies, industrialized live stock companies	large scale food production companies, biofuel production companies, agricultural machinery companies	international and national scale real estate firms, large scale land speculators, foreign and national large scale real estate investors	large construction companies working in national and international scale, construction machinery firms, large scale construction material provider firms, contractor firms working with Housing Development Administration	companies investing in power plants, dams, energy and mining projects
Large, Small and Medium Sized Enterprises (SMEs) and Smallholder Producers	large, medium and small scale farmers (697000 in 2018), small and medium scale agricultural enterprises, seed plants firms, live stock firms, small scale contract farming	small and medium scale food production, biofuel, agricultural machinery companies, cold storage depots	real estate agents, contractors, buyers, investors, local land speculators	construction contractors and sub-contractors, small and medium scale construction material provider firms	small and medium scale energy and mining firms, contractors
Cooperatives	agricultural production cooperatives, regional associations for agricultural cooperatives, irrigation cooperatives, agricultural credit cooperatives	food production cooperatives	Real estate management cooperative	housing cooperatives, construction cooperatives	energy cooperatives, renewable energy cooperatives
Regulating and Auditing Firms and Bodies	commodity exchanges, organic agriculture certification companies, environmental impact assessment reporting firms	food chain safety and food safety auditing firms	real estate value assessment firms	building auditing firms, architecture and city planning firms	Environmental impact assessment reporting firms
Sectoral Support and Consulting Firms and Bodies	agricultural insurance companies, Ziraat Bankası (Agriculture Bank), Şekerbank (SugarBank), Agricultural Credit Cooperatives	Agricultural Credit Cooperatives	real estate value assessment firms	construction insurance firms, Ziraat Bankasi, Is Bankasi, Halk Bankasi, Vakif Bankasi, Yapi Kredi (contractor credits)	Kalkinma Bankasi (Development Bank), Halk Bankasi, Vakiflar Bankasi, Sanayi Kalkinma Bankasi (industry development bank), Ziraat Bankasi, Turk Eximbank

For each and every five field (economic sectors), large scale companies & firms and production groups are the leading players that have impact over the conditions and the discourse of the market, lobbying activities over the government for regulation modifications are also a part of this power over discourse and condition setting role of this players in the market. If organized, SMEs and smallholder producers also have similar power but without a solid organization they don't. Cooperatives gives chance to smallholder producers to unite and produce together in order to survive in the rescaling economy. Cooperatives are more existent in agricultural production realm than any other sector (before 2000s it was housing market that the cooperatives were more dominant in). Regulating and auditing firms and bodies, by working for and getting paid by the firms & companies, production groups and large, small, medium sized enterprises, they are supportive players enhancing the power of market players instead of limiting them. The last group is sectoral support and consulting firms and bodies and the two central functions of this group are finance and insurance.

The selected five economic sectors that are relevant for agricultural production and urban space are: agricultural production, agriculture-based industry, real estate, construction, and energy and mining fields. The leading players in agricultural production field are contract farming companies, certified (genetically modified) seed production companies, fertilizer and pesticide companies, agricultural machinery companies, industrialized livestock companies and newly emerging agricultural energy production contract farming companies (biofuel). Majority of companies under this category are international and massive companies operating multi-nationally and especially seed and agricultural inputs are among severely internationalized sectors.

The second group in agricultural production sector consists of large, medium and small-scale farmers (697000 in 2018, TURKSTAT), small and medium scale agricultural enterprises, seed plants firms, livestock firms and small to medium scale contract farming. The third group, namely cooperatives relevant for agricultural production are agricultural production cooperatives, regional associations for agricultural cooperatives, irrigation cooperatives and agricultural credit cooperatives. The fourth group consists of commodity exchanges (determining base prices for agricultural products specifically and regionally), organic agriculture certification companies, environmental impact assessment reporting firms and agricultural analysis laboratories. Agricultural insurance companies, agricultural credit cooperatives and banks giving agricultural producers credits (Ziraat Bankasi, SekerBank) are the fifth group supporting agricultural activities financially.

The second field/sector of economy is agriculture-based industry utilizing agricultural outputs as inputs. The leading players in this field are large scale food production companies, biofuel production companies, agricultural machinery companies. The second category of

players in this field are small and medium scale food production, biofuel, agricultural machinery companies and cold storage depots. Cold storage and cold chain are essential for food and agriculture. The third category of players are food production cooperatives processing agricultural products. The fourth group of players in this sector are food chain safety and food safety auditing firms and food analysis laboratories regulating the market.

Real estate is the third economic field, and it is highly relevant for production of space. The real estate market gained significance and power with the rise of the construction economy of 2000s and rescaling of housing market alongside state and production of space. The leading players in this field are international and national scale real estate firms, large scale land speculators and foreign and national large-scale real estate investors. The second category of players, that are strong only when organized, are real estate agents, contractors, buyers, investors, local land speculators. The third category of players are Real estate management cooperatives which are new forms of cooperatives (enacted in 2016) which obtain and profit from real estate[126]. The fourth and fifth group of real estate players are real estate value assessment firms.

The fourth economic sector is construction, and it is one of the most dominant sectors in Turkey after 2000s. The leading players, effective over the discourse via lobbying and over the market conditions are large construction companies working in national and international scale, construction machinery firms, large scale construction material provider firms, and contractor firms working with Housing Development Agency. The second group which are only effective when organized are construction contractors and sub-contractors and small and medium scale construction material provider firms. There are two types of cooperatives under third category which are housing cooperatives and construction cooperatives. The regulating and auditing firms and bodies are building auditing firms and architecture and city planning firms while the latter ones are also defining the physical qualities of the built environment. The last group, the supporters for construction sector are construction insurance firms, and banks; Ziraat Bankasi, Is Bankasi, Halk Bankasi, Vakif Bankasi, Yapi Kredi (especially in terms of contractor credits).

The fifth crucial sector for both production of space and agricultural production are energy and mining which are inputs in both production processes and meddles with both production processes in terms of land and water consumption, pollution, etc. The leading players in this field are companies investing in power plants, dams, energy and mining projects, which are predominantly international and sometimes national in scale. Small and medium scale energy and mining firms and contractors are the second group. Even though one

[126] https://koop.gtb.gov.tr/kooperatifler-hakkinda/gayrimenkul-isletme-kooperatifi

by one their impact is not that high, cumulatively due to their vast number, the toll to nature rises. There are newly emerging cooperatives in this field and this group of players consists of energy cooperatives and specifically renewable energy cooperatives. The fourth category of players are environmental impact assessment reporting firms which are working for and getting paid by the energy and mining firms and companies, they function favoring market players. Energy production and mining activities almost always takes place in rural geographies nearby urban and rural agglomerations and most of the time either on or near agricultural areas. Urban settlements on the other hand, are the main consumers of the energy produced and the mined commodities. Therefore, the energy and mining market players are highly relevant for agricultural production, urban growth and urban policy. Some banks that are giving credits to energy and mining market players are Kalkinma Bankasi (Development Bank), Halk Bankasi, Vakiflar Bankasi, Sanayi Kalkinma Bankasi (industry development bank), Ziraat Bankasi and Turk Eximbank.

4.4 Metropolitan Municipality System Structure

Urban policy and the new form of metropolitan municipality system as the structural element and frame of urban policy are two fundamental issues that lies at the heart of this study. Within the Administrative System of Turkey, Local governments and local players played different roles with varying dominance in time. The last and currently valid form of MMS favors metropolitan municipalities and suggests a monolithic structure for urban policy.

In 2004, with 5216 Metropolitan Municipality Law, the first law designed specifically for MMs, the form of MMS changed. The authority boundaries of MMs were expanded with reference to their population. Since the municipal boundaries were defined as circles with provincial government offices in center and no other input had considered, the law was publicly known as compasses law.

In 2012, the percentage of urban population was 76,2% hence, at that year 23,8% of the population were living in rural settlements and villages. Today the official numbers of the percentage of urban population is 100% due to a law that has been passed back in 2012 and gone into operation in 2014. Law no 6360, The Law on Establishing Thirteen Metropolitan Municipalities and Twenty-Six Counties and Making Some Modifications in Some Laws and Amendments, Metropolitan Municipality Law in short or Complete City Law as the media names it, is the discourse defining law of contemporary urban politics and local governments.

In 2012, with the acceptance of Law no 6360 on Metropolitan Municipalities, the 5216 Metropolitan Municipality Law was reshaped. Since these two laws are now intertwined, they will be analyzed together within this sub-section. The major change brought by 6360 Law is the expansion of the municipal borders. This administrative change stimulated drastic changes

in urban policy, in local governments' power structure, in local economies, in agricultural production. All the province is now under control of metropolitan municipalities and the bodies, Special Provincial Administrations responsible from previously non-municipal areas (the rest and most of the province excluding the core city territory) are abolished. Their functions were distributed to metropolitan municipalities and newly established Investment Monitoring and Coordination Agency (as a part of governorate).

The main point of the law is it enables metropolitan municipalities to control whole province which was previously controlled by the special provincial administrations which are public administration authorities decentralized with the subsidiarity principle of public administration in mind. In addition to that, all the settlements and the administrative units of those settlements are now under control of Metropolitan Municipalities and the villages are annexed to Metropolitan Municipalities while their status is changed into neighborhoods. Hence, after 2012, the rural population, regardless of the previous percentage, has become zero in all Metropolitan Municipalities. Although the division of urban-rural in population can also be contested with the newly emerging approaches, especially planetary urbanization, and although the urban and the rural cannot be handled with a dualistic perspective stating that the two are mutually exclusive, the percentages showing the amount of people living in small scale settlements and large-scale settlements were useful to show the settlement patterns and population distributions of a geography. After 7 years of implementation from 2014 to 2021 and several postpones for the implementation of the financial dimensions of the 6360 Law on rural areas (for a detailed evaluation please see Chapter 5), the need to differentiate these former village neighborhoods from their urban counterparts remained solid and the government has acted on it. With this in mind, the Law no 5216 is modified and "rural neighborhoods" and "rural settlement areas" have been defined. The former villages can now be named as rural neighborhoods with metropolitan municipalities' municipal council's decisions. The difference of rural neighborhoods and rural settlement areas from the urban neighborhoods are the amounts of taxes and fees collected and tariffs set for provisioned urban services.

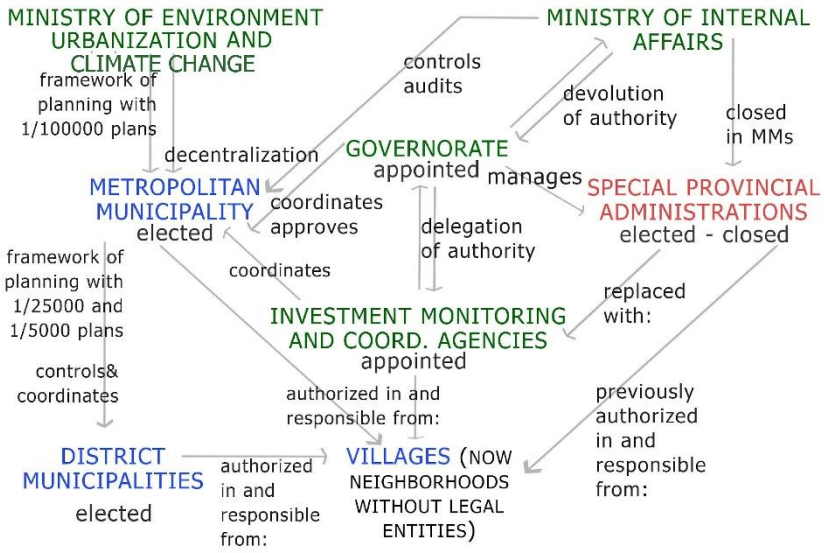

Figure 65 Power Structure and Hierarchy in MMS

The picture of power structure and hierarchy after Law no 6360 on MMs is illustrated above. Green public bodies are either central or provincial bodies with devolution of power and provincial bodies are appointed. Special Provincial Administrations were an exception to this and had an elected provincial council, yet they are closed and replaced with appointed bodies of investment monitoring and coordination agencies. Their absence creates an imbalance in the power structure because of the shift from an elected body to an appointed one. One of the two central-governmental bodies in the process, Ministry of Environment, Urbanization and Climate Change (MoEUCC) is highly visible in production of space and local government power structure. Ministry still holds the power of spatial planning (same degree of power with MMs) and regulates municipal planning process with regulations and 1/100000 environmental plans. The other central body, Ministry of Internal Affairs, is not this visible in the black box of urban policy and production of space, yet highly influential. Ministry of Internal Affairs is central to the public administration system of Turkey and all local governments of all scales, all control boundaries are controlled and coordinated by this Ministry. Local governments take their power from Ministry of Internal Affairs either by devolution of power or by decentralization. The semi-autonomous structure of elected special provincial administrations is replaced with investment monitoring and coordination agencies under direct control of governorate and with only delegation of power. These bodies, as their name suggests are now controlling and coordinating all state capital flowing to a metropolitan province geography. With planning authority, MMs also can control the circulations and accumulations of capital in the province and what is spatial is also highly economic and vice versa.

Three elected elements of local governments are now MMs, DMs and neighborhood-villages. Metropolitan municipality is the local (locally – central) and elected body with the authority to coordinate DMs within the provincial/municipal boundary, with a financial and administrative autonomy. DMs have an elected municipal council, yet MMs does not have a directly elected one, it consists of elected district mayors. Therefore, one of the dual elements of power in MMs, namely mayor and the council, one consists of district mayors. There is no differentiation between central and peripheral districts' mayors in the council in terms of power; they have equal vote.

The authority, responsibilities, resources of closed special provincial administrations are transferred to MMs and MMs are the main players in the urban policy game within provincial boundaries. Within the frame of 1/100000 environmental plan of the MoEUCC, MM can produce, modify, change, and accept any plan with a scale under 1/100000. DMs' planning authorities are limited to 1/5000 under development plans and the authority to accept, change and reject these plans also belongs to MMs. MMs are authorized to inspect, intervene and control planning acts of DMs in development plan processes and authorized to list unauthorized buildings and ask municipalities for action for these buildings.

Previously special provincial administrations were responsible from villages, after the 6360 Law, MMs, DMs and investment monitoring and coordination agencies are responsible from and authorized in villages. With 3194 Development Law, MoEUCC has same level of authority over the production of space and with law no 6360, 3194 Development Law has become valid for all provincial geography. MMs are now authorized in renewal projects in squatter housing – gecekondu areas (previously only MoEUCC and Mass Housing Administration were authorized). Hence, two spatial tools for production of space, namely urban growth and urban renewal are now under MMs' authority.

Metropolitan Municipalities are significantly large financial entities. With the 6360 Law the financial distribution balance of public finances among MMs, SPAs and DMs is redefined. From the national budget tax revenues collected within the municipal/provincial borders, the share of MM is increased from 5% to 6%. Within this 6%, the share that is directly given to municipalities without condition is decreased from 70% to 60% and the rest 40% of this share will be distributed with reference to population and area. Area is the newly added criteria. The percentage of impact for these criteria are 70% based on population and 30% based on area. The distribution system is highly complicated, and it is hard to read, therefore the process defined in the Law is simplified in the flowchart below.

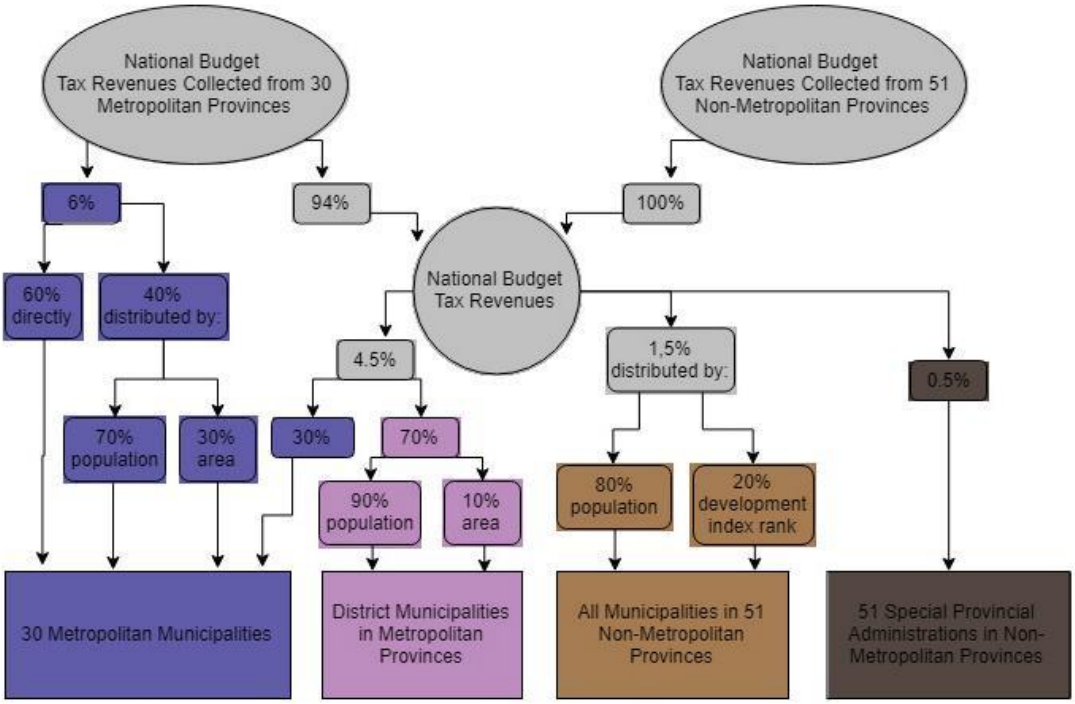

Figure 66 The Collection and the Distribution of National Budget Tax Revenues Among MMs, Metropolitan DMs, Non-Metropolitan Ms and SPAs

In this complex system, the new elements that came to scene after the 6360 Law are the area criteria added to the distribution criteria, the decrease in the shares of SPAs (from 1.15% to 0.5%) and Non-Metropolitan Municipalities (from 2.85% to 1.5%) and the increase in the shares of Metropolitan DMs (from 2,5% to 4,5%) and MMs (from 5% to 6%). With this system the shares of MMs and Metropolitan DMs have increased substantially. The Lions' Share of National Budget Tax Revenues is allocated to MMs. The changes in the shares of each MM on the other hand varies. This system has one hidden component as well. The water and wastewater service providers, namely Water and Sewerage Administrations, as public entities affiliated to metropolitan municipalities have also their own public budget share for service provision. This share is regulated predominantly in 2560 ISKI Law which is the foundational law of Water and Sewerage Administrations in Turkey. The flow chart above has this hidden component of the Water and Sewerage Administration shares allocated from the 6% tax revenues collected from the MM. the 40% of this 6% (see the purple branch) is distributed with reference to 70% population and 30% area , while the 10% of this 70% is directly allocated to the Water and Sewerage Administration of that Metropolitan Province.

4.5 Ten Years of the 6360 Law: The Impacts of the Metropolitan Municipality System in Turkey from 2012 to 2022

The 5216 Metropolitan Municipality Law updated with Law no 6360 on Metropolitan Municipalities will be analyzed and the results observed within last 10 years will be put forward. The changes that Law 6360 brings and the overall picture of the legal framework for local governments are summarized in the previous sections. The changes and the overall legal framework for local governments are analyzed about its direct reflections in urban policy, agricultural production, settlement pattern and urban form. These three were all analyzed with reference to the land use policy under the impact of MMS. Before delving into illustrating the impact of the MMS Urban policy is divided into five headings: power structure – hierarchy, service provision, budget, representation, and urban planning.

4.5.1 Impacts on Spatial Planning

Act of Spatial Planning is central to urban policy and is directing production of space most of the time, except for unauthorized housing which is considered diminishing. With 5216 Metropolitan Municipality Law re-enforced by Law no 6360, Metropolitan Municipalities have become main players in spatial planning among local governments. MoEUCC also still hold the power to plan and draw the frame of local planning via environmental plans of 1/100000 scale. District municipalities (DMs) are also authorized to produce plans up to 1/5000 and within the frame of the regulatory development plans and environmental plans. Previously special provincial administrations which are governed by elected councils were also authorized to plan and now these bodies are replaced with investment monitoring and coordination agencies which are not elected and not autonomous, directly linked to governorate and Ministry of Internal Affairs.

The main acts of spatial planning include zoning, urban growth and urban renewal decisions / projects, social and technical infrastructure provision, conservation and redevelopment of cultural, natural, and historical assets, functions and spaces, disaster risk planning and disaster-prevention based renewal, and decisions made on and about public spaces and commons. The key change that 6360 brought is the expansion of municipal boundaries to the provincial boundaries. All planning authority of MMs can now be exercised in provincial scale. MM is also the body that accepts the plans for DMs and the MM and coordinates the implementation of plans as well as service provision in the province. Therefore, local government structure has become highly locally central and monolithic (Akbulut, 2007). It can also be considered as a step towards integrating fragmented and partial planning. Fragmented planning was one of the major causes of excess consumption of land

for urban development and land speculation purposes. Metropolitan Municipalities physically located in core cities and even though the municipal council consists of district mayors, directed by a powerful mayor usually focusing on the core city since the majority of votes comes from there undoubtedly.

3194 Development Law is the main law defining the limits to planning. 6360 Law transforming all villages in a province into a neighborhood and expanding municipal boundaries to provincial boundaries resulted with 3194 becoming effective over all settlements with a population over 5000 regardless of their previous administrative status and qualities. 3194 development law is a highly urban law focused on cities and defining the qualities of space produced. Moreover, previously, Development Regulation for Unplanned Areas were regulating the production of space in the non-metropolitan and non-municipal areas, now it is the Development Regulation for Planned Areas that is in use.

After ten years of enactment, the utilization of the spatial planning authorities given to the metropolitan municipalities over the provinces' natural, peripheral, rural geographies and settlements varies from municipality to municipality. 30 metropolitan municipalities used these planning authorities in varying levels, and it is listed below[127]. The summary of this table illustrates the impact of MMS on spatial planning. 16 out of 30 MMs had expanded borders after 2004 enactment of the 5216 Law and only 9 MMs used the authority to plan within 20, 30 or 50 km radius borders. After the enactment of 6360, 14 municipalities produced province scale environmental plans (1 of them is cancelled). 21 of the 30 MMs have 1/100000 Environmental Plans prepared by MoEUCC. There is no MM without any single upper scale plan. They all have a plan either produced by the Municipality (either after 2004 or after 2012) or by MoEUCC. The major planning activity in nearly all 30 metropolitan municipalities is the revision plans and changes in 1/5000 and 1/1000 plans. More importantly, nearly in all MMs there are revisions and changes to the upper scale plans conducted by MoEUCC. The central authority is hyperlocally and partially modifying the plans in all provinces. In addition to that, privatization administration and TOKİ also makes changes to the plans both in upper and lower scales. There are also even presidential decisions in parcel scale, for urban renewal decisions and for changes in conservation status of specific zones. These centralized interventions usually take place in fragmented, partial, and hyperlocal fashion. In other words, the authorities given to the MMs that might enable comprehensive planning practices in provincial scale ended with underutilization on MMs side and disruptions with partial and fragmented interventions on central government's side.

[127] Collected from: 1/100000 Environmental Plans by MoEUCC and plan revisions, municipality websites, council decisions, activity reports, plan announcements and plan bureaus websites.

4.5.2 Impacts on Power Structure and Hierarchy

Law no 6360 and related laws analyzed within this subsection regulates the relationships between five local players: metropolitan municipalities, DMs, governorates, special provincial administrations and investment monitoring and coordination agencies and two central players: Ministry of Environment, Urbanization and Climate Change (MoEUCC) and Ministry of Internal Affairs. Special provincial administrations are abolished in metropolitan provinces and therefore have left the scene of urban policy making in metropolitan provinces. The power structure in the black box of urban policy is much more complicated and more players have role in the process, yet within this subsection, the number of players is limited with the ones that are regulated by and directly related with Law no 6360. the power structure proposed by the 6360 and 5216 Laws has been summarized in section 4.4. The impact on implementation scale is partially visible from the impacts on spatial planning part analyzed above. The expansion of the borders of the MMS with planning authorities given to MMs is not immune to the overall centralization in the presidential system of Turkey. In addition to that the de-regulation taking place in national scale is also in effect for the power structure between the central government and the local governments. Even though this is the case, there is a significant amount of autonomy provided to the Metropolitan municipalities with the metropolitan municipality system and this autonomy ended with mayor trustees in several municipalities and 3 metropolitan municipalities. These are the municipalities that was belonging to an opposing party.

4.5.3 Impacts on Local Democracy and Representation

The municipal system is like the presidency system, in DMs the mayor and the municipal council are elected separately. Municipal council is the main representative and decisive body of the municipal system yet not emphasized or visible enough in the political realm of the country. The members of the council are not usually widely known, and election is usually based on political party preferences of the citizens in that district. Specialized commissions consisting of municipal council members can be established, these specialized commissions can consult but not include experts, universities, unions, and non-governmental organizations. In MM scale, only mayor is elected, the metropolitan municipal council on the other hand consists of district mayors and members of district municipal councils representing their districts with reference to population size. Core districts tend to have larger populations, therefore the number of core district representers are usually higher than the peripheral districts. There are no deputy mayors in MMs and the role is conducted by secretary generals who are appointed by the Minister of Internal Affairs. The administrative borders are defined

by Ministry of internal Affairs upon request of the MM councils. MMs are responsible from the coordination of and consistency among DMs; the distribution of adjacent areas, squares, public areas, social infrastructure areas, streets, boulevards, and parks over the provincial geography, between the core and the periphery is decided by MM council. Within the financial and technical means, MMs have to conduct a balanced service provision with reference to population and needed services of the districts; relevant chambers (chamber of city planners, chamber of architects, etc.) cannot require validating or check all plans, maps and projects (3194).

In 2005, with 5393 Municipality Law, city councils are proposed. City councils are "governance mechanisms" with members collected from non-governmental organizations, representers of public bodies and professional organizations (Official Gazette, 8.10.2006). They are not deciding organs but rather supportive and consulting bodies, yet they can be a step towards empowering local democracy if used for that purpose.

Special provincial administrations were governed by elected provincial councils and now they are mainly replaced with appointed investment monitoring and coordination agencies (IMCA). This is a downgrade in terms of local representation since IMCAs are not elected and directly under control of governorate, representing the central government and responsible to Ministry of Internal Affairs.

With 6360 Law, villages in the province are redefined as neighborhoods and have lost representational powers of village representers (neighborhood representers have less representative power and authority) and these village neighborhoods are annexed to closest DMs or the MM. The number of municipalities was 168 municipal villages (belde), 31 district municipalities and 1 metropolitan municipality and with 6360 and on other legal change, it is decreased to 31 district and 1 MM, 32 municipalities in total. Moreover, villages losing their status and legal entities are also problematic for representation.

4.5.4 Impacts on Service Provision

6360 Law put MMs in the heart of service provision in provinces. Previously MMs were responsible from defined services only in their municipal zones and the rest was in the responsibility of DMs in districts and special provincial administrations in the rest of the province including all villages and majority of the geography regardless of the land use, all non-municipal land in sum. Now, MMs are authorized in all scales of settlements, they share their responsibilities with DMs in districts and villages that are transformed into neighborhoods and annexed to those districts. Since the infrastructure and resources of DMs are usually not enough to cover all the geography and the villages within their district boundaries, MM has become the central authority responsible.

The services defined in the 5393 Municipality Law and 5216 Metropolitan Municipality Law enhanced by Law no 6360 on metropolitan municipalities are urban development, zoning, water and sewage system, transportation, environmental health, public health, waste, urban security, fire service, emergency relief, rescue and ambulance, city traffic, cemeteries and burials, forestation, parks and green spaces, housing, arts and culture, tourism and marketing the settlement, dormitories for students, social services and social relief, marriage, vocational courses, services for economic development. MMs and municipalities are responsible from same services in districts but on hierarchically different levels. If municipality has an approved plan and the means of provision, municipality provides the services stated. If not, MM is the body responsible upon request by the municipality.

Before Law no 6360, in non-municipal areas (outside of municipal borders) special provincial administrations were responsible from transportation network, water and sewage systems, waste management, environment, disaster relief, forestation, recreation areas, parks, technical infrastructure in general. Today, the body replacing special provincial administrations (SPA) are investment monitoring and coordination agency (IMCA) for tracking and coordinating the flow state capital into the geography and metropolitan municipality for planning, service provision and administration. IMCA is capital-oriented instead of service provision-oriented. The main settlement scale of interest was villages for SPA and services were either provided directly or channeled through service provision-based village unions established by local governments. SPAs were members of village unions, and more significantly villages were naturally members of village unions therefore, with the abolishment of SPAs and with the villages losing their legal entities the village unions were abolished as well. The responsibilities of village unions were passed to MMs. Village unions were being established in district scale serving the villages of that district and alongside SPA, local public bodies in the district were members of the village union. The closure of village unions is one of the most drastic changes proposed by the 6360 Law.

MMs are now at the heart of service provision in provincial scale. Water and sewage systems, water treatment and marketing treated and spring waters, stream restoration, disaster prevention; public education; social relief, urban security with municipal police; building libraries, museums, sports facilities, social infrastructure, city parks, recreation areas, public spaces; if needed* building religious, educational and health facilities; conservation of cultural and natural heritage assets, functions and spaces, where conservation is not possible (conditions are not defined clearly) municipalities can demolish and reconstruct the asset are some responsibilities of MMs in all scales of settlements within provincial – now municipal – boundaries.

4.5.5 Impacts on Budget

There are two facades to the budget issues in metropolitan provinces. First one is the budget of MMs and DMs for provision of services and other responsibilities. The second one is the household budget, namely the cost of living of the dwellers in varying scale of settlements in the metropolitan municipalities.

4.5.5.1 Municipal and Public Budget

Service provision and all urban policy implementations are heavily linked to the budget available. Incomes of the municipalities consists of tax, fee, share revenues of municipalities, share from national budget tax income, payments from general and special budgeted administrations, revenues of movables and immovable, interest and penalty revenues, donations, revenues from shareholding and enterprises, other revenues, and domestic and foreign borrowing. Incomes of MMs, on the other hand, consists of 50% of entertainment taxes coming from betting, taxes, duties and charges from MMs' social infrastructure facilities, 50% of the revenues of parking operations, readjustment shares collected for road, water, sewage provision, revenues of movables and immovable, interest and penalty revenues, public bodies' donations, surplus produced by affiliated bodies, municipal business enterprises' surplus shares, donations and revenues from municipal services.

Previously, in peripheral districts and villages SPA was responsible for the services and the budget needed for implementations were channeled through village unions for service provision. Village unions were consisting of representers of local governments in the districts and the village representers. Village unions are abolished with the villages transforming into neighborhoods and losing their legal entities due to Law no 6360.

According to a study conducted back in 2012, right after the acceptance of the 6360 Law, the share of local governments in central spending increased from 22% to 23% and 81% of all this share now goes to MMs and metropolitan DMs (Koyuncu, 2012). In the previous distribution system, it was the 59% of 22% (Koyuncu, 2012). This rise is partly normal since the number of metropolitan municipalities increased from 16 to 30 and the population dwelling in MMs is also naturally increased. Metropolitan Municipalities have lost the SPA shares allocated to their provinces but gained a substantial increase in MM and DM shares. The overall change in the share of a metropolitan province depends on several factors therefore differs from province to province.

After the law, all 31 village unions (located in the districts and serving to district villages) are abolished. Their resources are transferred to MMs, DMs and municipality affiliated bodies.

4.5.5.2 Household and Farmers' Budget: The Cost of Living and Producing in the Periphery of Provinces

6360 Law on Metropolitan Municipalities have structurally changed the household budget and farmers budget in villages, previously non-municipal areas. Villagers becoming residents of neighborhoods have become responsible for paying municipal taxes and expanses. Prices for all transportation services (including taxis) are now defined by MMs, hence one of the fundamental costs of living in the city and now in the province is decided by MMs. Several urban taxes are also determined by the MM and these taxes (environment tax, waste tax, etc.) will be added to the cost of living in villages. Although the Law no 6360 came into full effect back in 2014, taxes, duties, and charges that MMs are authorized to collect, property taxes, water prices, waste and environment taxes and additional income taxes will not be collected until 2020. The problematic part for agricultural production is the increasing cost for irrigation in terms of both electricity and water. After 2020 the cost of living in small settlements will increase substantially. Previously SPAs were managing social relief in non-municipal settlements, it is now the responsibility of the MM.

State Water Works was responsible for water provision in villages. Either directly or via Village Unions, water for domestic and agricultural usages were provided to villages. Therefore, water was free in most of the villages. With the law 6360, villages becoming neighborhoods changed this status. After 2020 all villages in 30 MMs must pay for water and some of them even still do not have proper water provision infrastructure. More of them do not have sewage system and wastewater infrastructure as well and they will be responsible for paying for these as well. In some villages that have become neighborhoods in 2004 with the 5216 Metropolitan Municipality Law, with the compasses rule, problems already have started. Several villages requested to be villages instead of neighborhoods again, yet these requests were not enacted.

4.5.6 Impacts on Agricultural Production

In national and local scale, in the multifaceted structure of administration, agricultural production is mainly regulated by Ministry of Food, Agriculture and Livestock and the provincial agricultural directorate in the province. Previously SPAs were the supportive public bodies for agricultural production and MMs and DMs were dealing with urban functions rather

than agricultural production and most of their impacts were indirect. With the law no 6360 MMs and investment monitoring and coordination agencies (IMCA) are now central to agricultural production policies in metropolitan provinces. The functions of MMs and DMs can be divided into two groups depending on their impacts on agricultural production. These two groups are conservation related functions and development related functions. The functions of MMs and DMs can work in favor of conservation and development of agricultural production or against. Therefore, conservation related functions of MMs and DMs can work positively or negatively for agricultural production. Same applies for development related functions as well.

Conservation related functions of MMs defined in 5216 and 6360 Laws are conserving agricultural areas, wetlands, and environment with reference to sustainable development principle, zoning waste management areas, rural and/or agricultural commons including meadows, pastures, woods, groves and springs are annexed to district municipalities and MMs. Combined with 4342 Meadows Law it is now possible to use these rural agricultural commons as reserve development zones. If the permissions defined in 5403 Soil Conservation Law are granted, agricultural areas can be zoned for other land uses (3194 Development Law). Replacing Special Provincial Administrations (SPA), Investment Monitoring and Coordination Agencies (IMCA) (Ministry of Internal Affairs – Governorate) are authorized in conservation (and development) of natural and historical heritage and resources.

For DMs, pastures, meadows, woods, groves, springs (rural agricultural commons) are annexed to municipalities but the right to use with the same purpose remains in villagers, privileges for forest villagers remains in forest villages turned into neighborhoods and for the establishment of new municipalities 5 km buffer to water resources is required. Conservation related functions of DMs are also shared with MMs.

There are both positive and negative functions of municipalities that works for or against agricultural production. The word conservation is usually accompanied with sustainable development in the changes in legal framework in recent years and ‘sustainable’ is one of the most ambiguous terms used in the legislature (Duyguluer, 2012). In the context of Turkish urban policy, sustainable term is used to tone down the strong term “development” and make the term development usable in conservation context without disturbing public opinion. Therefore, unlike previously clearly defined conservation functions, now the term is weakened by the addition of sustainable development. The following complementary changes made in 4342 Meadows Law and 5403 Soil Conservation Law points the same direction. Methodologically cityist local governments are now in charge of conservation functions for agricultural production and if the course of urban policy action is not changed, the problems

in agricultural production starting from the excess consumption of agricultural land for urban growth and urban land uses will likely get deepened.

IMCAs replacing SPAs is a parallel sign for this leaning towards development with the expense of conservation of resources and means of agricultural production. Main function of the IMCAs as their name suggests is to direct and coordinate the flow of public capital into the geography. These investments can be for development and conservation of agriculture as well, yet the dominant discourse regarding conservation the opposite of development creates problems in urban policy and implementation. In the end, the level of urbanization and development is still measured with the percentage of non-agricultural workers in a settlement and the lowness of the share of agricultural production in the economic sector distribution of a settlement. Agricultural production is structurally seen as the opposite for development, and it is the industry, tourism, service sector or newly emerging sectors that have to be encouraged against agricultural production.

With the expansion of municipal borders, the province border has become the municipal border. One of the most significant yet not recognized change is within municipal borders the valid law for production of space is 3194 Development Law which is cut to fit to core cities. 3194 Development Law is valid all over the provincial geography without any urban-rural geographical distinction, therefore there are several limitations in livestock and agriculture, all agricultural production land, buildings, facilities and infrastructure and space are controlled by an urban development perspective. In villages with 5000+ population the livestock facilities located within settlement areas of villages are regulated similarly to the core neighborhoods; villages with a population under 5000 do not face the same regulations (3194).

Development related functions of MMs are MMs and municipalities can conduct any activity to support agricultural production, zoning, permitting, and controlling wholesale market halls and slaughterhouses. MMs can support farmers with multiple ways and encourage the continuity of agricultural production. The agriculture specialized units of SPAs with its human, technical and financial resources are transferred to MMs. IMCAs also undertakes similar functions for agricultural development. In sum, the authority needed for agricultural development are provided to MMs, yet other tools to realize these goals, the budget and the regulations, are still having to be debated. Villages losing the ownership of their rural and agricultural commons and striped from their legal entities and representation power is likely to result with a migration wave from villages to urban cores and a rescaling in production alongside corporatization.

4.5.7 Impacts on Settlement Pattern

Population is one of the core criteria for categorizing settlements, defining authorities of administrative units, making of urban policy, and distributing financial resources for implementation. 6360 and related laws redefine scales in the settlement pattern and consolidation, annexation and abolition of settlements are defined. Municipal borders are expanded to provincial borders and all villages in the metropolitan provinces have become neighborhoods indifferent from the urban neighborhoods in the core. These village neighborhoods are annexed to closest district municipalities, or the MM and several municipalities were closed and annexed to DMs or MMs. Previously, the non-municipal settlements and non-municipal zones are managed by SPAs, all space whether it be settled or not in the non-municipal zones of non-metropolitan provinces was same in the eyes of SPAs regardless of the scale of the settlement.

With 6360 Law on MMs, in 5000+ population settlements located in the municipal boundaries of MMs establishing municipality is possible. Consolidation of villages within 5 km perimeter and in total 5000+ population is and within 5 km perimeter annexation of villages and small settlements is possible. Over 500 people is needed for new neighborhoods; In 20000+ settlements within municipalities with a population over 120000, establishment of a new municipality is allowed. Villages and municipalities within 5 km perimeter of municipalities with a population over 50000 are annexed to that municipalities. Municipalities with less than a 2000 of population downgraded to villages (neighborhoods in MMs). In sum, the 5393 Municipality Law, 5216 Metropolitan Municipality Law and 6360 modifying both laws have changed the categorization of settlements with reference to population sizes. The rules proposed for consolidation, annexation and abolition of settlements are all working in favor of rescaling into larger scales. In other words, the legal changes brought by 6360 favors large scale settlements and encourages smaller settlements to become large or consolidate.

4.5.8 Impacts on Urban Form

Urban form in our cities is severely tied with excess consumption of land for urban development for either realistic or speculative expectations. Urban sprawl is the main form urban macro forms take in most of the cities in the country. Therefore, the impact of 6360 Law combined with 5393 Municipality Law and 5216 Metropolitan Municipality Law will be analyzed with reference to compactness and urban sprawl as the two ends of the spectrum of urban form. The point of departure for this analysis is the tension between the DMs and MM as a single monolithic body in urban planning process and in the distribution of development rights. With 6360, MMs have become central in spatial planning in provincial scale.

Coordination and control authority is given to MMs and instead of DMs producing plans separately and not in consistency with each other, now MMs coordinate and control the process. This is the most positive side of the change. On the other hand, with provincial boundaries becoming municipal boundaries and without balancing bodies such as SPAs, methodologically cityist local government bodies, MMs are now responsible from agricultural areas, rural geographies, and rural settlements. This is the other side of the coin and one of the riskiest sides of the change. This tension is also the point of departure for this study.

MMs are responsible from ensuring regulated urban growth, production of space and urban plots with infrastructure for housing, industrial production, and commerce, providing, selling and renting housing, mass housing, expropriation for these purposes, exchanging land, and producing shared projects with other public and private bodies and land allocation. MMs are also authorized for defining and expropriating urban renewal zones and new urban development zones for several land uses on private property and on both developed and undeveloped land; planning, developing, producing, and improving transportation infrastructure, arterial roads, main streets, boulevards; planning, developing, producing and improving public squares, zoning, evacuation and demolition of buildings and areas under risk of disaster, and coordination of infrastructure. All elements of spatial planning are under control of MMs in a localized approach. 3194 Development Law is valid all over the provincial geography without any urban-rural distinction, therefore the differentiation in settlements by scale and geography is no longer valid. Urban way of planning and production of space and the regulations of production of space are now expanded over whole province. The production of space in villages with 5000+ populations are now under control of 3194 Development Law and now indifferent from urban core neighborhoods.

With the Law no 6360, rural commons of the villages are annexed to closest DMs or MMs and might be used as reserve development areas. This encourages sprawl as well and the consumption of agricultural land might become more severe with this change. Village design guides can be prepared by MoEUCC and MMs. Design guides might improve the standards of living in villages, yet at the same time poses a high risk of making all villages plain copies of each other with losing their differences. Type projects always bear the risk of producing monotonous spaces.

CHAPTER 5

THE METROPOLITAN MUNICIPALITY SYSTEM IN THE CASE OF KONYA

8000-year-old City of Konya is located 40 km north-west to the around 9000-year-old settlement Çatalhöyük, one of the oldest settlements in the world and human history with a civilization based on advanced agriculture (Mellaart, 1967; Hodder, 1996; Fairbairn et al. 2002) and is a significant node in Silk Road. Çatalhöyük and the surroundings lying nearby the modern city of Konya is the muse of Jane Jacobs in forming the 'cities first' argument (Jacobs, 1969). With this argument, she had inverted the famous assumption that cities followed (and only possible with) agricultural revolution and interpreted from the case of Çatalhöyük that cities emerged first in hunter gatherer societies while agricultural revolution followed to support the increasing scale of population located in specific geographies (Jacobs, 1969). Although this stands as a hypothesis yet to be validated, Jacobs' claim has given us a chance to view the relationship between urbanization and agricultural production with a new perspective. The map below[128] illustrates the location of Konya in Turkey and the proximity of Konya to Çatalhöyük within the Konya endorheic basin.

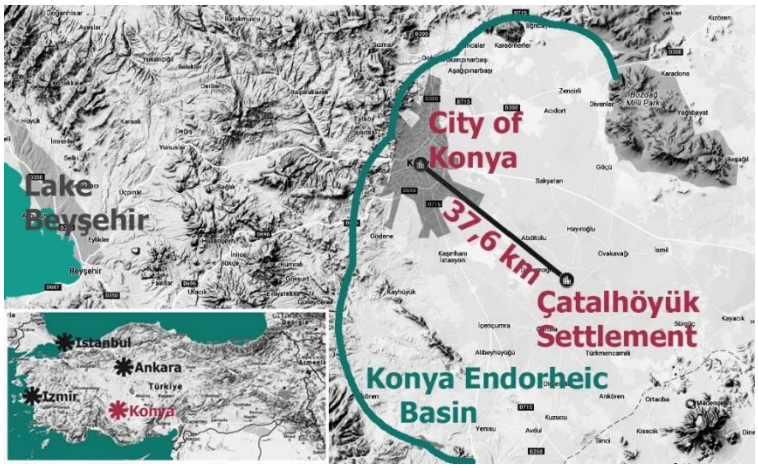

Figure 67 Modern Day City of Konya and 9000 Years Old Çatalhöyük

[128]Basemap: Google Earth Terrain, 2017.

Bringing the debate back to today, with a dominant agricultural production alongside extended urbanization with high pressure urban development on the surroundings of the city and the legal changes, namely the Metropolitan Municipality System (MMS) enabling the Konya Metropolitan Municipality (KMM) to control the vast geography of the province, Konya is an illustrative city in terms of the contemporary relation between production of space and agricultural production.

5.1 Significance and Characteristics of the Konya City and Province

The archaic relationship between urbanization and agricultural production is becoming more and more significant day by day with planetary developments such as food insufficiency, increasing world population and climate change; with national developments like the new form of Metropolitan Municipality System defined by the law no 6360 and population flow from rural, dispersed, peripheral and small scale settlements to urban, agglomerated, central settlements; and with local developments like massive land speculation, farmers retreating from agricultural production, drought and the aridity of land in the province of Konya. Hence, the case of Konya, selected via quantitative and qualitative work in a statistical and country scale quest prior to the study, will be used to test the three hypotheses of the thesis. To remind, the hypotheses were the metropolitan municipality system taking its final shape in 2012 with Law no 6360 impacts:

- **urban form** in the city of Konya negatively by encouraging urban sprawl form in urban growth
- **settlement pattern** negatively by favoring larger settlements and creating population decrease in smaller settlements,
- **agricultural production** negatively with speculation and urban development pressure in growing settlements increasing the consumption of agricultural land and with rural to urban migration decreasing the population available as an agricultural labor force.

With these three pillars in mind, the hypothesis will be tested in the province of Konya in two scales. These two scales are the province, which is the largest surface area among the 81 provinces in Turkey and the city of Konya and her surroundings, to be more specific, within 40 km radius.

On the inland of the country, far from the sea, with plenty of alluvial-fertile soil, agricultural production is the prime economic activity for the province and the region. Starting from the Neolithic era, the city and the surroundings are the display field of the archaic relationship between urbanization and agricultural production. Crop production, orchards, vegetable production, vineyards and pastures for livestock are the major agricultural land uses

in the province. Throughout the history, the city and her surroundings had been subject to different forms of power. The politics of production of space alongside the politics of agricultural production and the politics of population changed drastically in 9000 years. Within this study, we will be focusing on the last 35 years of urban politics of urbanization, agricultural production, and population in the region.

There are seven geographical regions in Turkey and Konya belongs to Central Anatolia Region. Geographical regions do not have any representative administrative bodies in Turkish Public Administration System. Konya also belongs to Konya-Karaman TR52 NUTS region divided with reference to European statistical system for regions as territorial units. NUTS, unlike geographical regions, are represented with development agencies working on regional scale and a hybrid form of local government, relatively autonomous from both central government and local governments. Mevlana Development Agency is the regional body that has the authority over Konya and neighbor Karaman provinces.

Figure 68 City of Konya, Personal Archive, 2015

According to the study produced by the former Ministry of Development (2011), Konya was the 20th most socio-economically developed city out of 81 provinces. In 2017 Ministry of Industry and Technology re-evaluated the socio-economic development rank and Konya raised to 14th most developed (SEGE, 2017). With a population of 2.161.303 for the year 2016 (TURKSTAT, 2017), Konya is the seventh largest province. 2,71% of the population is dwelling in Konya Province in 2016. From the largest city of the world of its era Çatalhöyük (7000 BCE-6000 BCE) (Hodder, I, 1996; Morris, 2010; Modelski, 2003) to 11th largest city of 1800s Ottoman Empire, Konya was overshadowing the capital city of Ankara at that time

(Karpat, 1978; Shaw, 1978).Between 1965 and 2000, Konya was the 4th largest city, but for the last 14 years the rate of increase is stable and her rank is falling (TURKSTAT, 2022).

The population of the province has reached a maximum in 2000 but had decreased between 2000 and 2007 even though urban population and the population of city of Konya remained increasing. Between 2007 and 2021 the population of the province, and of the Konya city has been steadily increasing. With the enactment of the 6360 Law, in 2012, the urban population started being considered as equal to the provincial population (*) even though villages (in terms of quality of life and access to services) remained rural.

To illustrate the change in population with reference to the core-periphery division, 31 districts of Konya province has been divided into two groups: 3 metropolitan districts (in other words the city of Konya) versus 28 remaining peripheral districts.

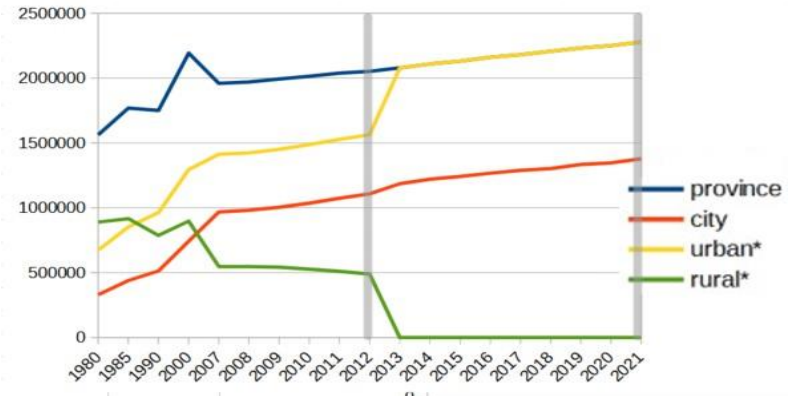

Figure 69 Population Change of Konya between 1980-2021: Province, City Settlement (Urban Form), Urban and Rural Populations (TURKSTAT, 2022)

The largest district among these 28 districts is Ereğli with 149,333 population (2021, TURKSTAT). The populations were fluctuating between 1980-2007 where the population of larger districts fluctuated more than the smaller ones. Between 2000-2007 nearly all districts lost population apart from the largest district Ereğli. After 2007, the populations have become relatively stable with either a slight increase or a slight decrease. Majority of districts have a population below 40000.

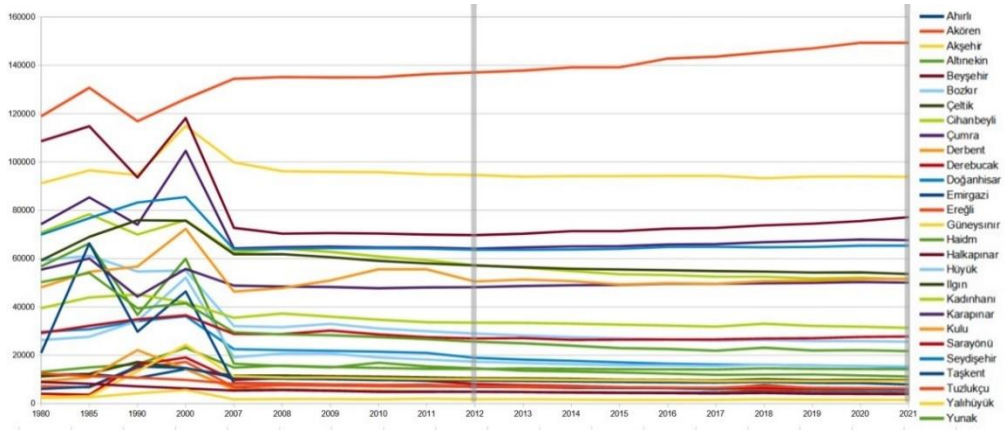

Figure 71 Population Changes of 28 Peripheral Districts between 1980-2021

The population of Konya City is 1,377,394 (TURKSTAT, 2022) and 60.5% of the provincial population dwells in the city of Konya, consisting of districts on the east and south Meram, on the east and north Selçuklu and on the west Karatay. This percentage was 57.9% in 2014 and 33.9% in 2000 (TURKSTAT, 2022). These three districts were formed after the transformation of Konya Municipality into Konya Metropolitan Municipality in 1989. Selçuklu district, where half of the industrial zones and Selçuk University Campus is located is by far the largest metropolitan district in the city in terms of population. The rate of increase in population by years is also the highest. Topographically the most challenged part of the city is also Selçuklu. Karatay and Meram on the other hand are mostly on fertile alluvial flatland, on the edge of the Konya basin.

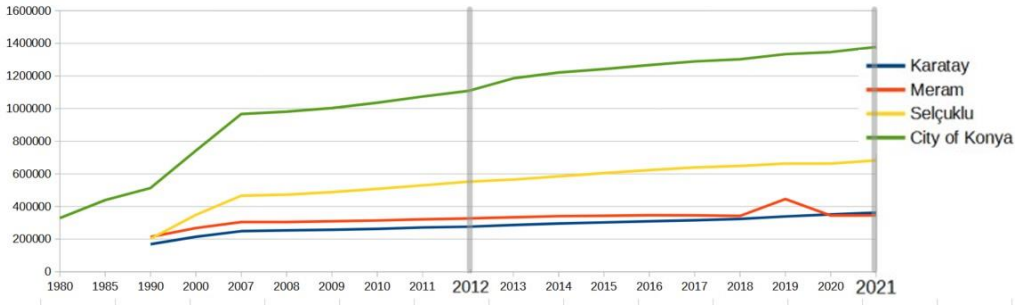

Figure 70 Population Change in Three Metropolitan Districts between 1980-2021

2012 was the year of the enactment of the 6360 Law and right after that, a slight increase (more than the normal pace) in the population of the city of Konya has been observed while the increase pace in provincial scale remained same. All three metropolitan districts and the city of Konya consisting of these metropolitan districts have a steadily increasing population. All the metropolitan districts have a population over 200,000.

The pseudonym for Konya is the grain silo (tahıl ambarı) of the country. Agricultural production, both in terms of socio-economic structure and the geography of the city, is the most significant economic activity. The agricultural share of the GDP is 18.6% in Konya (Services: 45.4%, Industry: 26.2%) while this share is 6.4% in Turkey (KSO, 2021) and ıindustrial production is also tied to agriculture since majority of production is either agricultural machinery or agriculture-based industry. Konya is one of the five cities with largest industrial production in Anatolia (Istanbul, Ankara and İzmir – the three largest cities of Turkish economy are excluded). These five cities are named as Anatolian Tigers (mimicking the Asian Tigers) and have plenty of small and medium scale firms. Konya has the 7th highest number of firms for the year 2021 and in terms of export, the export from Konya is 10th highest among 81 provinces (KSO, 2021). The export/import coverage ratio of Konya is 254.6% while Turkey has a ratio of 83% and has a constant export deficit (TURKSTAT, 2021). The 96% of this export is from industrial production in terms of value (KSO, 2021). Major fields of industrial production in the province are machinery, automotive supply, defense and aviation industry and air conditioning (KSO, 2021). Grains and legumes are the major agricultural exports of the province and has a 1.7% share in the export value produced while 15% is food (TURKSTAT, 2022). The number of firms registered to the KOSGEB in Konya is 4th highest in Turkey (KTO, 2022)[129].

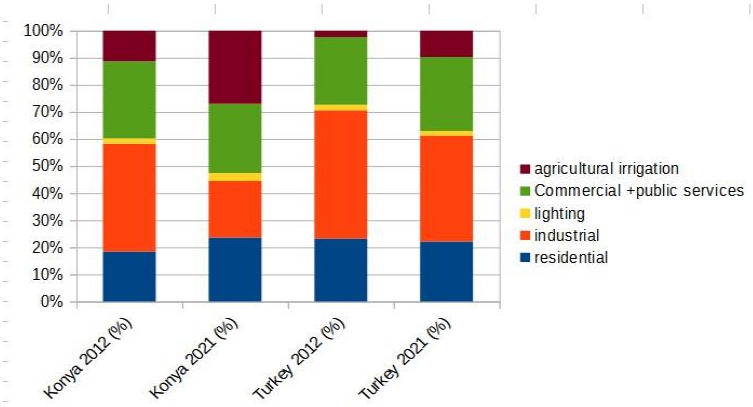

Figure 72 Energy Consumption by Sectors in Konya and Turkey in 2012 and 2021

The share of agriculture in employment in Konya was 32.7% in 2012 while it is 25.4% in 2021 (TURKSTAT, 2022). Turkey average for agricultural employment share in the sectoral distribution of employment was 25.5 in 2012 and has decreased to 17.2% in 2021 (TURKSTAT, 2022). Konya agricultural employment percentage is higher than the country

[129]Konya Chamber of Commerce, Konya Ekonomi Raporu 2021.

and even higher than China's 25% (ILO, 2019). While agricultural employment is higher than the national ratio, unemployment rate is significantly lower. For the year 2012 the unemployment rate in Konya was 6.2% and has increased to 7.9 in 2021 (TURKSTAT, 2022). These ratios are 9.2 (2012) and 12 (2021) for Turkey (TURKSTAT, 2022).[130]

The significance of agricultural production is high, and this significance is also increasing in time with new investments in agricultural production, especially in terms of irrigation provision. Within the steppe ecosystem of Konya with a long history and culture of dry agriculture (more than 8 thousand years), the province was and still is the major stage for irrigation projects since the Ottoman Era (19th Century). The sectoral distribution of energy consumption for the years 2012 and 2021 can be found below in the chart.

The energy consumption for agricultural irrigation was 11.2% in 2012 for Konya while it was 2.3 for Turkey in general. Konya, even back in 2012, has the highest amount of energy consumed for irrigation surpassing Şanlıurfa. For the year 2021 the difference has become more dramatic, and the energy consumed for irrigation has passed all other sectors of energy usage including industry in Konya. For the year 2021, the residential usage is 23.6%, commercial and public services (including water and wastewater services) is 25.5%, the industrial usage is 20.9% while irrigation is a massive 27%. The percentage of energy usage for irrigation in national scale is 9.7% at the same period. The energy consumption amount and share are increasing for two main reasons, the first one is the increasing irrigated area with recent DSI irrigation projects and second due to increasing drought problem[131] with decreasing precipitation levels.

Although the energy consumption of agricultural irrigation is dramatically increasing, the number of farmers is plummeting in Konya. For the years 2012, right before the enactment of 6360 Law, there were 59130 registered farmers in the province and with a decrease of 41.5% it is 34588 in 2021 (SGK, 2022). The percentage of decrease is even higher in Turkey with 50.8% (SGK, 2022).

The most recent sector that is in rise in Konya is solar energy production. Climate and geography enabling solar energy production combined with low land prices stemming from the farmers retreating from production for several reasons and state subsidiaries recently has boost the sector in the region. Karapınar, the only dune zone of Turkey has a severe water problem and there are plenty of unused former agricultural land. Combined with the solar

[130] The ongoing pandemic started at the end of 2019 severely and negatively affected the employment in particular and national economy in general.

[131] https://www.depsas.com.tr/tr/basinda-depsas/depsas-enerji-kuraklik-tarimsal-sulamadaki-elektrik-faturasini-artiriyor accessed on July 2022.

supporting energy policy, an Energy Specialization Industrial Zone was established in the district and the total energy production capacity with Solar Power Plants has risen to 1378 MW (the largest in Turkey) and this is the 16.5% of all Turkey's solar power capacity[132]

The production of urban space side is simpler to illustrate. The construction permits given for each year is analyzed and the "lively" urban development in Konya has been observed. To exemplify, the 2021 construction permits are listed, even with the pandemic impact and economic crisis creating raw material supply problems for the construction sector, Konya has the 5. highest in Turkey in terms of number of buildings permitted to be constructed between January-September in 2021 (TURKSTAT, 2022)[133]. In terms of floor area, Konya has the 4th highest area in Turkey that is used for construction. If the construction area is divided to the number of buildings constructed, the efficiency of construction can be obtained and this ratio illustrates that Konya is the 6th inefficient (less buildings in larger areas consuming more "rural" land), Ankara is 4th (with massive urban sprawl problems, please see Yaşar, C.G. 2010), Istanbul is the second most efficient being 81st in this ratio and Turkey average is on the 69th rank. In sum, Konya, while urbanizing, consumes land severely less efficiently than Turkey Average and 75 other cities in Turkey out of 81. This will likely create problems in terms of consumption of natural, agricultural and peripheral lands which I will be evaluating in the following chapters.

Konya is a middle income dominated city with severely low female participation and low higher education levels (Ataç, 2014). In terms of political positioning Konya is leaning towards the conservative side of the spectrum with dominance of an Islamist world view. An archaic pseudonym of Konya was the "citadel of Islam". This historic tendency had not since been changed. The governing party is highly supported in the province for all the elections since 2002. In the last general elections, held in 2018, the percentage of Justice and Development Party voters were 59.5% and in the last local elections held in 2019, it was 70.53%. Hence, since 2002, where there is no more coalition governments but a single party in power, Konya has always been in political and ideological harmony with the central government and national politics. This created a relatively financially prosperous and legally supportive environment for urban policy makers and urban policy processes in the city.

[132] https://www.enerjiatlasi.com/gunes/ accessed on July 2022.

[133] The number of buildings permitted is 3761 and number of flats is 15758. For 2021, the average household size was 3.23 (TURKSTAT, 2022), which means on average in 9 months housing for a population of 50898 was permitted. Aggregated, the numbers dramatically surpass the need of housing in Konya, this is the case for majority of cities and nearly all metropolitan cities in Turkey.

Upon the foundation summarized above, and the results showed in the statistical study of the 30 metropolitan municipalities in Turkey, the city and the province of Konya is highly illustrative for a study on urbanization and agricultural production on the same plane.

The province and the district borders, the locations of settlements (both urban and rural) and the distances can be seen below[134]

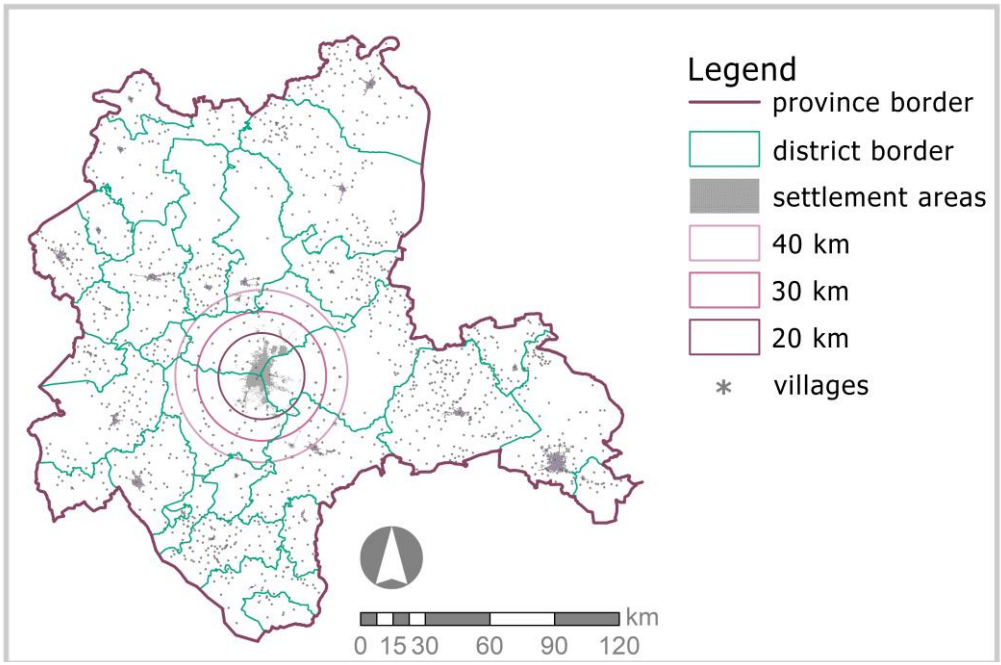

Figure 73 Konya Province with District Borders, Settlements and Distances

Konya is the province with the largest land cover in Turkey with an area of 1469,4 km^2. The furthest of borders is 180 km far from the center of the city and the closest is 60 km far. Hence, the area that the province covers, and after the acceptance of law no 6360, the Metropolitan Municipality controls is vast. There are 31 districts, three of them being the central metropolitan districts and referred as core districts throughout the study. There were 587 villages in the **province** that are now named as neighborhoods after 2012 enactment of the 6360 Law and 2014 Local Elections where the Law has undergone full enactment. There were 1112 neighborhoods in the **city** of Konya and districts before the villages are added to the number. For the year 2018, the number of neighborhoods were 1699 in total while in 2022 the number decreased to 1154.

[134]Basemaps: Google Earth Satellite View 2018, Settlement Locations Turkey, Database (YYVT), General Command of Cartography (GCC), 2017.

The **city of Konya** has 355 neighborhoods and 67 villages that are now also neighborhoods with law no. 6360. The three central- metropolitan districts, Meram, Karatay and Selçuklu are adjacent to each other and forms the city of Konya. A geographical summary of the city of Konya can be found below[135].

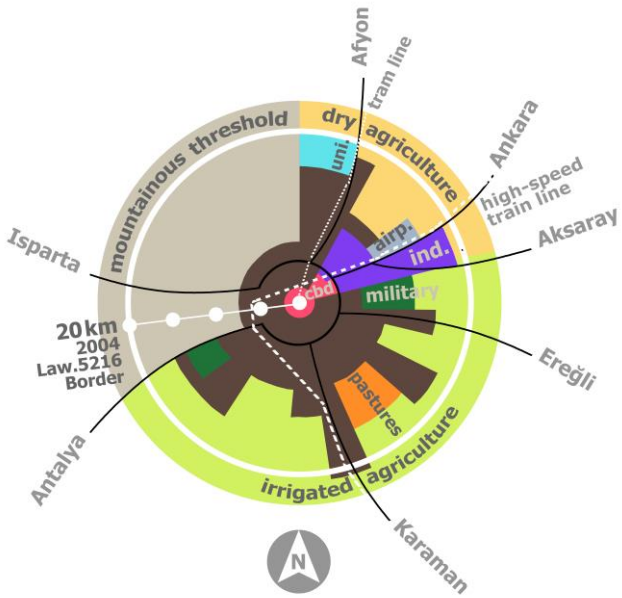

Figure 74 City of Konya within 2004 Metropolitan Municipality Law no 5216 Borders of 20 km – An Abstraction

The control boundary of metropolitan municipality of Konya had become a circle with a radius of 20 km depending on the population of the city at that time back in 2004 with 5216 Metropolitan Municipality Law. Illustrated in the figure above, 20 km barely covers the city and the direct pressure buffer surrounding the city. The urban form is nearly radial, yet more irregular than the abstraction above. The dominant urban pattern is also radial in the city, and the heart is the Alaaddin Tepesi, an historic tumulus hill. Central business district surrounds the tumulus and fringes to north-east following the Ankara Road. Industry follows the same direction and from south-west to north-east there is a large area for industrial production in the city. There are high-speed rail and tram lines in the city supporting the development on the north and north-east axes. West and north-west of the city is surrounded by foothills limiting the urban development and urban sprawl. Both on west and east sides, there were military areas (dark green), and these areas, with the change in the legislature, were transferred to the

[135] Basemaps: Google Earth, 2017; Land use, Konya 2043 1/100.000 Environmental Plan by the Metropolitan Municipality; Corine 2012 Land Use.

Konya Metropolitan Municipality and now subject to urban development[136]. On the northern and north-eastern part of the 20 km circle, dry agricultural production is taking place. Agricultural production still goes on even though decreasing, but the area is not irrigated. On east, south and south-west of the city, nearly half of the 20 km circle is surrounded by irrigated fertile agricultural land where production is still going on. The sprawl on this part is the most dramatic one, which will be analyzed in the following chapter. High levels of state-public capital were embedded in this area for irrigation and today urban development is invading the area. There are also pastures (or the remains of pastures to be more succinct) in this area, adjacent to the settlement area.

Konya province mostly overlaps with Konya endorheic, closed basin as can be observed above. The Taurus Mountains surrounding the region from the south keeps the climate dry via blocking the impact of the Mediterranean Sea. With steppe, semi-arid climate, the differences of temperature between summer and winter and the night and the day are high. The amount of rainfall is among the least in the country and the problem of drought in the region is becoming deeper. The only desert of Turkey is in Konya province, in Karapinar district and its growing. With the climate change process, the temperature may rise by 7°C degrees and the rainfall amount may decrease by 20% to 30% (WWF-Turkey, 2014).

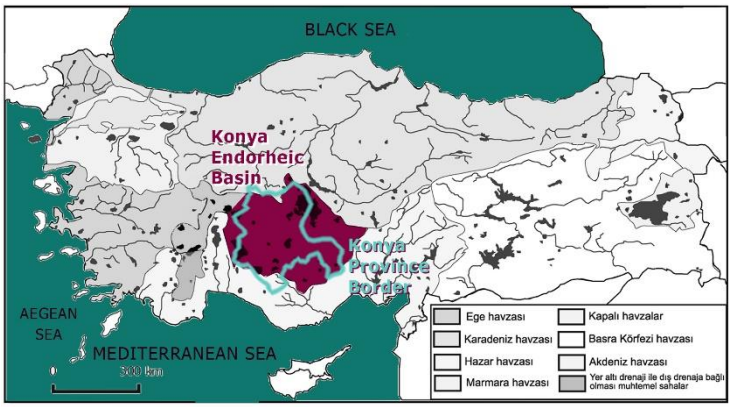

Figure 75 Konya Endorheic Basin and Water Bodies in Turkey

[136] https://www.cumhuriyet.com.tr/turkiye/yesil-alan-olacagini-soylemisti-akpli-belediye-erdoganin-kararini-yok-saydi-1928516 accessed on August 2022.

The province was rich in terms of ground water in history, yet today, following the scale of urbanization in the city of Konya, industrial production using significant amounts of water and mass scale agricultural production consuming massive amount of water, ground water level is falling dramatically. The area has only 2% of usable surface water while the 17% of the ground water for the year 2012 (State Water Works, 2013). The 90% percent of water is used by agricultural production in the endorheic basin and the city lacks 50% of its yearly water usage (WWF-Turkey, 2014). Alongside land and labor, the third most significant means of agricultural production, the water, is getting more and more scarce in the province in time, and the main reason behind this is the agricultural production pattern.

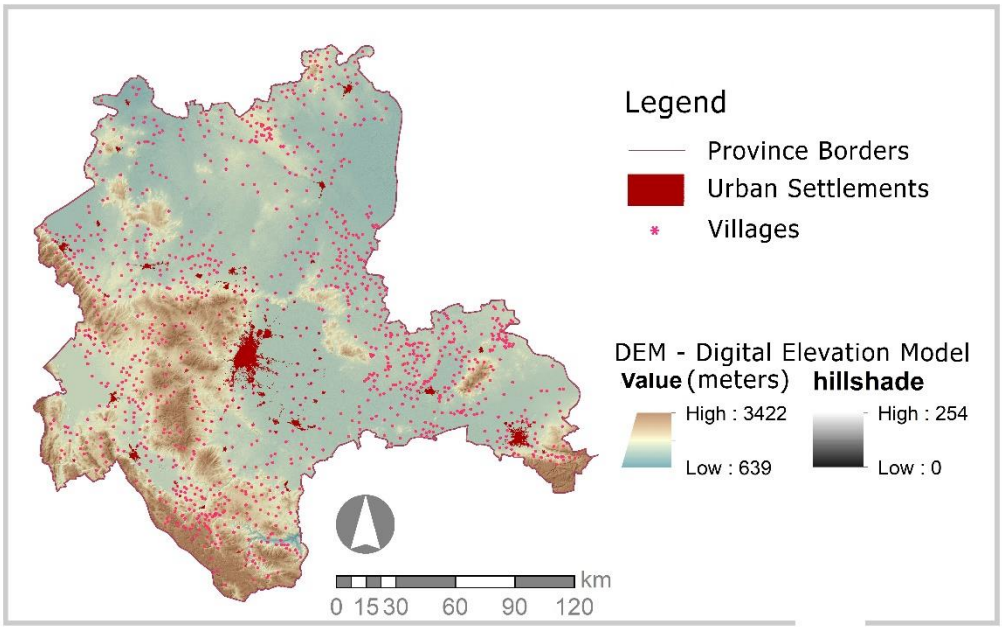

Figure 76 Digital Elevation Model and Settlements of Konya Province

The map above illustrates the topography of Konya Province[137]. Brown areas are mountainous while blue-gray ones are flat. The locations of settlements were added to the map as a reference point. Konya province consists of mostly flat land but on the western and southern parts also mountainous areas as well. The city of Konya is settled on the foot slope and intersection of the flat Konya basin on the east and mountain ranges on the west. The elevation range is between 639 meter and 3422 meter which is a very drastic difference for a single administrative unit. The change in elevation also changes the climate, the access to water and access to fertile and accessible land (with higher DR1), hence changes the production patterns in the geography. The second element of this map and elevation is the

[137] Basemaps: SRTM (30x30m) (JPL, 2004), Google Earth Satellite View 2018, Settlement Locations Turkey Database (YYVT), General Command of Cartography (GCC), 2017

slope. The settlements, especially villages are divided into two dramatically different groups which are mountain-villages and flat plain-villages, and this division is used by policy makers, local and national bodies such as MEVKA Konya-Karaman Regional Development Agency, Konya Metropolitan Municipality and Ministry of Food, Agriculture and Livestock. Hence, topography is one of the inputs of the black box of policy making in urban and agricultural decisions in the province. Slope changes urban form affects settlement patterns, namely the distribution of population in the geography and agricultural production patterns. Therefore, we will be revisiting the digital elevation model of the province in upcoming parts of the case study, and we also will be using the same division of mountainous and flat plain settlements for understanding the policy applied in the geography and the impact of Metropolitan Municipality System over the province.

The province is in the central plains of Anatolia – Asia Minor and on the junction of transportation routes as can be seen on the map below[138] With the 6360 Law, Konya Metropolitan Municipality (KMM) has become responsible of all these road network which is more than 5000 kms while it was around 500 kms when the previous municipal border was the service area of the Municipality.

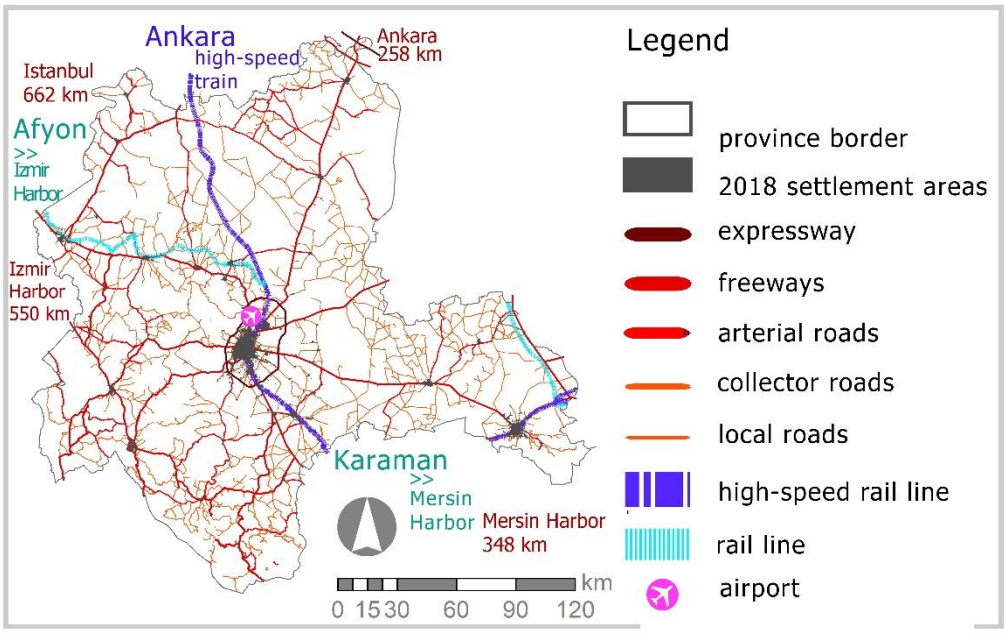

Figure 77 Transportation Network with Settlement Patterns and Administrative Boundaries

[138]Basemaps: Turkey Motorway Network, 2017, Rail Network 2017, Google Earth Satellite View, 2017-2018.

City of Konya is a landlock province and the nearest harbor to the city is Mersin Harbor on East Mediterranean Sea with 348 kilometers of motorway. The other major harbor, Izmir, on Aegean Sea is 550 kilometers far. With 258 km, Konya is relatively close to the capital city while Istanbul is 662 kilometers away. Although city is not on the seashore, the location is still beneficial for logistics, since it is on one of the junction points of Asia Minor. As a major supplier of grain and sugar for the country, location is advantageous. With the high-speed rail line connecting Konya to Ankara, the location has become more advantageous.

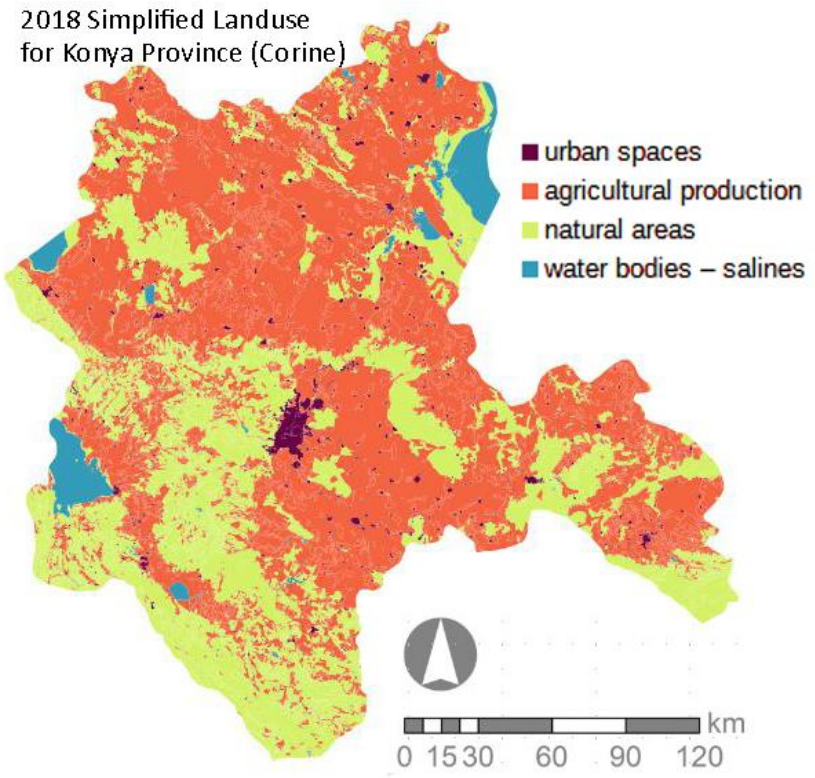

Figure 78 Simplified Land Use in Konya Province - 2018 (Corine Land Cover)

The map above is produced from the most up to date land cover data: Corine 2018 land cover. Majority of the province area (58.2% - orange in the map) is used for agricultural production including pastures, grooves, annual crops, dry, irrigated; all forms of agriculture. Considering that Konya province has the largest area among all provinces in Turkey, the amount of agricultural land in the province is also by far the largest. Urban spaces only covers the 1.6% (dark purple in the map) of the whole province and by far smallest of all four categories. Surface water and salines are 3.6% of the province which is lower than the country average. Tuz Golu (Salt Lake) and the saline areas surrounding the lake is one of the most significant conservation zones in the province. Yet, at the same time under risk of heavy pollution due to the scale of the sewage being discharged to the area. Since Tuz Golu is on the

lowest elevation of the region, the pollution tends to be accumulated there. Although 36.6%of the province is natural areas most of this land is sparsely vegetated areas. On the mountainous parts of the province in the southern part, there are also forests. These areas are a part of Taurus Mountain System. Bare rocks, sands and dunes are also existent in the geography of Konya and these areas have a tendency of growing due to increasing water insufficiency in the region especially in Karapinar district. These areas, with decreasing ground water levels, also has major sink-hole problems. Due to over-consumption of water from wells, sinkholes are becoming more frequent in these dry areas, and this creates a problem of safety in agricultural production process.

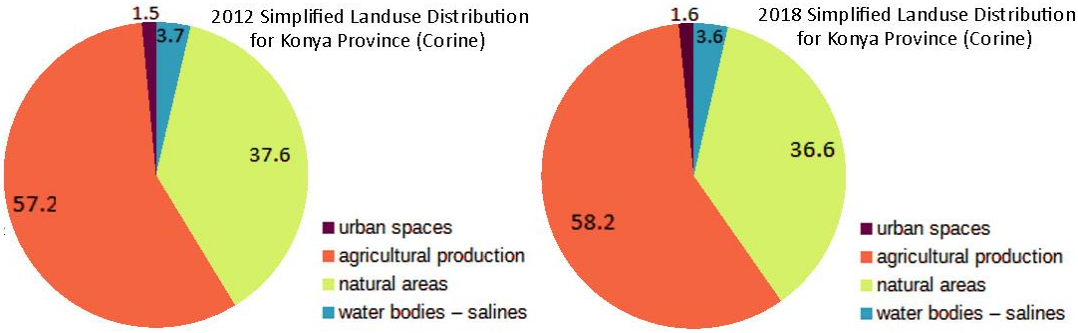

Figure 79 2012-2018 Simplified Land Use Change in Konya Province

These four simplified categories of land use for the case of Konya in 2012 (right before the enactment of the 6360 Law) and in 2018 (most up to date Corine land cover) are illustrative. Total area used for agricultural production has increased by 0.1%, urban areas has increased by 1% and balancing this out, natural areas has decreased by 1% and water bodies & salines has decreased by 0.1%. In sum, urban and agricultural land uses consumed natural areas and water bodies and they are expanded at the expense of natural areas. The decrease in the water bodies likely stem from climate change and decreasing amount of water in the closed basin of Konya. This six years' time interval is shaped under the metropolitan municipality system. Therefore, at first sight MMS can be considered as favoring not only the production of urban space but also agricultural production which seems to be conflicting the main hypothesis of this thesis where production of space is favored against agricultural production. At this point, it is a must to remind the reader that the land use change in time is not this simple in the geography where agricultural land transforms into urban (which is nearly insignificant in provincial scale by 1.6%) and at the same time natural areas transform into agricultural and urban (see chapter 2 rent theories sub section). This invasion succession of land uses will be analyzed thoroughly in the following two chapters on urban form and agricultural production.

5.2 Konya Planning History: Urban Form, Settlement Patterns and Agricultural Production in Konya Plans

In the planning history of Konya and in Turkey in general, the main conflict is between central and local authorities and the distribution of power among these two ends. The second conflict was the separation of urban and rural ways of planning, respectively in municipal areas and in the rest, non-municipal but provincial areas. This brings us to the third conflict in the planning history: the scale of planning. These three tensions alongside the paradigm shifts experienced in the planning theory, leads us to the fourth one, the changing approaches in planning in time. In this part, I will be dealing with the reading of these four elements in the history of planning in the case of Konya. Konya is a planned city since 1946 and 7 plans were produced. Since 1946, all the years were covered by at least one plan, more than once two plans and sometimes even three plans. The time between the enactment date and the target year has been considered as the plan coverage and colored in the chart below.

Figure 80 The timeline of Plans produced for the city of Konya

The history of planning in modern Turkey dates to the early years of the Turkish Republic. The planning history of Konya is slightly older than the Republic. Between 1919 and 1923 (MM webpage, 2018), the first plan of Konya was produced by a Hungarian engineer named Scarpa (Onge, 2011; Bengisu, 2006). The plan has been lost and the impacts are unknown, yet it is speculated that the Istasyon Caddesi (Rail Station Boulevard) and its surroundings on the western parts of the city was designed in this plan (Sural, 1975; Onge, 2011, MM Webpage, 2018). In 1930, with 1580 Municipalities Law, municipalities were authorized and became responsible to plan their cities. Yet, dramatically insufficient human resources and tools of municipalities had not allowed them to produce their own plans. With this problem in mind, in 1933, upon direct instructions of Mustafa Kemal Ataturk, The Bank of Municipalities have been established (Gezim&Kiper, 2016). In 1945, the institution has become The Bank of Provinces (Iller Bankasi) and has started to serve to provincial administrations and villages as well. From 1933 to 1985 nearly all the development plans produced for all the cities in the country were produced by The Bank of Provinces (Gezim&Kiper, 2016) and Konya was not an exception. After 1945, the planning authority of

municipalities were canceled and either by competitions held by The Bank of Provinces or by directly the planners working at the institution, the plans were produced and selected by the institution. In addition to that, the approving body was the Ministry of Public Works and Settlements at the time. Hence, spatial planning, in the form of development plans, was a highly centralized public act for a long time.

The plans produced within this time interval for the city of Konya was 1946 BeautifulCity Plan, 1954 Revision Plan, 1965 Konya Development Plan and 1984 Environmental Plan. 1946 BeautifulCity Plan was produced by Asim Komurcuoglu. 1954 Revision Plan, basically a revision to the previous plan was produced by Ferzan and Leyla Baydar. 1965 Competition for the plan of Konya was won by Yavuz Tasci – Haluk Berksan. 1965 Konya Development Plan was the first competition plan of The Bank of Provinces in the country, and the other two plans are produced at The Bank of Provinces by the planners of the institution with a central rather than local perspective. Especially between 1948 and 1984 the spatial planning of the era was also tinted by amnesties and squatter housing (gecekondu) problems as well (Duyguluer, 2012).

For the case of Konya, between 1967 and 1983, the process was similar, the development of the city was mainly guided by partial and annexation plans (Yenice, 2012). Between 1980 and 1984, following the coup, municipalities were primarily governed by military authorities. Within this period, 1984 Konya Environmental Plan was produced. Not by an elected body, but rather a centrally assigned one, this plan was also had a central point of view. With 1984 local elections, this period was over.

After the year 1987 with the acceptance of the metropolitan municipality system for the city of Konya with law no 3399, the first “locally” produced plan of Konya was 2020 KonPlan was accepted in the year 1999. Following the change in the legal status of Konya in 1987, the law has gone full effect with the 1989 local elections.

The 2020 KonPlan was originally produced by a planning firm located in Ankara, Tasci Architecture and Planning Studio, by a private planner who is responsible to the municipality in short. By the year 1999 the number of bodies (all public) with planning authority had risen to 25 without a structure designed to provide coordination between these bodies (Ersoy, 1999). 1980 is one of the most significant breakpoints in Turkey's administrative system, urban policy approaches, local governments, and spatial planning. With privatization and localization tendencies, and today local-centralization and re-centralization tendencies, the planning praxis has been formed.

The last two plans of Konya seem to be a good example of overlapping authorities in planning. The last two plans produced by Ministry of Environment and Urbanization in 2013 and Metropolitan Municipality in 2016, are in same scale (1/100.000), both covers all the

province and there are only three years between them. This conflicts with the "hierarchical unity of plans" (Ersoy, 2000). Yet, both plans were produced by the same planning office (Ege Plan) with the same planner in control, Necati Uyar. Hence, the problem of having same scale plans with overlapping time intervals was surpassed in praxis.

The authorities responsible for each plan in the planning history of Konya was illustrated above. This was the history of the "urban" planning side of the Konya. In 1946, the first plan of Konya was produced by the Bank of Provinces and the name, and the vision of the Plan was Beautiful City. As the name suggests the plan follows the beautiful city approach that had emerged in USA in early 20th century. Objectifying and fetishizing the space, beautiful city approach mainly focused on beautifying urban spaces via urban design projects (Ersoy, 2007). The radial – grid scheme of the plan was also a sign of the impact of the American Planning over the plan. On the railway line, there was a proposed industrial zone in the plan. After 1950 with a slogan of 20 cement 20 sugar factories in Anatolia, in 1954 a sugar factory has been founded in Konya (A.U. SBF&TEK, 1982) on this area and Konya Sugar Factory is still located in this area. Top to bottom planning in the era of urbanization of state (Sengul, 2001; Sengul, 2002) formed the 1946 plan and comprehensive rationalism brought by modernist planning of the era with a holistic approach was highly visible.

With the sugar factory, the industrial era of the city has started, yet industrial production did not replace agricultural production and significant percent of the industry is still agricultural based. 1950 was one of the break points for the distribution of the population in the country. Around 1950, the wave of migration from rural to urban has fastened (TURKSTAT, 1995). Therefore, the population of Konya in 1950 has surpassed the planned population of 1946 plan and a new plan was proposed with meeting the need for housing in mind. With the new urban development movements, the urban renewal has also been started in 1950s (Serdaroglu-Sag, 2011).

1965 Konya Development Plan for the year 1985 was produced via competition and the vision of the plan was an industrial city with two (the old and the new) centers (Tasci&Berksan, 1967; Serdaroglu-Sag, 2011; Yenice, 2012). Top-down modernist planning was still existent in the approach of the plan while the era was the urbanization of labor era in Turkey (Sengul, 2001) and the first form of a kind of bottom-up planning was taking place in major cities attracting populations: gecekondu (squatter settlements) (Sengul, 2002). The same process, the urbanization of labor in the form of gecekondu was also taking place in Konya after 1950s. Even though Konya is widely known as a city without gecekondus, there were gecekondus in the city in 1950s and 1960s (Karpat, 1976; Parker&Kreimer and Munasinghe, 1995). Therefore, the form of urban growth in the era was formed with the tension between the top-down plan and the bottom-up pressure of housing demand. The planned population of

the 1954 revision plan was 96.000 while the realized population of the year 1965 was 150.000. The difference created a severe pressure over the urban geography and affected the plan making approach of the 1965 plan.

Right after the coup, under military control in central and local governments, the fourth plan of Konya was produced by the Bank of Provinces centrally. Neoliberalism, privatization and decentralization was the dominant themes in the planning of the era (Duyguluer, 2012) and the plan of Konya was not differentiating from the mainstreaming approach. The planning approach of the era was comprising the urban areas and leaving the rest to the related central administrations. The 1984 Environmental Plan for the year 2000 was encouraging decentralization in the form of sub-centers and the industrial city vision was still there. The Plan's vision was poli-centric industrial metropolis and the proposed population for the year 2000 was 1.300.000 while the realized population was 742.690. After the military coup, the planning activities in the major metropolitan cities were fastened and the planning authority was given to metropolitan municipalities as well. The reason on the surface was to foster local democracy yet the background reason was to overcome the inertia of the construction sector of the era (Duyguluer, 2012). The explanation of the difference between the planned and realized population lies in this argument. The area proposed for industrial production was also larger in the city and with this in mind, the plan can also be considered as developmentalist. Konya being one of the Anatolian Tigers (major industrial cities in Anatolia) is standing on these roots.

In 1999, the first plan by the Metropolitan Municipality was produced: 2020 KonPlan. The first local plan produced for the city; the vision of the plan was metropolitan industrial city with mega infrastructure needed to compete with other cities. Hence, the approach can be summarized as competitive and marketing the city. The encouragement of construction sector with opening up unneeded land for development also continued with this plan. The proposed population in the plan was 1.805.000 for the year 2020 and although we still did not reach 2020, the 2016 population is 1.278.195 and the rate of increase for 2016 is 2,2 which is also falling; therefore, it seems impossible for the city of Konya to reach that population by the year 2020. The master plans tendency to produce more dispersed forms instead of compact ones seems to be increasing in time.

The 2025 Konya-Karaman Environmental Plan was produced in 2013, right after the authority to plan the provincial area has passed to metropolitan municipalities with the law no 6360. Ministry of Urbanization and Environment has produced the plan creating a "fragmented centralism" (Duyguluer, 2012) in the end. The vision of the plan was a sustainably growing and developing city with higher quality of life. The keywords used in the vision are symbols of strategic planning in the neoliberal era with competing cities in mind. The plan was canceled

in 2016 with the acceptance of 2016 Konya Environmental Plan for the year 2043. The two plans have highly overlapping timeline and the scales, and the coverage areas are the same as well. It is produced by same private planning office (Ege Plan) therefore there is a continuity between plans. Yet, this is an exception and even though it did not create any problems in the case of Konya, where the party in rule in the local governments are the same party with the central government, it is problematic to have two plans with same scale produced within short amount of time covering the same geography.

The last plan, and the current plan is the 2016 Konya Environmental Plan for the year 2043, which happens to be in the same scale with the previous plan of the Ministry produced back in 2013. Two same scale plans for the same area with overlapping time spans produced in short amount of time is a good example of "fragmented centralism" (Duyguluer, 2012) and a problem of hierarchical unity of plans" (Ersoy, 2000). The vision of the plan for the city of Konya is sustainability in both urban and rural areas with higher quality of life. The approach of the plan can be summarized as strategic and developmentalist. With the longer time span, the plan is more comprehensive than the previous one.

The issue of population is highly significant in the planning history of Konya. The planned populations of the plans and the realized populations in the target year and the change in the difference between them is illustrative. One of the most central functions of the plan, planning the future population of the city is also a part of urban sprawl problem alongside land speculation.

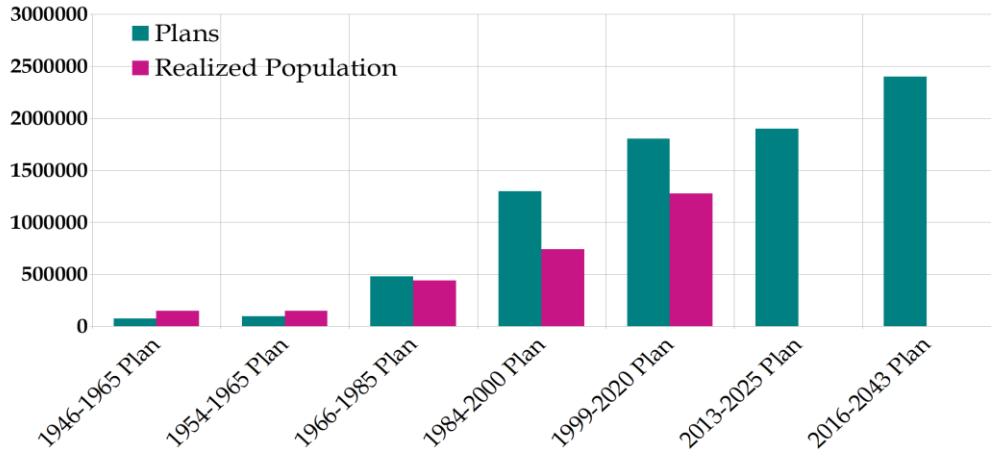

Figure 81 The Planned and the Realized Populations for the Plans Produced for the City of Konya

The figure above, summarizing the politics of population in the plans is informative about the growth of the city and the planning approach handling this growth. The first two plans had fallen behind the realized population creating more development pressure on land, the 1965

plan for the year 1985 was good at planning the population while following two plans in 1984 and 1999, the planned population is much higher than the realized ones.

To emphasize the shift, the differences between the planned and realized populations and the change in time is illustrated above. The difference for the last two plans, namely 1984 and 1999 plans are dramatic. In addition to that, urban sprawl was inevitable, and experienced in the city of Konya not despite the plans but because of the plans giving unneeded development rights on the periphery of the city. Construction economy gaining ground in the national economy of Turkey after 1980s and the construction boom that we are experiencing after 2002 (Balaban, 2008) has a relationship with the last two bars illustrating the drastic difference between the planned and the realized populations.

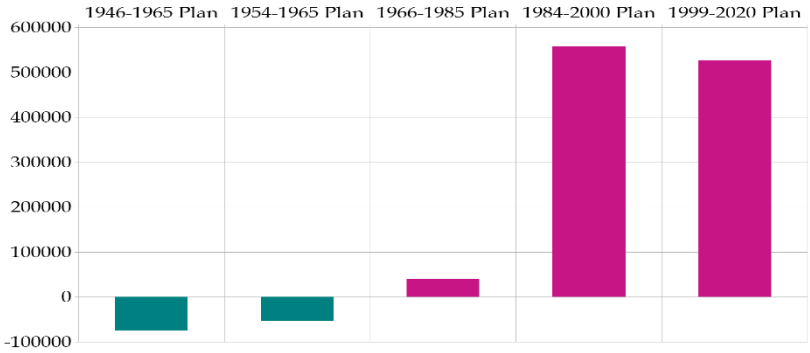

Figure 82 The change in the difference between the planned and realized populations in time

5.2.1 Urban Form of Konya in the Plans

The city of Konya is a planned city on a legal basis. Starting from 1946 up to 2043, seven consecutive and sometimes even overlapping plans were proposed for the city. These seven plans are as follows: 1946 BeautifulCity Plan, 1954 revision Plan, 1965 Development Plan, 1984 Environmental Plan, 1999 Metropolitan City KonPlan, 2013 Konya-Karaman Environmental Plan and 2016 MM Environmental Plan. These plans proposed seven different forms for the city building upon each other[139].

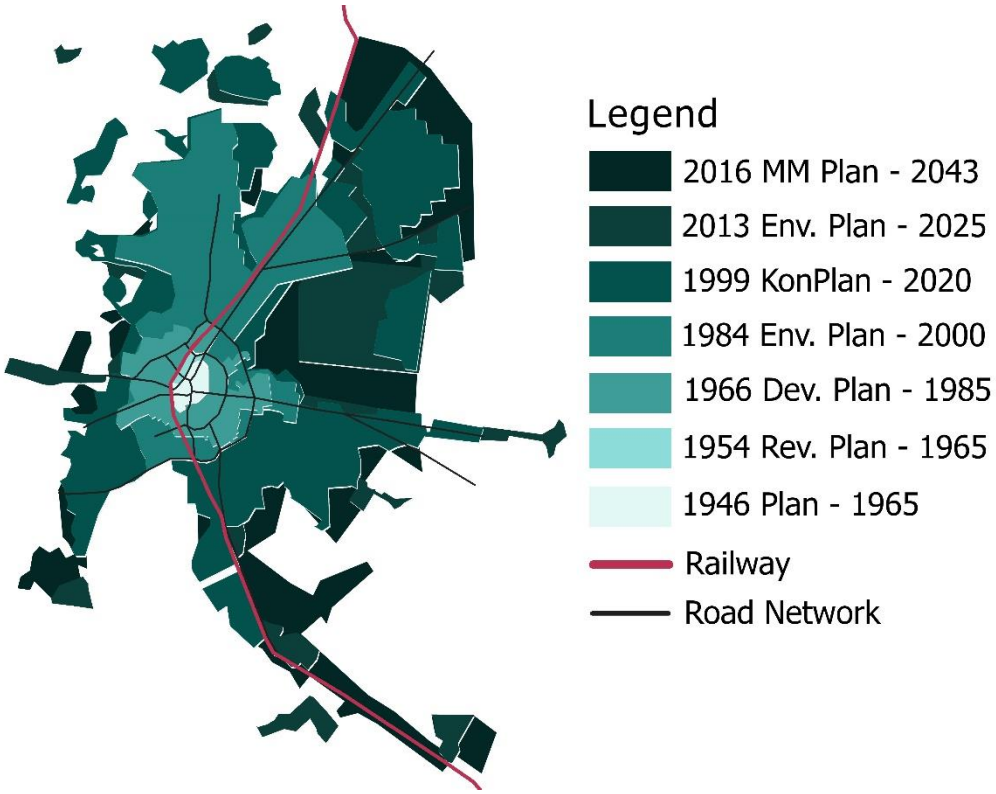

Figure 83 The Urban Forms Planned in Seven Plans Produced for Konya Between 1946 and 2043

The first two plans (second revising the first one) were defined by the railway line. These plans were highly compact regarding the limited means of transportation of the era. Moreover, the population of the city was 58.457 (TURKSTAT, 2017). Hence the whole city could be fitted into a 1/2000 scale master plan. Proposed settlement area (with all urban land uses including non-residential areas) was 816 hectares for 1946 Beautiful-City Plan (Komurcuoglu, 1946; Yenice, 2012). The urban pattern proposed in this plan was a radial grid like pattern on the north and east of the city, a grid like pattern on the south and west of the city parallel to the

[139]Sources: 2016 MM Environmental Plan, 2013 Konya -Karaman Environmental Plan, 1999 Metropolitan City KonPlan, 1984 Environmental Plan, 1965 Development Plan, 1954 revision Plan, 1946 BeautifulCity Plan and Yenice, 2012.

railway line with an organic Ottoman urban fabric in the core. An urban pattern that is radial in the core and linear on the periphery (Akseki&Meşhur, 2013) The main purpose of the plan was to meet the housing need of the rapidly growing city after the establishment of Republic of Turkey and right after the WWII.

An industrial zone for Konya was first planned with the 1946 plan. It was located on the south-west part of the city right adjacent to the railway line with transportation in mind. With the zeitgeist of the era, the comprehensive-rational planning of modernism, the industrial areas were designed together with the residential areas needed by the workers (Komurcuoglu, 1946). Konya Seker Factory, established in 1952 by state as a part of decentralizing development and uneven development prevention policy, is still located in this area. It was the factory established in the city of Konya. Between 1954-1994 the sugar (from sugar beet) factory was a state economic enterprise. In 1990s with the massive wave of privatization, the Konya sugar factory was also privatized and transferred to cooperatives.

The existing settlement area was sprawled beyond the borders of the 1946 plan on the east and south side, on agriculturally productive and fertile fields (Yenice, 2012). The form of fringe development on this sides was ribbon development, following the major roads' paths. This fringe form was the interface between urban land uses/the core city and the peripheral agriculture, the rural land use. The two consecutive plans did not suggest any policies for curing or developing the urban fringes on the agricultural areas.

Population growth rate of Konya between 1946 and 1950 has exceeded the expectations and hence, a revision plan was produced in 1954 (Yenice, 2012). The realized population of the target year 1965 had exceeded the 1954 Revision Plan's planned population as well. The planned population of 1946 Plan was 75.000 and for 1954 plan 96.000 for the year 1965, yet the realized population at the target year was 150.000 (TURKSTAT, 2017). Hence both plans were insufficient to meet the need of housing in the city. The gross density proposed by the 1946 Plan was 91.6 and for 1954 Plan, it is slightly higher with a density of 105.3 (Yenice, 2012). These two densities are the second and the third highest densities.

The 1965 Konya Development Plan (accepted in 1966) for the year 1985 was a 1/5000 scale plan covering a 2380 hectares of planning area. The proposed population for the plan was 480.000 and the gross density proposed was 249,5 (Yenice, 2012). The highest density among all plans throughout the planning history of Konya. The realized population for the year 1985 439.181 for the city of Konya and it is slightly below the planned population. Hence, it is the first plan to provide enough urban area for housing demand of the increasing population. Moreover, it is the first plan with the planned population exceeding the realized population. Yet, the difference is relatively low.

The first traces of the urban form of a car-dependent motorway city can be seen in this plan. Following the radial-grid like development in the core, there were now fingers growing on east, south-west and north directions of major motorways in this plan. Leaping over the railway line limit to the east, the settlement area of the city of Konya was supposed to be growing by 161%. Both density wise and proposed urban space wise, the city of Konya was growing rapidly at that time. Hence, the plan reflects the urgent needs of the city at that time. Yet, the fingers proposed in the urban form, following the natural tendencies of urban sprawl in a motorized age, ribbon development on major motorways in other words, was the most problematic part of the plan. Especially the high-density development proposed on the south-east side and the industrial production proposed on the south axis attracting development were problematic (Akseki&Meşhur, 2013).

The vision of the plan was the "industrial city", hence, there was a large zone for industrial development proposed in the plan (Yenice, 2012). There were industrial zones proposed in all four directions on major motorways. The largest one was on the north axis while there were plenty of area proposed for industrial development on the fertile south-west axis as well. The location of the industrial development was the most significant side of this plan, and it determined the direction of growth of the city of Konya. The gravitational pull created by the southern industrial zone proposed in this plan was the decision that was most problematic for southern fertile agricultural lands. The plan was still solely controlling the urban land uses and peripheral areas or urban-rural interfaces in terms of land use were not a subject for this plan either.

The new development areas on the east and north parts of the city was the most positive side of the plan regarding the urban form. The well-defined districts with sub-centers for each located on the least fertile lands surrounding the city and controlling the east development with a major administrative land use are positive sides of the plan.

1984 Environmental Plan for the year 2000 was the first 1/25.000 master plan of the city. The population of the city was 439.181 in 1985 (TURKSTAT, 2017) and Konya was the fifth largest city and the fourth largest province in Turkey at that time. The population proposed in this plan was 1.300.000 for the city of Konya and the proposed gross density was 101. The realized population on the other hand was far below the expected population, with 742.690 people (TURKSTAT, 2017). The difference between realized and planned populations have a strong impact on how the cities grow and dramatically higher estimated populations with lower realized populations creates urban sprawl on the periphery of the city where excess development rights are given (Yasar, 2010). As Duyguluer says (2003) "Plan and planning should not always be regarded as an admirable instrument" and "even plans have detrimental

effects as well" (Duyguluer, 2012). Hence, it is the first plan to be the direct cause of an urban sprawl.

The settlement area proposed in the plan was 12860 hectares and it was 440% larger than the 1965 Plan. The scale of growth proposed for the urban form was north leaning. Two main fingers to north and north east were the major areas for new development and university and the industry were the major gravitational pulls. The land between the university, industry and the existing city was all proposed for development. The area is still not developed 100% today. The urban sprawl on the north part dates back to this plan (see figure x.x 2017-2018 Urban Form of Konya) and is not yet healed with needed infill development. Up to that time, it was the first plan to increase the scale of urban sprawl dramatically.

In this plan the macroform of the city had taken a linear like one, following the path of railway line. Even though the main direction of development has followed railway line, the form of city is an illustrative example of a car dependent motorway city with decentralization and sub-centers (Yenice, 2012). The plan was the first environmental plan, yet, despite the name, not much decisions were made on the environs of the city and the environmental aspects.

The fourth master plan 2020 Kon-Plan was accepted in 1999. The first metropolitan plan of Konya with a scale of 1/25.000, this plan has proposed 29100 hectares of urban form. 126% larger from the previous settlement area, the planned population for this area was 1.805.000 for the year 2020. The population of city of Konya in 2016 is 1.278.195 and a rise of 526.825 which is 41% of existing population (TURKSTAT, 2017). This is far from being possible regarding the recent rates of increase: 2.9% in 2014, 2.4% in 2015 and 2.2% in 2016 (TURKSTAT, 2017).

The vision of the plan was a poli-centric city with organized sub-centers (Yenice, 2012) and the urban form proposed suggests leapfrog development on newly defined adjacent areas taking their legitimacy from the legal framework of metropolitan municipality system. The car dependent urban form has taken its full form and there were plenty of discontinuous settlement areas and the scale of urban sprawl has risen dramatically on all directions. The form has become illegible and transformed heavily from a radial compact pattern to an oil-stain one with no well-defined control. The two dominant fingers in the north proposed by the proposed plan was combined and fingers towards east, south, south-west axes have become longer. The green-belt decision from south to east and reaching up to north was the most positive decision made in the plan, yet it was not enough to control the city from growing into the agricultural land. The problem was not the development on agricultural need but rather the consumption of agricultural land for urban development when there were still places left for infill development and more importantly over-estimating the population for the future and

giving development rights on agricultural land when there was no real need of that size. Hence, population projections of plans are integral parts of urban form, and it is the reason behind the over-consumption of agricultural fields for urban development. The gross density proposed by the plan was 62 which was far below the previous ones and this is the other reason of over-consumption of agricultural fields.

In 2013, right after the acceptance of the law no 6360 which is the main point of departure for this study, the 1/100.000 scale 2025 Environmental plan was produced and accepted by the Ministry of Environment and Urbanization. This plan is the first plan to cover whole province. The Plan followed the footsteps of previously produced 1/25.000 Scale Regulatory Development Plan of the Metropolitan Municipality in terms of Konya urban form (Konya MM, 2013).

The settlement area proposed in the plan, including all residential and non-residential urban land uses was 67077 hectares. The coverage area of the city was 2.3 times the previous one. Some part of this increase stems from large public land uses, yet some significant part of the area added was for residential purposes. The majority of the added area was located on the north and north-east of the city. Gross density proposed for the urban form was 47,5 which was the lowest of all densities proposed by the plans. The proposed population in the plan for the city of Konya was 1.900.000 while for the whole province it was 3.940.000. In the population projection produced by TURKSTAT (2013), the 2023 population for the whole province is 2.175.214. This is nearly half of the proposed population of the 2025 plan for the province, hence the planned population does not seem very realistic considering the trends of population.

The last plan of Konya was produced in 2016, by the MM in the same scale. The target year of the Environmental Plan for the Province was 2043. It is the second master plan produced by the MM. In mostly continuity and harmony with the previous plan, this plan is the frame of development in Konya province and the city of Konya today. The planned population for the year 2043 for the city of Konya is 2.400.000 which is larger than the previous plan due to target year differences (previous one being for 2025 and this one for 2043). Yet, the planned population for the province in 2043 is 3.196.000 which is far below the planned population for 2025. The gross population density proposed in the plan is 60.7 which is higher than the previous plan. In other words, the area that is proposed for development in this plan is relatively smaller considering the proposed population.

The form produced by this plan is leaning more towards the north, slightly larger (6.4%) than the previous 2025 Plan with an area of 71393 hectares for the city of Konya. The urban form follows the previous plan, with more development on the north and east sides and on southern road axis. The frame of the development for the following 25 years is drawn by this plan, if a new one is not produced in the meantime. The realized urban forms in time is another story and both in the case of Konya and other metropolitan cities, it is usually different from the forms produced by the plans either because plan population falling behind the realized population or realized population falling behind the plan population.

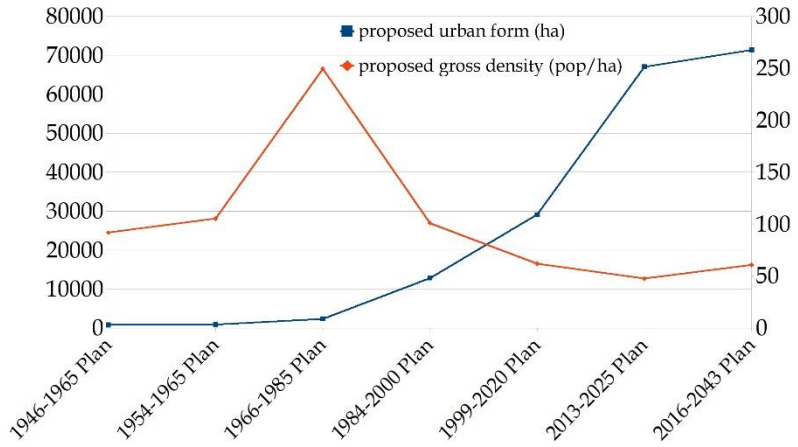

Figure 84 The Proposed Gross Densities and Hectares of Proposed Urban Forms in the Konya Plans

The proposed density was peaked in 1965 plan and after that plan it decreased continuously until the 2043 plan. While the gross density was decreasing, the area proposed for urban development was increasing dramatically. The difference between 2020 KonPlan produced in 1999 and 2025 Plan produced in 2013 is interesting. The difference in target years is only 5 years, while the proposed areas for settlement had increased by 130%. In the meantime, the rate of increase in population was decreasing, therefore, it is not the pressure of population but rather the change or sharpening in the approach is the reason. The construction economy happened between these two plans and has become integral to the national economy. The construction economy started to get dominant in 1980s and the construction boom after 2002 (Balaban, 2008) is constructed upon these excess projections of plans. The 6360 Metropolitan Municipality Law has just increased the scale of this problem dramatically to the province scale. The plans are summarized and categorized in the Appendix I.

To put in a nutshell, Konya is a planned city, yet facing problems of urban sprawl, consuming her agricultural land especially irrigated and fertile agricultural land on the periphery. Master plans did not help to solve the problem of urban sprawl and consumption of agricultural land, on the contrary, to some degree deepened the problem and the metropolitan

municipality law, integrating urban and rural areas in the eyes of planning might have eased the problem but does not seem to solve it either.

5.2.2 Settlement Patterns of Konya in the Plans

The impact of the five plans produced for the city of Konya over the settlement patterns was not a direct one since the plans were only covering the urban form of the city of Konya. The last two plans on the other hand, are covering the province as a whole and the likely impacts are readable from the plans and the decisions made by the plans. Therefore, the plans can be divided into two groups: the plans with indirect impacts and the plans with direct impacts over the periphery and the settlement patterns in the periphery.

First five plans, via solely focusing on the urban form of the city of Konya, are the plans with indirect impacts on the settlement pattern in the province. The last two plans on the other hand, covering all province, are the plans with direct impact via planning whole region. The first plan, 1946 BeautifulCity Plan was rather a proactive plan proposing industrial zone for the first time and proposing to provide the needed housing for the newcomers following the population flow from the rural areas to the urban areas. Yet the estimations for the population fell behind the realized population. Back in 1945, only 21% of the Konya province was dwelling in urban settlements (settlements with population larger than 20.000) while the ratio in Turkey was 25% (TURKSTAT). At the same year, the percentage of the population of the city of Konya in the province was 8%[140]. Hence, most of the population in the province was dwelling in small scale rural settlements dispersed in the rural geography. The plans' impact on the distribution of population over the geography might not be that visible and legible, yet, with the dominant discourse of the era encouraging development in urban areas, favoring industrial development, and following developments increasing the mechanization in agricultural production, the flow of population from rural to urban settlements was inevitable. The pace of the flow was higher than expected and the city of Konya has reached a population of 92236 by the year 1955, while the plan's proposal was 75000 for the year 1965. To solve this problem, in 1954 a revision plan was accepted with a proposed population of 96000, yet this was also not enough to meet the need created by the changing settlement patterns, the flow from rural to urban cores. By the year 1955, the 10.9%[141] of population was dwelling in the city of Konya and the urban population was 25.3%. Settlement pattern was still dispersed and

[140]Calculated with the population of Konya City and the total population of Konya Province in that year. Data from TURKSTAT Demography and Population Statistics. Www.tuik.gov.tr

[141]Calculated with the population of Konya City and the total population of Konya Province in that year. Data from TURKSTAT

rural. These two early plans, even though proactive, were not the major mechanism beyond the population flow from rural to urban/core settlements. It is rather, they tried to keep up with the trend and failed in terms of housing provision.

The following 1965 Plan, a competition plan for the city of Konya, proposed an industrial vision for the city and for the first time a dual centered structure for city growth. The estimation of population was accurate this time and it was slightly and sufficiently over the realized population. 31.5% was the percentage of urban population at that year and the percentage of people agglomerated in the core was 14%. Hence, the rural and dispersed settlements were still dominant in the settlement pattern. The impact of plan was likely to be less than the dynamics taking place in industrial and agricultural production fields, yet the plan, focusing solely on urban core clearly states the dominant discourse of the government at that time. What is urban was favored. In 1954, village institutes, providing versatile education for rural settlements were closed, and the land reform, proposing provision of land in small scale for everyone in rural areas via expropriating land from private landowners with massive amount of fields, was not going as planned and the parliament was dominated by the landed capital who were against the land reform (Geray, 2011). On this background, urban agglomerations are favored at that era, and the plan was not antagonizing with this.

In 1984, after the military coup and before the first elections after the coup, the first environmental plan of the city of Konya was produced. The urban population had risen to 48% and the percentage of the population of city of Konya in the province was 24.8%[142]. Urban areas were growing rapidly, but the population of rural settlements was also increasing, although not as rapid as the urban counterparts. The vision of the plan was a poli-centric, industrial and metropolitan Konya and was openly favoring the urban agglomeration in settlement pattern. Opening up plenty of new land for development, expanding the city, and proposing multiple centers for the metropolitan city of Konya resulted with a highly agglomerated settlement pattern in the core while the rest is still dispersed and majorly rural. The near vicinity of the city of Konya, on the other hand, was swallowed by the gravitational pull of the city. For the first time in planning history of Konya, the planned population (for the year 2000) was dramatically higher than the realized population. This created a planned form of sprawl in an extended scale for the first time. The percentage of population living in the

[142]Calculated with the population of Konya City and the total population of Konya Province in that year. Data from TURKSTAT

core of the province, in the city of Konya for the target year 2000 was 33.8%[143] while urban population was 59%. Around same time, in 1999, a new plan was proposed for the year 2020.

The zeitgeist of those years was the rescaling of state, the city-scale and urban regions gaining ground in policy making alongside competing cities within a global framework. Hence, parallel to these developments, the major proposals of the plan were to provide mega infrastructure for the city in order to provide a metropolitan city identity for the city. The commodification of housing was continuing rapidly and the exchange value of housing as a method of investment was either emerging or giving first hints. Therefore, provision of housing, urban land development via giving development rights in the plans were becoming a way of redistribution of capital and becoming an integral element of the urban economy. The urban pull in major metropolitan cities was becoming stronger with these developments. The plan, following this trend, the commodification of housing and urban land rent becoming dominant in urban economy, proposed a city for 1.805.000 people for the year 2020 and in 2016 the population of the city of Konya is 1.278.000 where a rise of 525.000 seems nearly impossible in for years with the slowing increase trend of population. With the 2000s, housing and land market dominance in urban economy and the urban economy dominance in national economy, therefore the construction and real estate market dominance in national economy, has become the new normal.

The last two plans, 2013 and 2016 environmental plans were produced within this context, construction and real estate market dominating the national economy. With the law no 6360 on Metropolitan Municipalities accepted in 2012, the limits of spatial planning were expanded to the provinces. Therefore, the two plans cover whole province. The settlement pattern statistics of 2012 are as follows: the 76.2% of the province is living in urban settlements, while the 54%[144] of the population dwells in the city of Konya. The gravitational pull of the city was increased with the population increase and now most of the population is concentrated in urban agglomerations. For the year 2016, the percentage of population of the city of Konya is 59%[145]. The settlement pattern is transforming with the gravitational pull of the urban core and while the core is becoming massive, the dispersed rural settlements are becoming more deserted.

[143]Calculated with the population of Konya City and the total population of Konya Province in that year. Data from TURKSTAT Demography and Population Statistics. Www.tuik.gov.tr

[144]Calculated with the population of Konya City and the total population of Konya Province in that year. Data from TURKSTAT Demography and Population Statistics. Www.tuik.gov.tr

[145]Calculated with the population of Konya City and the total population of Konya Province in that year. Data from TURKSTAT Demography and Population Statistics. Www.tuik.gov.tr

Not competing cities but the competing regions in mind this time, the 2013 plan was produced by Ministry of Environment and Urbanization. In terms of settlement patterns, with a superficial look, the plan proposes the distribution of development in the geography. Not only the core, the city of Konya, but also the districts and dispersed, small scale or rural settlements were also expected to grow. Industrial zones, agricultural development zones, agriculture-based industry in other words, are also proposed in the plan. Yet, these proposals are not dispersed but rather concentrated as expected from their nature. Hence, this plan also seems to work in synergy with the concentration of the population in urban settlements rather than dispersal over rural geography. Tourism on the other hand, was proposed for most of the settlements and with a more dispersed fashion, as the nature of tourism suggests.

Today, the 60% of population is dwelling in the city of Konya and while the population in the city is increasing, the population of the rest of the province is decreasing. If we look at the population changes in the districts (see Settlement Patterns chapter), most of them are decreasing after 2000. Only five districts' population out of 28 peripheral districts are increasing. These are Eregli, Beysehir, Cumra, Seydisehir, Karapinar and all are larger districts. Seven districts have relatively stable, nearly same for the last four years. These are Aksehir, Altinekin, Akoren, Derebucak, Ahirli, Derbent and Yalihuyuk. The rest of the districts, namely 16 districts have a decreasing population. In most of them, both their center cities and rural settlements are decreasing. Yet, the 2013 Plan for the year 2025 was proposed new development areas (following the footsteps of 1/25.000 Regulatory Development plan of the city). For instance, in the case of Ahirli, where 2016 population for the whole district was 4561 and the population nearly remained same for the last 4 years, was proposed a population of 13.000 for the city of Ahirli solely. TURKSTAT data illustrates that the questionably city of Ahirli had 829 people dwelling in the year 2012 and after the acceptance of the 6360 Law, the statistic, the population of the "city" of Ahirli was calculated same with the district population. Hence, the plan produced by the Ministry of Environment proposed a city with a population of 13.000 for the year 2025, for a settlement with 829 people, or a district with 4561 people dispersed among rural geography. To give an idea, this is Ahirli, with a radius of settlement less than 500 meters:

Figure 85 Ahırlı, Google Earth Satellite View, 2022

One of the major problems that have arisen after the 6360 law was the change in the statistical representation of the districts. The population of the district has become monolithic, and the core city of that district is not calculated separately in the statistics. Therefore, there is a confusion of populations of districts in the plan. For small districts, the population of the city was accepted as equal to the total population of the district (with all other rural settlements, dispersed villages added) and yet the proposed settlement areas in the plan are for urban-core settlements. In other words, dispersed population statistics were used to define the boundaries of agglomerated core settlements.

11 districts (out of 31) experienced more than 50% decrease in their central settlement population between 2000-2017. 13 districts experienced a population decrease between 47% - 1% between the same time interval. Only 7 districts have increasing populations (3 of them are the core districts that Konya is made of). The city of Eregli, with 33% is the one with the most increase, followed by 19% in the city of Ilgin. Aksehir and Beysehir are the other two cities with an increase of population. 21 cities have significantly decreased populations in varying degrees. While this is the case, the plan proposes severe levels of population increase (in the form of development rights) for each district (please see Appendix J for further comparison in detail). Within this context, the proposed population for each city for the year 2025 in the plan is dramatically high. In ten of cities, the difference is higher than 500%. It is 479.1% higher in average.

In terms of settlement patterns, the plan proposes population growth in every scale. In principle, this can be evaluated as a proposal for even development in the geography, yet the decisions determining the distribution of capital in the form of industry, agricultural development, tourism are not same. The plan proposes economic activities for all districts, which is a step forward to even development in the geography, yet without support with other governmental tools and control mechanisms this is impossible. Hence, we are left with even

development only for urban land provision, and for the rest, the capital flows as it pleases. Urban land provision without considering the actual needs of that city is prone to creating problems such as land speculation, speculation pressure over nearby agricultural land, decreasing agricultural production due to expectation of urban growth (land development rights), and urban sprawl. Planning practice in Turkey is still not compatible with shrinking cities, cities with decreasing population.

2043 1/100000 Scale Konya Environmental Plan was produced by the Metropolitan Municipality[146] in 2016, only three years after the same scale plan of the Ministry of Environment and Urbanization. This plan replaces the previous 1/100000 and has become the frame for development. The vision of the plan is promising; "higher quality of life both in urban and rural areas" and proposes a more even development for the province, for all settlements. The plan is highly sophisticated and one of the pioneer examples of the new era of spatial planning in Turkey: the era that started with law no 6360. Compared to the previous plan, it is more balanced in terms of decisions made over rural and urban settlements. The planned populations for districts and core cities of districts are also relatively more realistic. On the other hand, the problem of planning shrinking cities with declining populations continues with this plan as well.

For 21 districts with declining populations both in district scale and in city scale, the plan proposes development more than 120% some even going up to 300%. The average of the percentage of proposed population increase is 160% which is still high for a province with declining peripheral population (please see Appendix K for further comparison in detail). Yet, this is also the positive side of the plan, since previous partial plans were proposing much higher populations for each city (2043 Plan Report, 2016). If we sort the plans according to proposed populations and land development, partial plans prepared by district municipalities are highest of all. It is followed by the plan proposed by Ministry of Environment and Urbanization and the least of all is the 2043 Plan. Hence, this can also be considered as a positive effect of law no 6360, since it is the basis of authority of Metropolitan Municipality in producing province scale comprehensive environmental plan.

Settlement Patterns are under impact of many forces, economic, social, political, and spatial. We cannot be able to measure the impact of 2043 Plan yet, as a plan it is relatively balanced and is not suffering heavily of methodological cityism. Plenty of decisions were made on rural, small scale and peripheral settlements and this might have some positive effects over the settlement patterns via favoring middle and small-scale settlements. This is only possible if the only service that is provided in rural, small, peripheral settlements is not the

[146] Planning act was contracted out to a private planning office, Ege Plan.

urban land development. There is nothing productive with the construction economy, and this vicious circle should be broken in every scale, from small settlements to nation.

5.2.3 Agricultural Production in Konya Plans

The planning history of Konya province can be divided into two phases regarding the impact on agricultural production. The first five plans are in the first phase with external impact on agricultural production while the last two plans are in the second phase with direct decisions made on agricultural production. The first structural difference between the two phases is the scale of the plans. First five plans were produced mainly for the settlement area of the city of Konya. The land uses proposed in the plans are all urban and the agricultural land uses are out of the borders of the plan. These borders were also municipal borders and what is municipal was regarded as urban and what is urban is regarded as non-agricultural in that era of planning discourse. The second structural difference stems from this perspective. Agricultural production was a field where decisions are not urban, hence it was not a part of urban policy produced in municipal borders. Building upon these two structural differences it can be deduced that the first phase affected agricultural production externally without direct decisions while the last two plans affect internally with direct decisions.

The first phase of planning consists of 1946 Beautiful City plan, 1954 Revision Plan, 1965 Konya Development Plan, 1984 Konya Environmental Plan and 1999 KonPlan 2020. City of Konya is historically located on first- and second-degree prime farmland (Bank of Provinces, 1964). First and second-degree agricultural lands are concentrated in the southern and western peripheries of the city and 1946 and 1954 plans proposed development on these directions (Akseki & Meşhur, 2013). The 1965 plan on the other hand, in order to solve the problem of the consumption of prime farmland, directed urban development to the northern and western peripheries, yet the surrounding land on the northern and north-western parts were also second degree agricultural and there was also low density residential land use proposed on the first degree farmland on the west side (Akseki & Meşhur, 2013). The inevitable result of this phase of planning was consumption of agricultural land surrounding the city. The scale was not as dramatic as today since transportation technologies, namely car dependency was not dominant back in those years. Therefore, sprawl is limited, and the scale of the urban form remained relatively compact and small. The plan decisions were still controlled on the southern part. On the other hand, the urban development was exceeding the plan boundaries and unauthorized production of land continued the southern fertile land. The implementation processes of spatial plans were always problematic in Turkey and some decisions never implemented. Especially decisions like green corridors, or limitations on development usually could not find a chance

to be implemented. Same problem happened in the implication of 1965 plan and the green corridor decision alongside the limitations on the southern lands were not realized.

Same trend continued in 1984 plan and most of the development was directed to the northern part of the periphery. The new urban form proposed in the plan was more than twice the size of the previous urban form and the added area was almost totally on the northern part. The plan decisions supporting growth on the northern part and limiting it on the southern part were not successful enough to conserve the fertile land on the southern part and the area developed (Akseki & Meşhur, 2013). As a result, 1999 plan KonPlan 2020, partially accepted this and added this developed area (in an unauthorized fashion) to the plan boundary. With this plan the planned population exceeded realized population significantly for the first time and the form proposed was far from being compact. The consumption of prime farmland continued. This was the last plan solely focusing on the city of Konya.

The last two plans, the 2013 Konya-Karaman Environmental Plan by Ministry of Environment and Urbanization and the 2016 Konya Environmental Plan by Konya Metropolitan Municipality are highly parallel in decisions since both plans are produced by the same planning office (Ege Plan). Both plans cover whole province, the second one getting the authority from the 6360 Law. Hence, there are interventions to agricultural areas and rural settlements in peripheral parts of the province as well. Agricultural production became central in decisions and especially in the last plan produced by the Konya MM, there were detailed decisions on rural settlements (as the units of agricultural production). Organized agricultural production regions for both plant and livestock production were proposed in both plans (Konya MM, 2016; Ministry of Env. and Urb., 2013). Among 48 goals, seven goals of the 2013 Plan produced by the Ministry is directly on agricultural production and rural development. The majority of the remaining goals were on conservation and utilization of environment and natural resources. In the last plan, 2043 Konya Plan (Konya MM, 2016) specific decisions developed for 3 sectors: agriculture, service and industry and there are plenty of decisions on agricultural production. Alongside conservation of agricultural land, with supporting and encouraging irrigation and land consolidation projects, improvement of agricultural land is central for agriculture sector decisions. In sum, these plans are highly agricultural as well as being urban. The redefinition of municipal borders, the expansion to provincial borders in other words, ended with a collision of urban and agricultural land uses on the same plane within a single, unified plan. The results will be harvested and interpreted in the future, but there are both possibilities and risks contained in this process.

5.3 Urban Policy in Konya: The Black Box of Production of Space and Agricultural Production

The public administration and local government system functioning in the market dominated capitalist society is substantially complex. In this study, we will be focusing on the agricultural production, settlement pattern and urban form related policies. To unveil the black box of urban policy planning in the case of Konya and the impact of 6360 Law on Metropolitan Municipalities in the process, players, power structure, the process of an agricultural land transforming into an urban plot and the map of regulations and players effective on the geography of Konya province will be analyzed and studied.

5.3.1 The Players in Konya

5.3.1.1 Public Players

The case of Konya, the ideological capital of conservative right of Turkey with mayors and majority of municipal councils from the same party with the central government, the structure works with much less tension than the metropolitan provinces belonging to opposing parties. Therefore, in the case of Konya, ideological differences and differences in political approach between the central and the local is not a variable at all.

The administrative system of public players is substantially complex, and this complexity is summarized in the contextual explorations chapter of this study in national scale; therefore, I will be taking the case of Konya province as a reference point for this part from this point on and illustrate the details of this complex system in the case of Konya.

Elected central bodies relevant for Konya are, President with presidential decrees, presidential orders, the Policy Councils, and the Parliament with 600 Members. Among the 2293 presidential orders enacted between 14.07.2018-03.08.2022, 54 of them are directly for Konya and among these 54, 18 of them are urgent expropriation orders for energy production and production of space (mevzuat.gov.tr, 2022). 8 of the orders are about conservation status changes (diminishing the more powerful First-Degree Natural Sites into Fragile Conservation Zones to be Protected), 3 of them are about a local industry zone, another one is on land consolidation in a hyperlocal scale, 9 them are about production of space in hyperlocal and local scales with either risk zone or renewal status given to urban fabric in hyperlocal scale (mevzuat.gov.tr, 2022). Majority of the decisions are hyperlocal and partial and do not reference the Master Plans of the Konya, or any plan of any scale. A highly centralized form of deregulation in planning takes place.

The Ministry of Internal Affairs, the Ministry of Environment, Urbanization and Climate Change, the Ministry of Agriculture and Forestry, Strategy and Budget Department of

the Presidency (former Ministry of Development) and the Ministry of Energy and Natural Resources are the five core ministries/bodies relevant for settlement patterns, agricultural production and production of space. There are plenty of directorates and departments under these ministries, yet they are not listed all, instead with the case of Konya Province and the three pillars of the study in mind.

For the case of Konya, solar energy is highly significant, and Konya is the province with largest potential, infrastructure, investment and area for solar energy. Therefore, the directorates of renewable energy works, energy works, and mining works are players as well. Since electricity is fundamental for urbanization and agricultural production (irrigation), affiliated incorporated companies of electricity production, electricity transmission, electricity distribution is also included in the process.

The ministries summarized above have also local branches working in local governments scale with devolution of authority principle. Two regional scale bodies, Konya Plains Project Administration (KOP) and Konya-Karaman Regional Development Agency (MEVKA) are under the control of Ministry of Industry and Technology and these two bodies are highly significant for decisions on regional scale and the flow of public capital for development and service provision (especially water in the case of KOP) to the province. Konya-Karaman Regional Development Agency (MEVKA) with its departments of Konya investment support office, research, survey and planning, program management and monitoring and evaluation, produces regional economic plans directing the development over economic geography and among sectors, implements and supports these plans and directs the flow of capital in the geography and among sectors with supports. In the case of Konya, for small scale district municipalities with limited budgets, the shares collected for MEVKA Regional Development Agency might be problematic. For instance, the Mayor of Altinekin even claims that MEVKA should be abolished, since they cannot be able to get the service, they need in exchange of the share that is cut from the municipal budget (Yeni Haber, 15 August 2017).

Konya Plain Project Administration (KOP) is a unique administration established for Konya Endorheic Basin at first and now covering Konya, Karaman, Kirikkale, Aksaray, Nigde, Nevsehir, Kirsehir and Yozgat provinces with a focus on water problem of and agricultural production in the region. Both KOP and MEVKA defines their role as diminishing the unequal geographic development within the region and they both coordinate investments and funds flowing to the region. KOP has a specific focus on agriculture and irrigation while MEVKA is focusing on development and supports for small and medium scale enterprises. KOP covers 8 provinces while MEVKA is effective only in Konya and Karaman. KOP was established in 2011 with a statutory decree (642). The financial resources of the body are donations from the

national budget, all kinds of donations, grants and credits and revenues of KOP. There are four administrations in this status, KOP, South-East Anatolia Project Administration (GAP), East Anatolia Project Administration (DAP) and East Black Sea Project (DOKAP). The relevant departments of KOP are agriculture and rural development department, economic development, industry and services department, planning and project development department and monitoring and evaluation department. The authorities and responsibilities of KOP and MEVKA partially overlap.

In the case of Konya province, there are 31 district governorates. Regional development agencies are also affiliated to governorates as well. Governorates with their affiliated bodies represents central government in the urban policy making process and regulates the process and coordinates the players.

Local bodies affiliated to Ministry of Agriculture and Forestry are Provincial Directorate of Agriculture and Forestry, 31 District Directorates of Agriculture and Forestry, Bahri Dagdas International Research Institute for Agriculture and Drought, Konya Research Institute for Soil, Water and Desertification Control, Agriculture and Rural Development Support Institution, Food Control Laboratory Directorate, Veterinary Control Institute and Altinova (Kadinhani), Gozlu (Sarayonu) and Konuklar (Sarayonu) Agricultural Enterprises. There are two research institutes working on agricultural production in Konya and both of them are highly productive in terms of research and implementation. Konya Research Institute for Soil, Water and Desertification Control manages Konya, Karaman, Aksaray, Niğde, Isparta and Burdur provinces and the functions of the body are soil and water protection and improving agricultural production in the region. Bahri Dagdas International Research Institute for Agriculture and Drought has a wider spectrum of functions from agricultural support to land consolidation. These functions are plant production research and support, education, livestock research and support, aquaculture research and support, agricultural basins, agricultural supports, rural development, land consolidation, land improvement and irrigation, land use changes in agricultural land, food and forage, risk assessment and agricultural insurance and natural disasters. These two bodies are substantial for agricultural production in the region and their functions are highly supportive.

The significance of Agriculture and Rural Development Support Institution is this body distributes Instrument for Pre-Accession Rural Development Program (IPARD) funds. Konya is among eligible provinces. This kind of international sources are significant for regional development and agricultural production in Turkey. Veterinary Control Institute provides health checks and services for the livestock in the province. 3 agricultural enterprise directorates in the Province, located in Sarayonu (2) and Kadinhani districts, are functioning as seed and breeding units for local crops, local livestock and germplasm protection (of genetic

sources). The total area of enterprises are 64424,5 hectares and, on this area, forage production, crop production, sunflower production, cattle breeding, sheep breeding and antelope breeding (for genetic protection) take place.

Another supportive body is the VIII. Region Directorate of State Hydraulic Works (DSİ) affiliated to Ministry of Agriculture and Forestry. Water and irrigation infrastructure in non-urban areas is the main function of State Water Works, and with the abolishment of village unions for service provision (for water and irrigation infrastructure provision) it is now the main body for water and irrigation infrastructure provision. Irrigation Unions, a major element of Turkish agricultural production patterns is also now under direct management of DSİ with appointed public officers following the 2018 change in the 6172 Irrigation Unions Law. With this change the boards of these unions have been abolished and replaced with DSİ officers.

With 6360 Law, Konya Metropolitan Municipality (KMM) has become the core of urban policy within this policy making structucture. KMM, after the enactment of the 6360 Law, has transformed into a body that is responsible of and authorized in the whole province (41000km^2) which is massively (x19.5 times) larger than the previous service area (2100 km^2) namely former municipal borders. Agricultural services department has been established, the assets and personnel of the SPA have been transferred to the KMM, the number of Municipal Council Members have increased to cover whole province.

District Municipalities (DMs) are the last public bodies. There are 3 core DMs and 28 peripheral DMs in the Province of Konya. 3 core DMs covers the core city, and they are also the ones with the highest capacity for service provision and municipal acts. Nearly all of them have a specialized technical works department (fen isleri), 16 of them have development and urbanization department and 13 of them have a real estate department. Ahirli, Akoren, Celtik, Derbent, Derebucak, Doganhisar, Emirgazi, Guneysinir, Hadim, Halkapinar, Taskent Tuzlukcu and Yunak DMs only have technical works departments with very limited number of workers (1-2 persons). 3 core DMs, Meram, Selcuklu and Karatay all have development and urbanization departments, real estate departments and environmental conservation control departments. Meram has urban renewal department and agricultural services department as well. Selcuklu DM has urban design department differently from all other districts. There are seven DMs with agricultural services department: Meram, Beysehir, Çumra, Doğanhisar, Eregli, Kulu and Selçuklu. There are two DMs with rural services department: Beysehir and Seydisehir. 5 DMs, Meram, Selcuklu, Karatay, Bozkir and Cihanbeyli have environmental conservation and control departments. Kulu and Karatay DMs have climate change and zero waste departments and Eregli has a wholesale market department uniquely different from other districts. The services in DMs lacking the relevant departments are all provided by MM.

All bodies analyzed in contextual explorations chapter international and supranational players part have plenty of Projects on Turkey and apart from IMF and UN-Habitat, all bodies have projects conducted in Konya Province.

5.3.1.2 Supranational Players

In the case of Konya, small and medium scale enterprises are funded, land registration and cadaster system is modernized, solar and wind energy production is supported, railway infrastructure is restructured and Tuz Lake gas storage facilities and pipelines are provisioned with the help of 8 IBRD projects. Another affiliated body of the World Bank operating in Turkey and in Konya is the International Finance Corporation (IFC) with a total of 331 projects in Turkey. In the case of Konya, there are 11 IFC projects on wind power plants, solar power plants, finances, health and education.

In the case of Konya, UNDP supports solar energy production in forest villages, Syrian Refugees, local administration reform and there are projects of UNDP on Konya-Karaman Development, Goksu-Taseli Watershed Development, Nomadic Yoruk (Sarikecili) Tribes on Taurus Mountains and Agricultural Development. IFAD conducted projects on applied research institutes capacity development, Goksu-Taseli Watershed Development in Konya. In Konya, FAO conducts projects on sustainable land management in Konya closed basin, climate friendly agriculture, forestation of drylands, Farmer Field Schools (FFS) and medical and aromatic plants. In partnership with GEF, FAO also operates Ecosystem Based Adaptation to Climate Change in Steppe Ecosystems Project in Konya. With the Instrument for Pre-Accession Assistance (IPA) tool, EU supports Wastewater and Solid Waste projects in Konya and with Instrument for Pre-Accession Assistance for Rural Development (IPARD) medical and aromatic plant production and vegetable and fruit production.

In Konya Endorheic Basin, Conservation Agriculture (soil surface protection in annual and perennial crops - tillage prohibited, groundcover encouraged) is encouraged by ECAF. Worldwide Fund for Nature (WWF) works on strengthening local communities for conservation, protect and restore species and habitats and in the case of Konya operates in two areas: Konya Endorheic Basin for conservation of nature, species and habitat, and Konya Taurus Mountain Forests for conservation.

World Trade Organization (WTO) regulates the international market for agriculture and coordinates the trade in global scale. The agricultural production market of Turkey and Konya acts within the frame set by WTO. European Union's Common Agricultural Policy (CAP), United States' Agricultural Policy and other countries' do not have direct interventions to Konya Province, yet they are the ones that construct the structure that Konya and Turkey

markets play. There are two RAMSAR protected areas in Konya (Meke Maar-Lake and Kizoren Sinkhole).

5.3.1.3 Civil Players

There are plenty of civil players in Konya. It is practically impossible to list them all, therefore, we will be sampling with the ones that are most visible in Konya.

There are four universities in Konya (2 public and 2 private) and the oldest university in the province, Selcuk University (1975) has plenty of departments related with urban and agricultural policies. One of the universities is Food and Agriculture University showing the significance of agricultural production for Konya. There are 22 agricultural production related departments and 5 urban policy related departments in the four universities. Selcuk University is central to Konya research, studies and is a significant consulting body for local governments. Three of the universities are established after 2010. These four universities provide educated labor force for agricultural production and urban growth.

There are two groups of chambers active in Konya (and in Turkey), first one is the chambers of sectors and the second one is the chambers of professions. Some National and Regional Scale Organizations working in Konya in urban and agricultural policy fields are Researches on Rural Environment and Forestry Problems Organization (KIRCEV) (1989), Bugday Supporting Ecological Living Organization (Bugday) (1990), The Nature Conservation Centre (DKM) (2004), Ecology Collective Organization (EKD) (2001), The Nature Researches Organization (1998), The Nature Organization (DOGA) (2002) and Conservation of Natural Life Organization (DHKD&WWF-Turkiye) (1975). There are plenty of other organizations as well. These organizations mainly function in conservation field. Majority of organizations are established after 1980s and they are the third-generation civil players. There are 126 Local (Konya) Scale Organizations working in urban and agricultural policy fields. 28 organizations are functioning in food, agriculture and livestock fields, 36 are functioning in settlement, development and urbanization fields, 32 are functioning in environment, natural life and animal conservation fields and 30 functioning in relevant professional and cooperation organizations.

The fourth group of civil players, the foundations are highly significant for the urban life in Konya since the Ottoman era of the city. In history, even the municipal services were provided by foundations (Konya MM, 2018). The fields of act for foundations vary from social relief to education and service provision. Majority of foundations are working in social relief and cooperation in the case of Konya and there is a total of 289 foundations (Memleket, 2009). Some National and Regional Scale Foundations that are conducting projects in Konya are The Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of

Natural Habitats (TEMA) (1992), The Foundation for the Protection and Promotion of the Environment and Cultural Heritage (ÇEKÜL) (1990) and Turkey Environment Foundation (TCV) (1978).

Agricultural producers' associations operating in Konya are dairy, meat, cattle breeding, sugar beet, sunflower, crops, vegetables, fruits, honey, mushroom, greenhouse, crop, forage and egg producers' associations. There are a total number of 51 agricultural associations in the province and majority of them are dairy (23) and meat (8) associations. Majority of them are established after 2005. The food producers' associations active in Konya are sugar (1997), floor (1979), oil (1975), processed food and retail (2012).

There are five main groups of unions organized in Konya in urban policy and agricultural production related fields. These are farmers' unions, agricultural workers' unions, construction workers' unions, food industry workers' unions, energy, water, and gas workers unions. The unions active in Konya are Farmers union (CIFTCI-SEN - 2008), Grain Union (HUBUBAT-SEN - 2005), Agricultural Workers Union (TARIM-IS – 1961), Construction Workers Union (YOL-IS – 1963), Sugar Industry Workers Union (SEKER-IS - 1953), Mining Workers Union (MADEN-IS - 1958) and Energy, Water Gas Workers Union (TES-IS – 1963). Sugar Industry Workers Union (SEKER-IS) is one of the largest unions in the province since Konya is the major sugar beet and sugar producer.

5.3.1.4 Market Players

The market players in the case of Konya with their roles are listed below. To draw a legible picture, statistics of market players are also given. Leading market players are the largest and the most dominant of market players in the province, Large, Small and Medium Sized Enterprises (SMEs) and Smallholder Producers (all market players with statistics), Cooperatives, Regulating and Auditing firms and bodies and Sectoral Support and Consulting Firms and bodies are also significant.

There are 98.405 registered farmers in Konya (Ministry of Food, Agriculture and Livestock, 2017) and 111.646 agricultural enterprises working in mainly wheat, barley, sugar beet and sunflower production. There are also 294 Livestock firms (Konya Chamber of Commerce, 2016). The average land size (the average size of the agricultural enterprises) is 11.4 decares in Middle Anatolia Region (where Konya province is located) and in Turkey the average land size is 12.9 decares (Yucer, et.al., 2015). The average land size of agricultural enterprises dealing with plant production in Konya is 98 decares which is among highest in Turkey and far above the average (Soylu, 2013). On the other hand, the agricultural land of enterprises is fragmented and the average number of parcels per enterprise in Middle Anatolia Regions 6.1, while for Turkey, it is 5.9 (Yucer, et.al., 2015). The number of agricultural

enterprises with a land over 100 decares is 30.4% of total number of enterprises while the 77.9% of the land is owned by these enterprises (Soylu, 2013). Therefore, the agricultural production in Konya province is dominated by large scale enterprises instead of smallholder agriculture. The plain geography of the region encourages this.

30% of the certified seed production in Turkey takes place in Konya and 70% of this production in three core districts (Celik&Nazli, 2014). 47% of this production is done through contract farming, 21% via leasehold land (Celik&Nazli, 2014). In 2006, with 5553 Seed Growing Law, the direct commercial transaction of local seeds between farmers is prohibited. This was one of the most significant changes in legislature and created plenty of problems including extinction of local and non-GMO species. The biodiversity of agricultural production in Konya and in Turkey is under risk and majority of certified seed production is producing hybrid seeds. Another problem of hybrid seeds (other than threatening the biodiversity) is most of hybrid seeds are patented and the harvest cannot be used for future planting as seeds (due to patent and usually unproductive seeds). Therefore, the farmers cannot produce their own seeds and now dependent to seed plant firms.

There are plenty of large agricultural firms in the region yet there are two major ones. First one is Konya Seker (Anadolu Birlik Holding – Pankobirlik), one of the largest cooperatives in Turkey producing sugar beets and wheat with contract farming on over 1 million decares and with 40000 farmers. Konya Seker also has 31.120 livestock (Konya Seker, 2018). Second one is Beta Ziraat ve Ticaret A.Ş (also an enterprise of Anadolu Birlik Holding - Pankobirlik) working on seed plants (hybrid corn, hybrid sunflower, hybrid sugar beet, wheat, barley, oat). There is a third major player that is newly emerging in agricultural energy field (biodiesel, canola): DB Tarimsal Enerji. DB Tarimsal Enerji now encourages canola production in the region.

Cooperatives are highly significant for agricultural production market in the case of Konya. The leading player, Konya Seker is a cooperative and moreover there are 79 agricultural cooperatives with 13.287 members in Konya (TARIM-KOOP, 2018). 2 of these cooperatives are sugar beet cultivators' cooperatives and they are affiliated to Beet Cultivators Cooperatives Union (Pankobirlik). For financial and marketing purposes, there are 61 Agriculture and Credit Cooperatives in the province (Tarim Kredi Kooperatifleri, 2018) and for irrigation purposes, 328 irrigation cooperatives with 31.512 members. 13% of all irrigation cooperatives in Turkey are located in Konya and Konya is in the first rank with this number.

With 7 commodity exchanges, Konya is the major province where the prices of wheat, barley and corn is set (TOBB, 2018). Two other regulating and auditing bodies and firms are Environmental Impact Assessment Reporting firms (for meat production, oil production, dairy production, fermentation and malt facilities, sugar factories) and authorized organic

agriculture certification companies. There are 320 Environmental Impact Assessment Reporting firms in Turkey and 10 in Konya. The number of authorized organic agriculture certification companies in Turkey are 46. Ziraat Bankasi (agriculture bank) and Seker Bank (sugar bank) are among relevant financial bodies and agricultural insurance companies are also market players.

Konya is the leading city in agricultural equipment and machinery production in Turkey with a percentage of 65% of all production (Ozcelik, 2013). There are 446 agricultural machinery and equipment industry firms in the province. Total number of agriculture-based industry firms are 3202 and 17.2% of all firms registered to Konya Chamber of Commerce (2016) are agriculture-based industry firms. There are 249 agricultural inputs (fertilizers, chemicals, etc.) firms (KTO, 2016) and 28 cold storage industry firms with 9 cold storage depots in the province (www.bulurum.com, 2018). Konya Seker is a major agriculture-based industry cooperative in the province, and also the leading player in the field with sugar production. With agricultural machinery production Tümosan Motor ve Traktör Sanayi A.Ş. is another leading player. Ova Un Fabrikasi and Hekimoğlu Un Fabrikası Tic. ve San. A.Ş are two leading players in floor production, Enka Süt ve Gıda Mamülleri San. ve Tic. A.Ş. and Akova Süt ve Gıda Mamülleri San. ve Tic. A.Ş. in dairy production. Leading agriculture based and related industrial production fields are sugar, flour, agricultural machinery, and dairy in sum.

There are 800 registered and 1100 total real estate agents (Konya Chamber of Real estate agents, 2016) in Konya and 6 of 11 tax champions in first 20 are getting their income from renting and leasing (Konya Tax Office, 2015). The revenues are high in this market and there are a specific kind of players in the field: the profiteers (karcilar). The profiteers are buying and reselling land in short terms and medium terms and churning the market (interviews with MM public servants, 2015). Most rent, as a social product, in Konya is collected by these churning profiteers. There is no data on the subject, yet with the rapidly increasing land prices in the province (especially on the periphery of the city of Konya) the result of this phenomenon is highly visible. As a regulating and auditing body, there are 3 real estate value assessment firms in the province yet since there is no control over land prices and land pricing mechanisms, the phenomenon continues.

Konya construction market is among large ones in Turkey. There are 1885 contractors, sub-contractors and construction firms in the province, and this is 10.1% of all Konya Chamber of Commerce Members for the year 2016. As an agricultural and industrial city, the percentage of agriculture-based industry firms was 17.2% and not that much higher than the construction firms' percentage. There are also 1518 construction inputs and materials firms in the region (KTO, 2016) and when combined the percentage is close to the agriculture-based

industry. Therefore, construction market players in total are nearly as powerful as agriculture and agricultural industry players in urban economy. Like agricultural production, cooperatives are significant in construction market. There are 225 construction cooperatives (Konya Chamber of Commerce, 2016) and 2.6% (10.284 buildings) of all building stock in the province belongs to cooperatives (TURKSTAT). The leading player in construction market is not a market player but a public player interestingly Housing Development Administration (TOKI). With 88 projects and 22.062 housing units and 1 agricultural village mass housing project, (76 units Imrenler) (TOKI, 2018) TOKI is the player with the highest number of housing provision. The second largest player is a local (now operating in national scale) firm Seha Yapi (Ittifak Holding) with 5871 housing units as of 2018. Seha Yapi is a contractor firm working for TOKI as well. There are 272 building auditing firms and 183 architecture and city planning firms in the province. Ziraat Bankasi, Is Bankasi, Halk Bankasi, Vakif Bankasi, Yapi Kredi are some banks giving contractor credits and construction insurance firms are also significant for construction market.

There are 2056 energy and mining firms in Konya (Konya chamber of commerce, 2016) and these are the 11% of all commerce members. 141 registered coal mining firms are operating and there are 54 power plants in the province. With power plants, Konya Seker is one of the leading players in this market as well. Eti Aluminum and energy (Cengiz holding) is another major player in the province. With newly rising solar energy production in Konya (especially Karapinar region) Kalyon (national)-Hanwha (Foreign) Solar Energy Group is newly emerging leading player in the field. The largest solar energy power plant in Turkey is established by Kalyon-Hanwha in Karapinar. There is also a cooperative in the process of establishment in the region: Konya Renewable Energy Cooperative. Solar energy production is among newly rising contesting land uses for agricultural production. The amount of land needed for solar power plants is massive and hence it will be the issue of the future for the province.

The environmental impact assessment required for major investments in these fields is privatized in Turkey and there are 3320 Environmental Impact Assessment Reporting firms in Turkey and in Konya the number is 10. Mining and Energy production projects are required to have environmental impact assessment reports produced by these firms, yet the price of the report is paid by the investors (the ones that are required to provide a report) therefore the process have reliability and credibility issues.

5.3.2 The Map of Players on the Space of Konya

The land use in provincial scale alongside administrative borders defines authorized public players. With law 6360 on Metropolitan Municipalities, MMs are authorized in all parts of

provinces except for Organized Industrial Zones, military zones, and mining zones, specially regulated zones so on and so forth. The structural decisions in whole province are made by MM. Ministries with their central organization and provincial branches are authorized over relevant areas. Market players are active in nearly all parts of the province apart from military zones and the areas not suitable for commercialization. International and supranational players have indirect but visible regulatory effects over the geography. Civil players usually are monitoring, criticizing, and negotiating the decisions over space and people dwelling on this space. The geographic distribution of players is defined by administrative borders, land use, geographic features, locations of natural resources and conservation zones. These borders, zones and land use with relevant players is summarized in the map below.

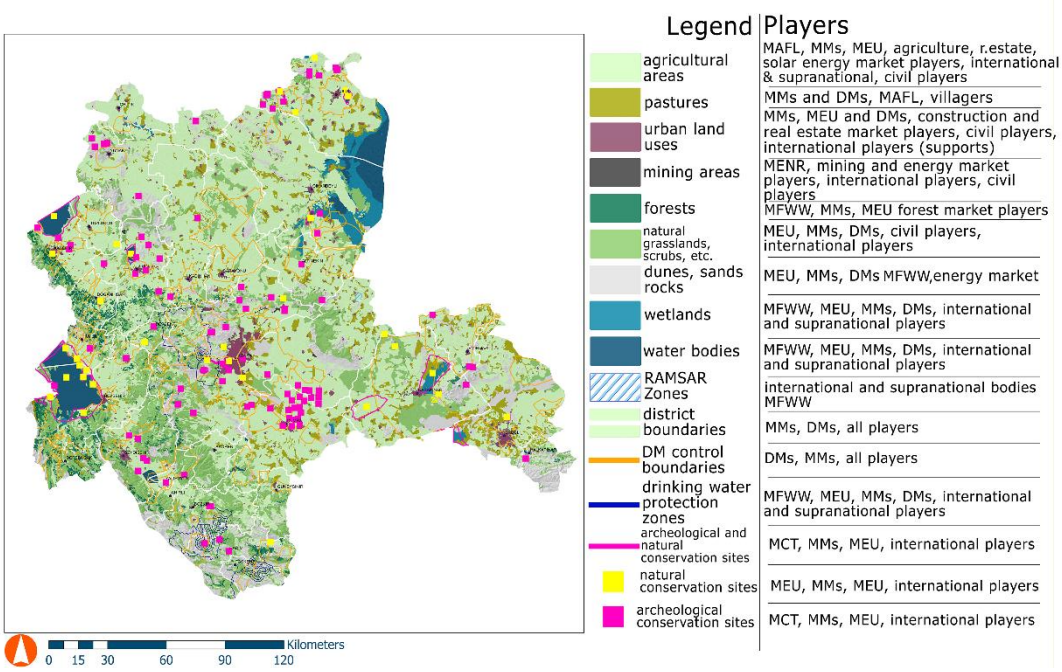

Figure 86 The Map of Players in Konya

Majority of land is agricultural with varying degrees and MM and Ministry of Environment, Urbanization and Climate Change (MoEUCC) are the public players that have decisive power over the land use of these areas. Ministry of Agriculture and Forestry (MoAF) is the permitting public player for future land use changes. Agricultural, real estate and energy & mining market players are also effective over the area. International and supranational players affect regulations and agricultural production and marketing conditions while civil players represent farmers, or public in general. Pastures are a specific kind of agricultural land; they are the rural an agricultural commons of the villages and their status is defined separately. With 6360 Law, their ownership is transferred to MMs and DMs and with changes in 4342 Pastures Law, it is possible to develop land in pasture areas. Villagers still have right of use according to the law, yet, in some cases the pressure of development prevails.

In settlement areas of cities and villages, MMs, DMs, MoEUCC, Housing Development Agency are authorized for production of space. Previously it was DMs, Special Provincial Administrations (SPA) and MoEUCC in district cities and SPA in villages. Settlement areas are the focal points of production of space and agricultural production. Agricultural production today is a highly urban act since large settlements are the main consumers of products. All players are located and operating in these areas. In comparison with agricultural areas, settlement areas are tiny in the province, yet these areas with their social, economic, and political layers. Mining and energy production zones are also similarly urban. For these areas Ministry of Energy and Natural Resources are the key public players. Mining and energy market players and international players are also significant. For the case of Konya, especially solar energy market players and supranational bodies' supports are highly important. In wetlands, water bodies, forests drinking water catchment areas, dunes, sands and rocky areas and two RAMSAR (international charter on wetlands) zones (Kizoren sinkhole and Meke maar), MoAF is authorized. Apart from RAMSAR zones protected with international regulations, MMs and MoEUCC are also authorized in these areas if the permissions are granted by the Ministries. The DMs municipal borders are also expanded to district borders with the Law. There are plenty of archaeological conservation sites in Konya. The settlement history in the province dates back to Neolithic era in Catalhoyuk and the site is under UNESCO protection. Ministry of Culture and Tourism is authorized in these areas and with development in mind, MMs and MoEUCC also use some authority if the needed permissions are granted. Public players are not monolithic, local and central governments are multiplayer complex structures with antagonistic and synergistic parts. Market players are effective over most of the geography. In places where capital does not flow, it is the absence of capital that creates problem. Civil players are organized in majority of the geography, yet the representative power and negotiation power of these players varies depending on the player and the area. International and supranational players are directly and indirectly involved in the process. With supports, projects, funds, regulations, and charters directly, and with market regulations, conditional lending and policy frameworks.

5.4 Cycles of Production of Space and Agricultural Production in Konya

The structure of the game for both agricultural production and production of space is highly complex and multilayered. This part is an attempt to abstract and structurally summarize the two circuits of capital in these two games. The circulation and accumulation of capital and the regulations limiting, enabling, and encouraging these two will be analyzed separately for agricultural production and production of space. Up to now, I was working on three pillars, namely, agricultural production, urban form, and settlement pattern. Settlement

pattern is an element for both production of space and agricultural production since the first one depends on demand in urban cores and the second one is affected from population movements on the geography. Hence, these two circuits are linked to each other with population migrating, consuming, and working as labor power. Another contact point of these two circuits is land. Both circuits take place on the geography and utilizes land. These struggle on land uses related with agricultural production and production of space is invisible and statistical in provincial scale, yet on the periphery of the core, the encounter becomes visible and concrete. Other than labor and land, there are also shared inputs for both such as energy and water utilized and the capital as the trigger of the processes. Within this dialectical frame, the two circuits are summarized in the two parts below.

5.4.1 Agricultural Production Cycle

Land, labor, capital, the three factors of production are the core of agricultural production. Agricultural production process is central to this circuit yet there are two other production processes in the circuit. These are agriculture-based industry using the agricultural products as raw material and agricultural inputs and means of production industry including the agricultural machinery industry, energy production and forage, fertilizer pesticide and medicine industries. Before the industrial revolution in the agricultural production circuit, there was a natural cycle in agricultural production between plant production and livestock. Forage was the output of plant production and directly utilized in livestock production while the waste of livestock was natural fertilizer for plant production (Aysu, 2015). This cycle is broken by the industrialization, commercialization, and corporatization of agricultural production. Today forage and fertilizers are produced in separate industrial cycles by large scale factories while smallholder farming struggles with this dependency (Aysu, 2015). A similar interruption had taken place in seed production as well. The seed was produced within the natural cycle of plant production, farmers were utilizing a part of the harvest to cultivate and sell and buy seeds within themselves. After the acceptance of 5553 Seed Planting Law in 2006, the farmers' trade of seeds is prohibited. Moreover, most of the seed production now is under control of international market players and majority of production is hybrid and patented, meaning cannot be cultivated next year, and farmer has to buy new seeds from the international market players. Also, local seeds are now under risk of extinction since these system encourages mono-culture in agricultural production.

Konya is a province where 30% of all seed production in Turkey takes place and 70% of this production is located in around three core districts, Selcuklu, Meram and Karatay (Celik&Nazli, 2014) and there are plenty of large-scale seed planters in the area. Periphery of the city of Konya, where this seed production takes place, is under high pressure of urban

growth. Also the seeds are most likely to be contaminated with urban and industrial pollution in the city of Konya. This is also a sign that seed production is now more of an industrial production than agricultural production. Similar to Organized Industrial Zones (OSB) the seed plants are located in the vicinity of the city. Within this frame, with the broken natural cycles of plant – livestock production and seed production, the rescaling in agricultural production is highly visible in Konya. The impact of 6360 Law, enabling the control of MM, a highly urban and methodologically cityist player, also a result of rescaling in urban policy and public administration, will likely escalated. MM has become a core player in the local game of agricultural production, the core cities and urbanization were already affecting and changing agricultural production, yet this change is likely to end with an increase in pace.

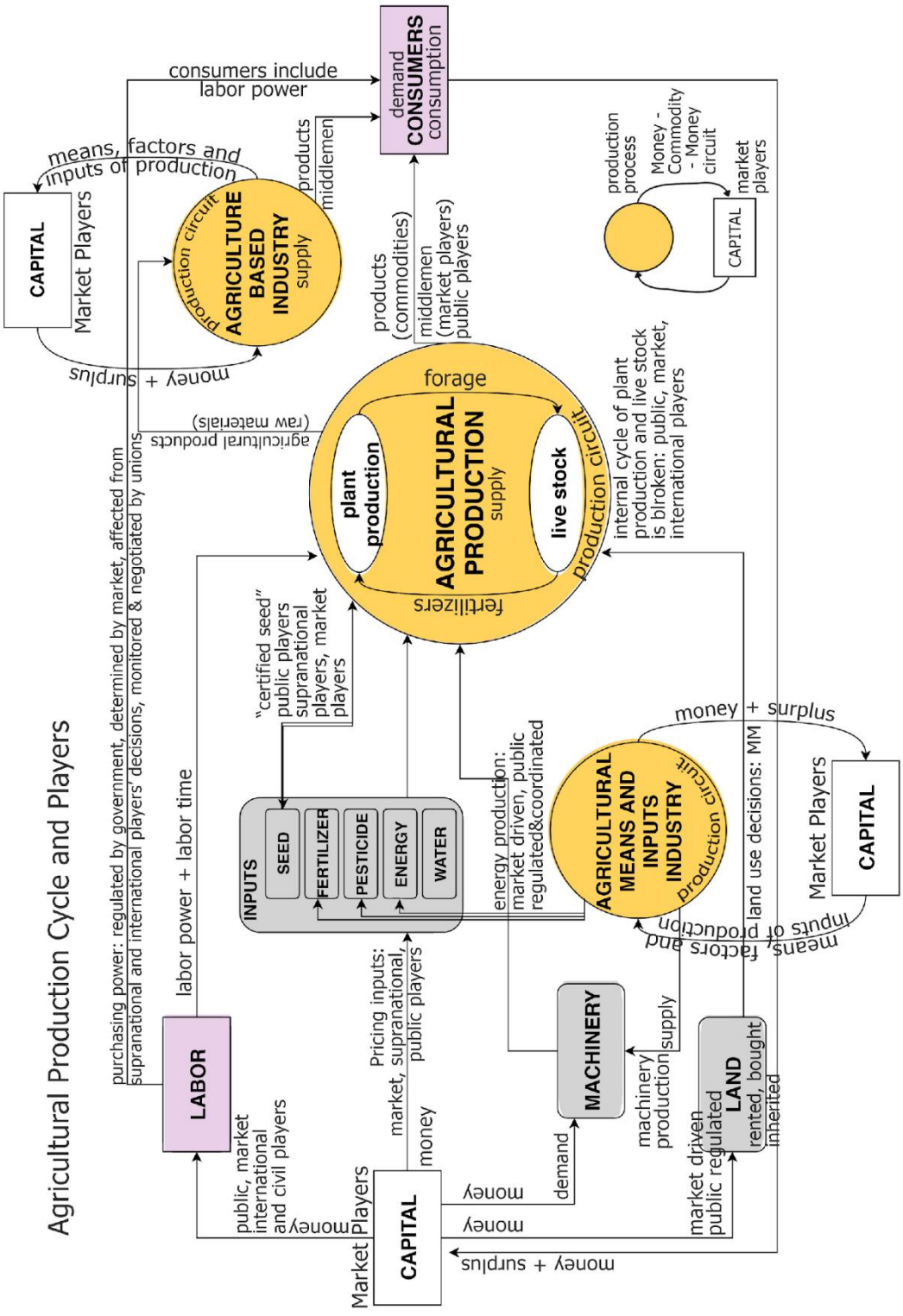

Figure 87 Agricultural Production Circuit and Players

This circuit of agricultural production is drawn with Konya in mind, yet this is the case in majority of metropolitan provinces in Turkey. The cycle is mainly driven by market players and regulated and coordinated by public players. The main role of civil players is to monitor, critique, represent their groups interests and to demand. International and supranational players are usually not directly visible in the game and the local game but highly significant. They affect regulations produced by public players, decisions by market players and they structurally frame the accumulations and circulations of capital.

The three elements of the main circuit are the capital, agricultural production process and demand-consumers. Whole flow chart is an interpretation of this money-commodity-money (M-C-M) (Marx, Capital Volume 1) cycle of this circuit. In order not to lose focus, the two other M-C-M circuits of agricultural production inputs and agricultural outputs industries are illustrated on the most abstract level. One of the factors of production, capital, starts the cycle with renting the labor power and labor time from labor force, buying machinery, renting, leasing or buying the land and investing in means of production: the inputs. For the agricultural production cycle, these are seeds, fertilizers pesticides, medicines, forage, energy and water. Apart from water, seed and forage, all are produced in agricultural inputs production cycle. Seed and forage are products of agricultural production cycle itself. Yet, the seed production is now highly industrialized with technological developments in genetics and therefore seed is now an industrialized agricultural product.

Seed industry has a strong bond with fertilizer and pesticide industries. The seeds produced genetically are dependent on specific kinds of fertilizers and pesticides. Therefore, the large-scale market players producing the seeds are also producing their compatible fertilizers and pesticides. This increases the dependency of farmers and smallholder farmers to these large-scale market players. The main target of these industries are large scale farming and Konya is one of the provinces with a large percentage of large-scale farming. The majority of agricultural land in Konya is plain and plain lands tend to have larger fields. The agricultural production in Konya is highly vulnerable against this rescaling of seed, fertilizer, and pesticide production.

With means and factors of production needed, agricultural means and inputs industry produces the means of production and energy in exchange of the capital invested and the surplus money. Machinery is also produced within this cycle and utilized by capital for agricultural production. Water is a natural resource and has close bonds to land, the geography, climate and the location of the land. Public players are the main players in water. The conservation-utilization decisions are made by public players, water infrastructure (irrigation system) for agricultural production is provided by public players mostly. Partially it is provided by cooperatives (as market players) in some cases.

Energy production is coordinated and regulated by public players and operated by market players and public players together. International and supranational players usually affect national scale tendencies and regulates energy production and consumption on a planetary scale. In the case of Konya, with supports from supranational players, and operated by global scale market players, solar energy power plants are increasing in number alongside wind power plants. Civil players are usually control mechanisms for over consumption of natural resources for energy production and for problematic and unrenewable energy production methods. They are not empowered enough to control and affect whole processes, yet they still have power over the game.

The conditions of capital renting the labor is regulated by public players directly and affected from international players, such as conditional lending of IMF or signed charters with supranational and international bodies. Market players are powerful over the conditions. Labor force is also consumers, and the purchasing power of labor force is significant for demand. The purchasing power of labor force is regulated by government and public players, determined by market, affected from international players' decisions and monitored and negotiated by unions (civil players). Labor is also one of the two major connections between agricultural production circuit and production of space circuit. The interruptions in agricultural production and the rescaling process heavily affecting smallholder agriculture (alongside other reasons) end with migration and concentration of population in urban core. Agricultural labor force is decreasing in Konya, and this is partially because of developments in agricultural production and increasing productivity but mostly of withdrawal from agricultural production permanently. Konya is the city with the largest percentage of agricultural production withdrawal since the number of farmers and amount of land are also the highest.

The second major connection between agricultural production and production of space circuits is land. Land and the accumulation of capital over the land are regulated by public players and driven by market players. With the law no 6360 on Metropolitan Municipalities, the MMs have become core players in land use decisions in provincial scale. Zoning is done directly by MM with environmental plan within the frame drawn by Ministry of Environment and Urbanization environmental plans. Ministry of Agriculture, Food and Livestock has an authority over agricultural land and has the authority to permit or prohibit development (urban growth, energy production, mining) on agricultural land. These contesting land uses are regulated by public players (relevant ministries against each other with antagonistic and synergistic positions) and driven by market players. Land consolidation, rescaling for larger scale production is controlled by Ministry of Agriculture, Food and Livestock while zoning and land allocation is controlled by MM.

With all these means and factors of production combined, the agricultural production takes place on land. The product, either consumed in raw form or utilized in agricultural-based industry as input. At this point, middlemen come to scene. The food and other agricultural commodities as products of agricultural-based industry and agricultural production are not directly served to consumers. There are plenty of middlemen working in between. Storing, transporting, wholesale and marketing are the functions that take place in this part. The price of the agricultural commodities and products rises in this stage. Storing and transporting are two highly geography-based functions in the process. Cities with strong transport and storage infrastructure are also powerful in agricultural production circuit. Konya is among those cities. The central location of the province and well-developed transport, production and storage infrastructure, Konya is one of the leader provinces in the Middle Anatolia Region. One of the five Anatolian Tigers in industry, the agricultural production, agricultural production-based industry and distribution of agricultural products and commodities is well-developed. These sectors are strong in local economy and therefore highly represented in urban policy as well.

5.4.2 Production of Space Cycle

The production of space includes production of housing, infrastructure, built environment in general with all kinds of land uses and developed and speculated land. Urban form is defined within this circuit. There are three interrelated production processes in this circuit. Apart from production of space, construction inputs industry and mining and energy production are two other production processes in the circuit.

The capital embedded in land with production of space creates money and partially surplus in earlier cycles yet, by its nature, this construction economy is unproductive if excess and in long term. Some parts of spatial investments on land, if it is accumulated for productive functions creates surplus. Yet, if the supply exceeds the space demand of the society, it becomes a consumption process rather than a production process. Turkey and Konya are fitting examples of this problem. In major metropolitan cities, the housing produced is excess. The problem here is, the housing produced targets middle, upper-middle and upper classes while the demand is higher for lower classes. In other words, there is excess housing and a housing shortage at the same time. Housing as a fundamental element of reproduction of labor power is not provided sufficiently and purchasable for the majority of labor force while there is also excess housing utilized as a financial means for investment.

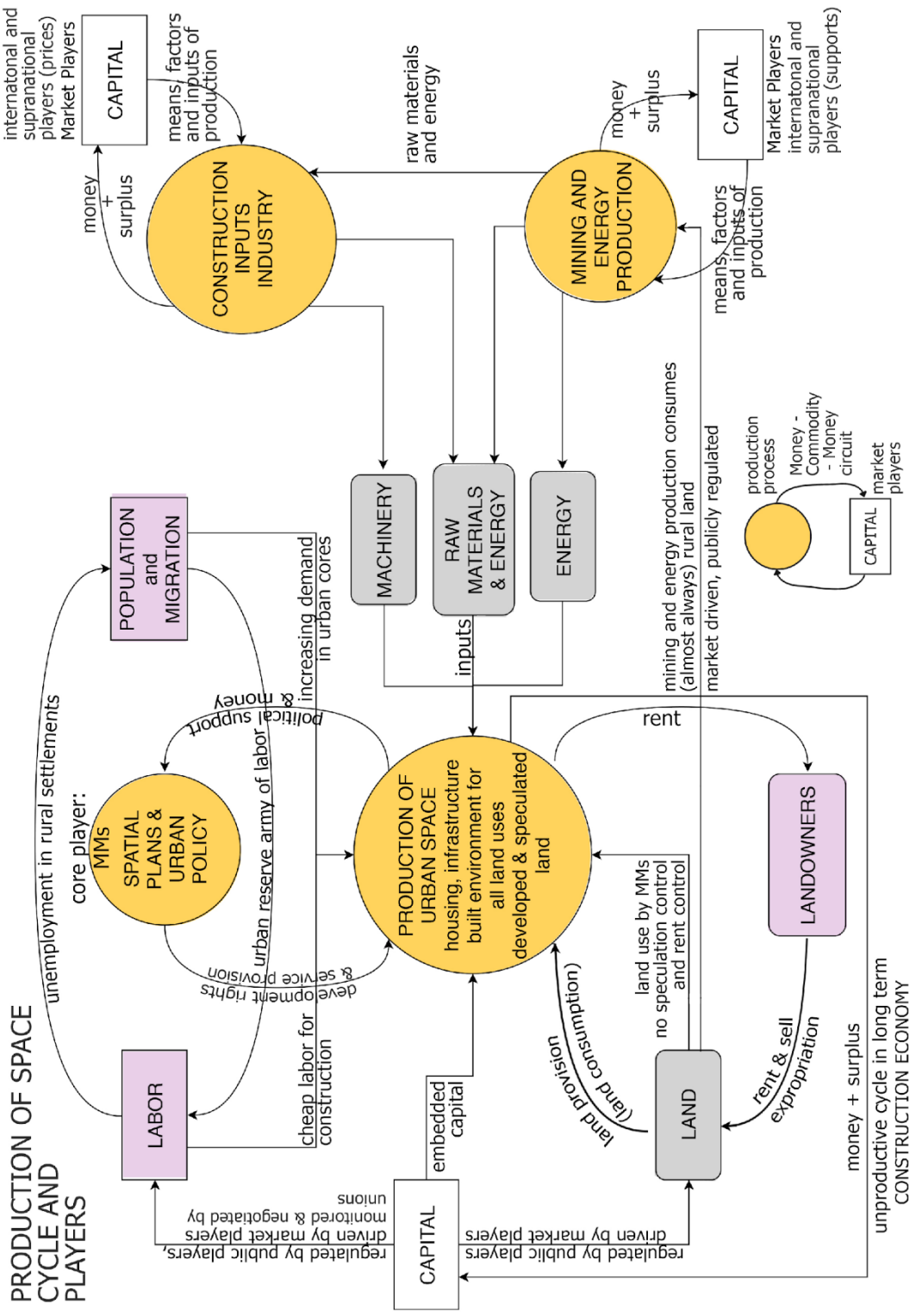

Figure 88 Production of Space Circuits and Players

Construction economy is strong both in local and in national scale. Their representational power is highest both in central and in local governments. There are mayors, ministers, high ranking public officials working in construction sector. This inevitably creates a tendency for more construction in local and national scale and re-regulation to ease and fasten the process. Construction inputs industry is the one of the two related production cycles. The prices of the materials produced are usually foreign dependent. For instance, recently the iron prices increased by at least 30% and even though the tax on iron is decreased by the Cabinet of Ministers, the prices did not fall. The increase stems from the changes in global market prices and the change is mainly driven by China. Turkey is an iron producing country yet since the prices increased in global scale, local producers export most of the iron to foreign markets and this created a shortage in national market (Emlakkulisi, 17.08.2017, Konya Yenigun, 17.08.2017). Machinery and raw materials are produced within this cycle under impact of international market players and by international, national and local market players. The process is regulated by public players, yet the prices are partially regulated via import taxes and other taxes.

Mining and energy production circuits are highly significant for production of space. The planetary urbanization shows itself very clearly in these spaces of production on rural and agricultural geographies. These two are also contesting for land similar to agricultural production and urban growth. Mining and energy production almost always consumes agricultural and natural land, and it is market driven. Public players regulate the process. Previously, the legal framework was limiting and conserving natural and agricultural land yet today, with mining and energy production sectors becoming too powerful with international and national market players and high level of representation in public players, the limiting power of the legal framework decreased. The cycle is supported by international players as well.

Land, the most contested part of the circuit of the production of space, is now mainly regulated by MMs with the law no 6360. MMs, as monolithic structures are key to the translation of government policies and dominant ideology into urban space. The capital flow to the land is regulated by public players and driven by market players. Land use is determined by MMs in metropolitan provinces within the frame drawn by environmental plans of the Ministry of Environment and Urbanization. Landowners are significant players in the process. They are a pressure group over urban policy and in the spatial planning process. Land utilized in production of space is either rented, bought or expropriated from the landowners, where usually it is agricultural field that is transformed into an urban plot. There are no rent and speculation controls over the land in regulations. Hence, there are land profiteers (karcilar) harvesting the rent accumulated from churning. Rent as a social product is highly privatized

within this process. In the case of Konya, karcilar – land profiteers collect vast amount of rent, and the prices increase dramatically because of these group according to Metropolitan Municipality (2015).

Plans usually encourage excess production of land for public support and because of market pressure. The excess production of land is not productive. On the contrary, since it is usually replacing (agriculturally) productive land, it is rather consumptive. Therefore, land provision, if exceeds a certain level, becomes land consumption. Land is one of the major connections in agricultural production and production of space circuits and the transformation of production into consumption is critic for this connection. Spatial planning and urban policy production processes are key to production of space. MMs use their authority in production of space via spatial plans and urban policy. In exchange of political support and financial revenues, MMs produces plans and creates development rights and provides services on land.

The second connection between the two circuits of production, labor, is the last factor of production that we will be dealing with. Unemployment in agricultural production and in rural – small scale settlements (alongside other reasons) results with migration and the population of the urban cores increases. This increase creates a pressure for production of more space by increasing the demand. The urban reserve army also increases in size by this phenomenon and the cheap labor force for construction sector increases. Construction sector is one of the sectors with least work safety and job security, therefore if not employed in service sector, or unemployed, the newcomers are usually employed in construction sector. With all these means and factors of production utilized, production of space takes place. Yet, unlike agricultural production, it is not always productive.

5.4.3 The Encounter on Land: From Agricultural Land to Urban Plot

The two circuits illustrated above in relation with each other drive the change of agricultural land into urban space. Back to basics, this study is produced to show the impact of the Metropolitan Municipality System (MMS) on agricultural production, therefore the exact transformation of land is illustrative. To take a closer look, the transformation of a single agricultural land into an urban plot is illustrated in this part.

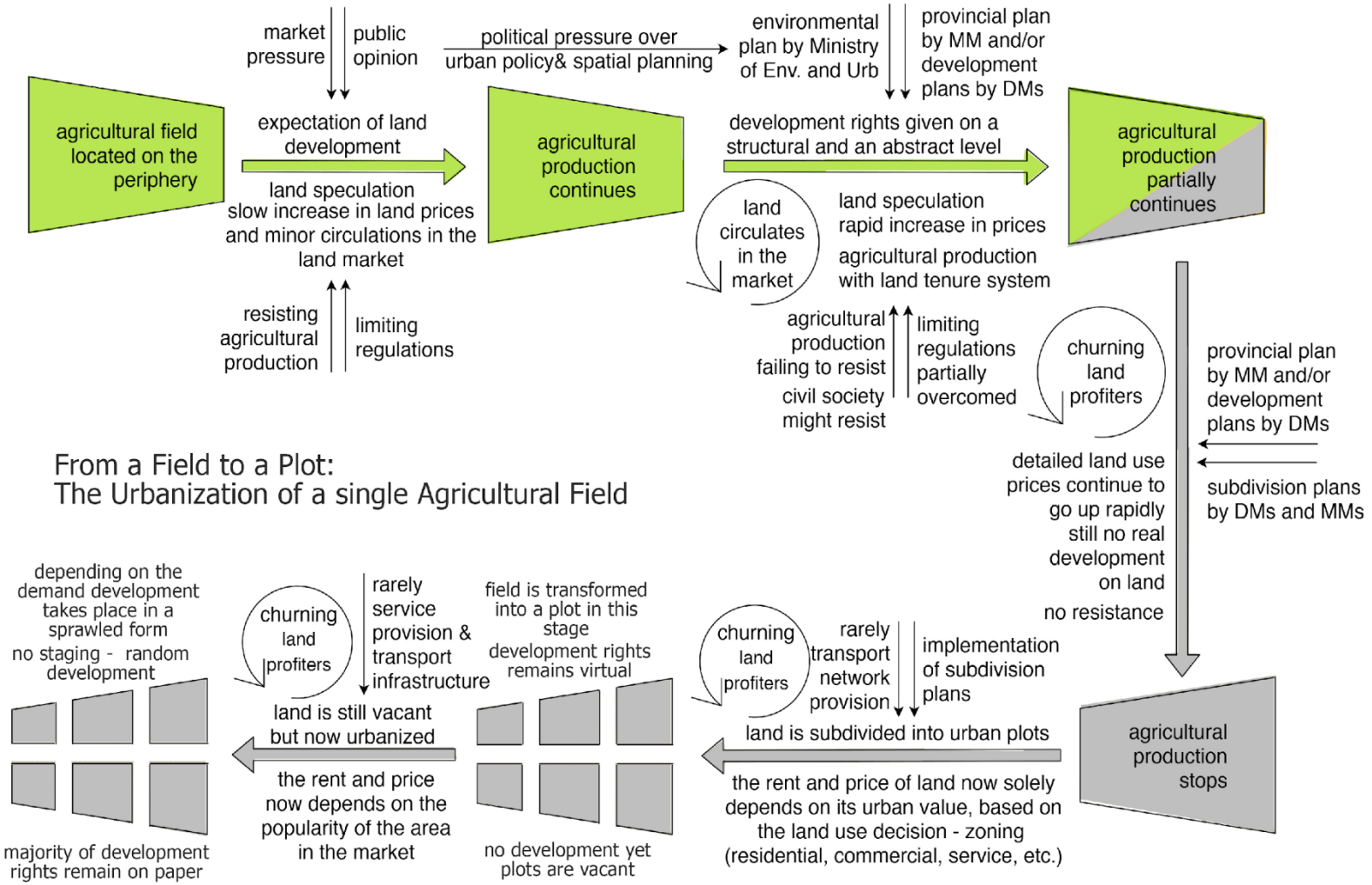

Figure 89 From Field to Plot: The Urbanization of a Single Agricultural Field

The consumption of agricultural land on the periphery of the city for urban development is summarized on a single field in this flow chart. Land rent is used as the medium of illustrating the change and it is "theorized in the context of its institutional embedding" (Jager, 2003). The process starts with market pressure and public opinion. The public opinion referenced here is "the monopoly of collective opinion" and it is the behaviours of landowners as they have common beliefs on land and the future of the land (Haila, 1990: 285). "Vermeinungmonopol" is the German concept for this phenomenon (Nell-Breuning, 1965).

The rent expectation of public combined with market provisions creates a pressure over the agricultural field. In this first stage, the agricultural production is powerfully existent on land. There is minor land speculation, a slow increase in land prices and minor circulations in the land market. There are limiting regulations by Ministry of Agriculture and Forestry and agricultural production and farmers resist change. In the second stage, the market pressure and public expectations create pressure over urban policy and spatial planning and with this pressure, Ministry of Environment, Urbanization and Climate Change and Metropolitan Municipalities produce regulatory plans for the province. In Turkey and in the case of Konya, lower scale development plans and 1/5000 regulatory development plans might also be produced before these upper scale plans as well. This is not exceptional. In most of the major metropolitan cities, there are development plans produced before an upper scale regulatory plan. This is one of the reasons of problematic urban forms in Turkey. The upper scale plans, on the other hand, have the regulatory power and can change or cancel the previous plans. This is what happened in the case of Konya. New lower scale plans are in the process of production after the 2012 Environmental Plan of the MM.

If the provincial and upper scale plans are produced first, the development rights are given on a structural and abstract level. Land starts to circulate in market, prices rapidly increase and there is severe land speculation in this stage. Limiting regulations are partially surpassed with some changes in land status. Agricultural production fails to resist in this stage since the land prices increase severely. Civil society might resist in this stage as in the case of Diyarbakir Hevsel Gardens, agricultural field for over 8000 years, now under risk of urban development. In this stage, agricultural production partially continues and land tenure system gains ground. The farmers sell their land in the market yet continue production over the same land via land tenure system (icar). Çaltı, Karaömerler, Güvenç and Bağrıkurt rural neighborhoods are good cases to this phenomenon according to the mukhtars of these villages (September 2018, Indepth Interview with mukhtars). This usually takes place in larger fields and/or irrigated agricultural areas while in small scale fields and dry agriculture when the land started to circulate in the market it becomes vacant as in the case of Çandır-Selçuklu (Indepth Interviews with the Mukhtars, September 2018).

In third stage, provincial plans (if not produced in the previous stage) are produced by MM, development plans are produced by MMs and district municipalities (DMs). Also, subdivision plans are produced by DMs and MMs. Agricultural production stops in this stage. Land use is detailed, so all owners know exactly what will be built on their land. Churning land profiteers (karcilar) are now dominant in the real estate game and price of land usually skyrockets. There is now no resistance from agricultural production since none is left in the zone, all the limitations surpassed by re-regulations and status changes. Yet, there is still no development on land. The development rights are still on paper and virtual.

The fourth stage is the implementation of subdivision plans. The monolithic field in large scale is now subdivided into multiple number of urban plots. Transportation network is rarely provided in this stage and no other services are provided usually. The rent and the price of the land now solely depends on its urban value. In other words, its value in production of space. The agricultural ties are completely terminated. The urban value of land depends on the land use decision – zoning of the plots (residential, commercial, service, etc.). there is usually still no development on land in this stage as well, development rights remain virtual.

In the last stage, land is still mostly vacant, but now urbanized. Service facilities and transportation infrastructure are rarely provided (this is one other major problems of Turkish urbanization: housing first, infrastructure later). The rent and the price of the plot now depends on the popularity of the area in the real estate market determined by locational and spatial features. The last form that the plots take is the summary of urban sprawl in Turkey. Depending on the demand, development takes place in a sprawled form and randomly. There is usually no staging in the plans, therefore the development is random. Majority of development rights remain virtual and on paper in some parts of the periphery and only in some parts development is more condensed.

5.5 The Impacts of the Law no 6360 Formed Metropolitan Municipality System on Konya 2012-2022

Konya Metropolitan Municipality is now at the heart of urban policy making in Konya. The metropolitan municipality, in its primitive form, started in 1984 with law no 3030 Metropolis Law, proposing a two-level local government structure with a metropolitan municipality and district municipalities in the urban agglomerations. There are plenty of other public and non-public players in the field with varying degrees of responsibilities, authorities and power. In this part, we are going to decipher the black box of urban policy in the case of Konya with underlying processes and related players.

There are two major processes going on related with agricultural production and production of space in the case of Konya (or in nearly any city in Turkey). The first one is

urbanization and the second one is rescaling. In most cases urbanization as a process includes rescaling process as well, yet, for clarity and to emphasize, it will be evaluated as a stand-alone variable as well without neglecting the strong bonds between the two processes[147]. The three pillars of analysis, agricultural production, urban form and settlement pattern are connected through urban policy in metropolitan scale and these two processes are forming the relations between these pillars and between our three pillars and urban policy. Two main background/underlying and relational processes are economy and politics and within this frame urbanization and rescaling processes in the case of Konya will be evaluated in this part.

Understanding the urban policy making process directly linked with but not limited to spatial planning system in the case of Konya specifically and in the case of Turkey generally is crucial to construct a solid base for developing an understanding on the MMS and the impact of the MMS over the urban form, over the settlement patterns and over agricultural production in relation with each other. The aim of this sub-section is to clarify the spatial planning system and urban policy making process with all bodies of players included in the process in cooperation or in struggle. Local and central power structure will be at the heart of this part.

The point of departure for this study and this part is the 6360 Law on Metropolitan Municipalities enabling MMs to operate in provincial scale. 6360 Law defining the recent form of MMS is constructed on 5216 Metropolitan Municipality Law, therefore, in order to decipher how the urban policy making works in Konya, we will start with analyzing what these two laws bring. Following this, the general structure of the black box of urban policy making will be deciphered with its (if existent) structure, with regulations, with players and with power distributions. How is an agricultural field transformed into an urban plot? Who are effective over this transformation? What are the synergistic and antagonistic mechanisms and players for development of land? How has Konya responded to the changes in legal framework with Law no 6360? How were the mechanisms and flows affected? These are our guiding questions.

5.5.1 6360 Impact on Konya Metropolitan Municipality

With the first law creating a foundation for a metropolitan municipality system, 2561 The Annexation of Nearby Settlements around Metropolitan Cities to Main/Metropolitan Municipalities Law[148] in 1981, Dere, Sille, Hocacihan Municipalities and Kayacik, Tatlicak,

[147]Rescaling can be considered as a mechanism within urbanization process but for operative purposes, within this work we will be naming it as a process.

[148]2561 Büyükşehirlerin Yakın Çevresindeki Yerleşim Ana Belediyelere Bağlanmaları Hakkındaki Kanun, 08.12.1981.

Saracoglu, Taskaraaslan, Elmaci, Yaylapinar, Hasankoy, Karahuyuk, Yeni Kozagac, Beybes, Hatip, Koycegiz and Yazir villages were annexed to Konya Municipality (Konya MM, 2007). In 1987, Konya has become the seventh metropolitan city with the law no 3399 and with the same law, three central districts, Karatay, Meram and Selcuklu were established. The urban form of the city of Konya was divided into these three central districts. In order to become a MM, a city needs at least three central districts, therefore these three districts were established. These changes have come into operation with the 1989 local elections. Konya experienced three elections with this form of local government where the control and authority boundaries were the planned developed and planned adjacent areas of the municipality. Within this timeline, two plans were produced, first one is 1984 Konya Environmental Plan by the Bank of Provinces and the second one is 1999 Konya 2020 Kon-Plan by Konya Metropolitan Municipality. Both plans were covering solely the city of Konya, close perimeters surrounding the city as the new development sites for the city and some minor adjacent areas. The land use proposed by the plans were urban and rural settlements and rural land uses were not in the plan.

City of Konya, with a population under 1.000.000 (742.690 people in 2000) had a 20 kilometers radius of a municipal zone, defined by the law no 5216 for Metropolitan Municipalities, the first law designed specifically for MMs. In the case of Konya, although her population is under 1.000.000, the city was sprawled (see Chapter 7 on Urban Form) and 20 kilometers radius were barely covering the urban form at the time and the coverage area of 20 km radius (1296 km^2) is smaller than the previous municipal border of 2100 km^2. There were no plans produced within the Law no 5216 - 20 kilometers radius era of the city.

With the increase in the service area the number of districts that is served by the Konya Metropolitan Municipality (KMM) has increased from 3 to 31. Moreover, the number of neighborhoods served has increased from 170 (Usta, Akman, Kocaoğlu, 2018: 233) to 1154 (TURKSTAT, 2022) including former villages. With the abolishment of the SPA and some smaller municipalities, majority of the assets and the personnel have been transferred to the KMM. The drastic expansion of the service area resulted with a need of zoning approach in local government and KMM has established 12 regional structures in water utility services, 7 regional structure in technical works and 110 regional centers in fire stations (Usta, Akman, Kocaoğlu, 2018: 236). KMM annual activity reports summarizes the changes faced by the muniicpality after the enactment of the 6360 Law in a dispersed fashion. Below can be found a summary of activity reports between 2012-2022. The impacts of Law no 6360 on the KMM as the core local government player are as follows:

- The service area of the KMM has increased 19.5 times.
- The number of districts served has increased from 3 to 31.

- The number of neighborhoods served has increased from 170 to 1154 including severe number of dispersed, deeply rural villages.
- The population served has increased from 1.2 million to 2.1 Million (2014 populations) today it is around 2.3 Million people (2021).
- Amounts of road network that KMM is responsible of has increased 10 times.
- The number of members of the municipal council has increased from 27 to 130 between 2009 to 2014 local elections.
- Rural and agricultural services have become a responsibility of the KMM replacing SPA, hence agricultural services department has been established.
- SPA's and closed municipalities' assets and personnel have predominantly transferred to KMM,
- The number of personnel was 859 in 2012 and in two years, after the local elections it increased to 2176,
- The number of municipal staff per 10000 person was 7 in 2012 while it increased to 10 per 10000 people with the increase in the number of personnel in 2014[149].
- The number of service provision assets did not increase as expected between 2012 and 2014.
- Between 2012 and 2014 the budget of KMM has increased nearly 100% while expenditures have been multiplied with nearly 2 within the same time interval, this imbalance has changed recently and in 2020 the income has increased drastically surpassing expenditures.
- Konya Water and Sewerage Administration, KOSKİ, established in 1990 and providing water and wastewater services to 3 core districts, namely the city of Konya, has the service area expanded to the province borders as well. The Water and Sewerage Departments in 28 peripheral district municipalities have been closed down and their duties and assets were transferred to KOSKİ. This change resulted with the establishment of 12 regional branches under the KOSKİ organizational structure.
- Fire departments and market hall departments are also closed down in 28 peripheral districts with the transfer of the corresponding duties as well.
- Agricultural supports, irrigation infrastructure, agricultural trainings and agricultural machinery support has become activities conducted by KMM. Irrigation

[149]Even with the service area population increase (provincial border becoming municipal border) from Konya city to Konya province, with the increase in the number of staff, the number of staff serving to 10000 has been increased to 10 (from 7). This is not only because of the drastic increase in the number of personnel, but also Konya city population already being the majority of whole province's population.

infrastructure responsibility has a massive impact on both Konya Metropolitan Municipality and KOSKİ since the construction and maintenance are costly and labor-intensive.

- Between 2012 and 2014, with the expansion of the service area, the expenditures of KOSKİ have doubled while the revenues increased 2.2 times.
- The ownership of the rural commons, the meadows/pastures has been transferred to the metropolitan municipality, this has increased the amount of land/plot under direct ownership of the MM 3.3 times between 2015-2017. Also gave the municipality to change the land use over the meadows (using those land for production of space) and the right to collect grazing fees as a revenue item.

These impacts summarized here will be analyzed in the following sections in terms of service provision, budget, household budget and representation.

5.5.2 6360 Impact on the Spatial Planning of Konya

In the case of Konya, 28 districts, 3 core districts and 746 former villages (now neighborhoods) are under the spatial planning authority of the MM and according to 2020-2024 Strategic Plan of the MM, 1/25000 plans of all 31 districts and 1/100000 plan covering whole province are completed. The impact of 6360 law over the spatial planning of Konya has been analyzed in Konya Planning History part and this part sums the impacts.

- The last two master plans (in 2013 and in 2016) are produced in province scale covering all urban, agricultural, rural and natural areas. In terms of coverage, master plans have become more comprehensive.
- The scales of the plans that can be produced by the metropolitan municipalities before 6360 were 1/5000 and 1/25000 Regulatory Development Plans while after 6360, the scale has become 1/100000 Environmental Plan.
- Ministry of Environment, Urbanization and Climate Change and Konya Metropolitan Municipality are the two bodies that have produced these province scale master plans and the plans are prepared by the same bureau (operating and located in Ankara). The planning process is highly centralized (both in national and locally central scale) and this has resulted with both negative and positive results for the future of the city. Yet, whatever the results are, the process is centralized.
- One positive aspect of this centralization brought by 6360 Law is the comprehensive scale of the plans including urban, rural agricultural and natural areas and land uses all together.

- Prior to these plans, the plans made by district municipalities were stripped from economic decisions, a development discourse, realist population projections and basic principles of urban planning. The plans were basicly development rights given in 1/5000 and 1/1000 scale partial plans without an economic vision for the future of the city. The boundaries of development rights were only limited by spatial thresholds; therefore, the rights were massive.
- The development rights given on the peripheral 28 districts were diminished and tied to population projections, economic development, visions for these districts.
- The development rights given in the city of Konya consisting of 3 core districts have increased dramatically. The plans produced by MoEUCC and KMM are highly cityist in terms of methodology and the development expectations of Konya city are exaggerated.
- Even though the populations are decreasing in majority of the peripheral districts, with a widespread and rooted assumption, all settlements within the planning zone are considered as growing and with a cityist perspective this assumption has become the norm for planning in Konya as in the case of many cities both in the country and in the world.
- Rural, natural and agricultural areas are planned in relation with each other nearly for the first time in a spatial planning form. The planning of these areas was a divided and sectoral process, yet this time, they can be seen on the same plain of the same plan.
- A massive statistical problem has arisen after the enactment of the law no 6360. TURKSTAT stopped counting rural population for metropolitan cities, and villages are now neighborhoods statistically indifferent from the urban neighborhoods. This indifference made it hard to understand the geographic distribution of population in especially peripheral districts and without understanding, policy making fit to these different geographical needs has become impossible. One significant example is the population projections produced in the 2016 plan of Konya are based on total district populations covering urban cores and rural peripheral villages and these projections were used to determine the amount of the land developed (development rights to be given) in solely core settlements of these districts. This will likely create a massive sprawl problem in these cities with either decreasing or slowly increasing (but obviously not higher as expected) populations.

5.5.3 6360 Impact on Power Structure – Hierarchy in Konya

The Metropolitan Municipality of Konya is now responsible from and authorized in 746 villages and 28 districts alongside the city of Konya. MM of Konya and majority of DMs (3 core and 24 peripheral) belongs to Justice and Development Party, the same party that holds the power in government as well, therefore there are no party-based or ideological conflict between municipalities and between appointed and elected elements of local governments. There might be conflict of interests from time to time among these bodies, but it is not politically structural. This creates a harmony between elements of local governments and fastens the production of space in the case of Konya. Konya is like a pilot city, a lab for government to test or create new ways of urban policy.

In 2013, MoEUCC had produced a 1/100000 scale environmental plan regulating urban policy in Konya and only three years after this plan, in 2016, two years after the 6360 Law becoming effective over the geographies of provinces, MM also has produced a 1/100000 Scale plan for the Province of Konya. At first, it seems to be a conflict since the time interval between these two plans are too close, yet if the process is analyzed, it can easily be observed that the second plan is in continuity with the first plan and, produced by the same planning office, Ege Plan. Both Ministry and the Municipality hired the same office to produce these plans and the office regarded consistency and continuity between these two plans. There are no differences in ideological positions of the Ministry and the Municipality since they are governed by the same political party. The impacts on the power structure are summarized below.

- In terms of power, the local government in Konya has become more monolithic with some of the rights stripped from the district municipalities and given to the Konya MM.
- Villages being transformed into neighborhoods, lost power over their geography, their settlements, and their commons. Especially their meados/pastures as commons have been transferred to the metropolitan municipality and even though their right to use the land remained, several meadows have been assigned to urban land uses by the metropolitan municipality with this centralization in power.
- Concentration of power not only did take place in local/provincial scale, but also has been forged into a new shape with the centralization in central scale with the Turkish form of presidency system as well. This system allowed presidential decrees to become hyperlocal, even parcel based, deregulating-modifying the 1/1000, 1/5000, 1/25000 and 1/100000 scale plans and this centralization brought partial approach overwrites the powers of the local players.

- The power over the land use policy is locally and nationally centralized in terms of planning authorities which are given to the MoEUCC and the KMM while this centralized planning structure has been under the deregulation of the partial interventions of the presidential decrees which are more “powerful” than the environmental plans and regulatory development plans even though they are predominantly in parcel scale.

5.5.4 6360 Impact on the Representation in Konya

The metropolitan municipality council consists of 3 central district mayors, 28 peripheral district mayors and varying number of municipal council members depending on the population of the district. Selcuklu, the largest core district has the largest number of members representing in the MM council, 10 members of MM council is from Selcuklu, following this district, two other core districts, Karatay and Meram have 8 members representing each. 10 districts have only two members representing each district (one of the members is the mayor of that district). Five districts have three members representing them, five districts four members, five districts have six members and Eregli has seven members as representers. In total there are 130 members in the MM council. Only 20 of them are from political parties other than Justice and Development Party (16 Nationalist Movement Party – MHP, 2 Republican People’s Party – CHP and 2 Peace and Democracy Party – BDP – pro-Kurdish -). 24 of the mayors are also from the majority political party, 3 from MHP and 1 from CHP. Only 7 of the members are women and there is only one female district mayor. 6 of 31 mayors have agricultural production related professions, five of them are construction and real estate related, five of them are civil servants and five of them are tradesman-businessman.

There are eight city councils in the province of Konya including metropolitan city council. Three of them are in core districts as expected, while four of the city councils are in peripheral districts. These districts are Aksehir, Bozkir, Cumra and Eregli. Eregli and Aksehir are the largest peripheral districts, but Bozkir is among smaller ones.

The total population of villages (now neighborhoods) is 410.303 and these villages are sprawled over whole province area (around 42000 kilometer-squares). They, 18.8% of province population now have lost the representative powers of village representers and their legal entities. For the case of Konya, village-neighborhoods are highly rural in terms of geography.

These small scale, rural and dispersed settlements are now neighborhoods indifferent from urban neighborhoods in administrative terms.

- The number of members of the municipal council has increased from 27 to 130 between 2009 to 2014 local elections but the abolishment of SPA with 90 council

members previously representing the rural settlements in non-municipal areas must also be taken into account.

- With the abolishment of the legal entities of the villages turned into neighborhoods, 18% of population has lost their channel of representation regarding their own “rural” and agricultural needs.
- Representation in terms of gender did not change at all and not there before to begin with. The province of Konya has always and still been controlled by men as observed from the endless pictures of hundreds of council members represented in the annual activity reports.
- In 2009 local elections AK PARTI was the leader party by far with a percentage of 68.4 and in 2014, the first elections under the 6360 law, the percentage decreased to 64.2. The number of municipal council members from other parties has increased from 0 in 2009 to 16 in 2014 with the expansion of borders and coverage of districts with leading parties other than the party in rule. Politically speaking, this has increased representation in the case of Konya slightly.
- In 2009 local elections, out of 28 peripheral districts 7 of them has mayors from MHP, 1 from DP, 1 from SP and 1 from CHP while in 2014 elections, there are only 3 mayors from MHP, 1 from SP and 1 from CHP, the rest has become AK PARTI. This may or may not be a result of the monolithic metropolitan municipality system forged by the law no 6360.

5.5.5 6360 Impact on the Service Provision in Konya

Konya Metropolitan Municipality is now responsible of 28 district cities and 752 villages, an area of 40.838 kilometer-squares and a perimeter with a minimum of 67 kilometers and a maximum of 180 kilometers radius. The geography is vast, Konya is the largest province in the country and the number of settlements is also high. 2,277,017 is the population dwelling within the municipal boundary in 2021. All village unions in all districts of the province were closed after 6360 Law. With 9653 workers (KMM, 2022) MM is serving to more than 2 million people and 40.838 kilometer-squares of area. This rescaling of service provision is also a rescaling of the local government itself as well. When the impacts of the 6360 defined recent form of MMS on the service provision is measured, the massive scale of new service areas for municipalities, the urban agents, now that have to deal with rural settlement, rural geographies as well as agricultural and natural geographies, the results are not usually positive and for some public administration specialists, the expansion is found conflicting with the subsidiarity

principle of the local service provision (Alıcı, 2017: 906). For every 1000 person, there are 4 municipality staff and which is a good ratio for urban services.

From irrigation projects to restoration projects, plenty of services are provided by Konya MM in districts. Transportation infrastructure, public building construction, landscaping, irrigation ponds and networks provision, restoration and renovation and waste management area provision are some services provided. The decisions made in Konya MM Council can be used as an indicator of distribution of service provision to districts.

The municipal decisions made by the Konya Metropolitan Municipality between 2006 and August 2022 have been analyzed and the frequencies of Districts in these decisions have been listed. After March 2014, 28 peripheral districts' names started to appear in MM Council decisions as expected and under the impact of the 6360 Law. The total number of MM Council meeting sanalyzed are 197 and Karatay district with 959 mentions has the highest frequency of appearance in these decisions. It is followed by Selçuklu with 905 and Meram with 781 mentions in the decisions. These three being the core districts, consists 43.7% of all district mentions in the decisions. The rest 56.3% are the total frequencies of 28 peripheral districts that are added to the agenda of the KMM Municipal Council back in 2014.

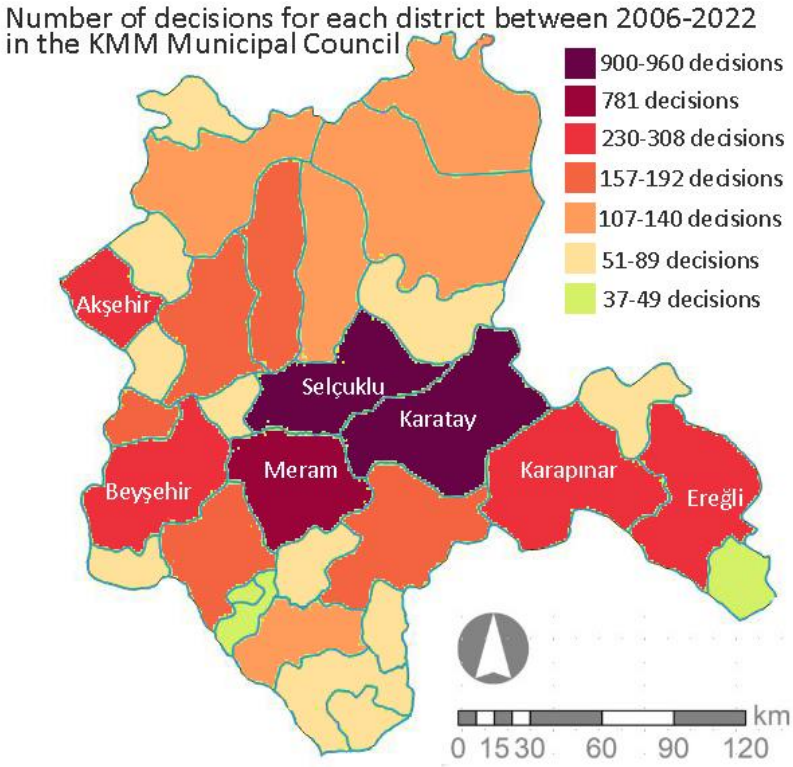

Figure 90 The Frequencies of Each District in the KMM Municipal Council Agenda between 2006-2022

There seems to be a correlation between the population ranks of the cities with the frequencies of the decisions made in the council, yet Karapınar (12th rank in population) disrupts this correlation. Majority of decisions on Karapınar were urban renewai, 1/1000 implementation plans and additional budget for the Karapınar Municipality. If the map is analyzed, apart from Akşehir, it can be seen that the decisions made by the KMM Municipal Council have focused on the core city and districts on the East-West axis of the core. These are also relatively larger districts of the province. Looking from the decisions made, the services provided by the KMM seems to be focusing on the core and this East-West axis districts favoring the larger scale settlements in the geography. The expansion of service area likely to result with prioritization and prioritization works in favor of larger scales.

The services provided by the municipality are the technical infrastructure, social infrastructure, urban services required in urban areas, urban development, and planning services in general. The long list of duties and responsibilities are listed in three pages in 5216 Metropolitan Municipality Law Chapter 3 Article 7 and with 6360 enhancements, this massive list of duties are now have to be covered in provincial borders rather than the previous municipal borders in minimal scale. In addition to that, agricultural and rural services have been added to the duties alongside urban services. The most costly and vital services and the changes in these under the impact of the 6360 are listed below.

- The service area of the KMM has increased 19.5 times, the number of districts served has increased from 3 to 31, the number of neighborhoods served has increased from 170 to 1154 including severe number of dispersed, deeply rural villages.
- The population served has increased from 1.2 million to 2.1 Million (2014 populations) today it is around 2.3 Million people (2021). 1.3 million is concentrated in the core while around 350.000 is dispersed in small scale and rural settlements and the rest is semi-concentrated in district centers. Providing services to concentrated populations is what municipalities know how to do, while service provision for dispersed, rural, small scale settlements is a whole different story.
- The number of municipal staff per 1000 person was 0.7 in 2012, today it is 4.
- The number of service provision assets did not increase as expected between 2012 and 2014 and the data for 2021 is not accessible for assets, so it is hard to evaluate the service provision capacity of KMM in its all aspects.
- With this massive increase, the municipal council decisions remained focused on three core districts since the majority of population dwells in these districts, and the decisions seems to concentrate on Akşehir, Beyşehir, Karapınar and Ereğli.
- Amounts of road network that KMM is responsible of has increased 10 times. The amount was around 500 km, today it is over 5000 km. Within this context, after 2014,

3300 km of this is renewed by the KMM with 310 Million TL, and 98 boulevards in 28 Districts have been renewed as well with 160 Million TL. In terms of roads, the service level observed is high.

- Following the road network investments in the periphery, with 149 irrigation infrastructure project 175 Million TL in value and 25 Million TL support to farmers, the agricultural services provided by the KMM is the second highest investment subject to these peripheral districts.
- Industrial infrastructure investments and urban development activities of the municipality remained focused on the three core districts. This does not mean that the urbanization is compact, but these core districts are also experiencing urban sprawl on their settlements' "peripheries" the semi-periphery.
- Between 2012 and 2014 the budget of KMM has increased nearly 100% while expenditures have been multiplied with nearly 2 within the same time interval, this imbalance has changed recently and in 2020 the income has increased drastically surpassing expenditures.
- For conservation and restoration activities for the last 15 years, the budget and implementations are concentrated in the core, 64 out of 104 restoration-renovation projects are located in three core districts, the percentage is 61.5%.
- For sports activities, even though the majority of investments are concentrated in the core with larger scale projects such as the stadium, there are also 82 astroturf pitches completed for 19 districts. The investment and service levels on the peripheral districts are not enough on the other hand.
- For education facilities, a total of 64 schools have been constructed and 17 of them are for core districts while the rest is for peripheral districts, 14 of these 64 schools are imam hatip schools. 34 public training centers are located in the core districts while only 20 out of 28 peripheral districts have one public training center each. In terms of educational services provision.
- One advantage of MMS seems to be the new bus lines provided by metropolitan municipalities to the districts making the core more accessible for the periphery enabling utilization of the services provided by MM at the core by the residents of the districts. Since Konya province is massive in scale, there are buses to 21 peripheral districts while 6 of them do not[150]. With 112 lines in total, the districts as well as plenty of villages are accessible with municipal buses. The districts with no bus lines are

[150] https://atus.konya.bel.tr/ accessed on August 2022.

Ahırlı, Akören, Çeltik, Halkapınar, Tuzlukçu and Yalıhüyük. 3 of them have elected other parties than AK PARTI. 2 of these districts, Halkapınar and Çeltik are really far.

- Konya Water and Sewerage Administration (KOSKİ) service area has been expanded from 3 core districts to all 31 districts and the water and sewerage departments have been abolished in 28 peripheral districts. The water and wastewater services duties are agglomerated in KOSKİ and the whole province water and wastewater services provision has become ring-fenced (separated from the other municipal services financially) with this step. Water and wastewater services being nearly the only financially profitable service provided by the district municipalities are now stripped from the municipalities and isolated from other services financially, this has created financial centralization in Konya scale and might as well create financial instabilities for district municipalities.
- Between 2012 and 2014, with the expansion of the service area, the expenditures of KOSKİ has doubled while the revenues increased 2.2 times.
- Agricultural supports, irrigation infrastructure, agricultural trainings and agricultural machinery support has become activities conducted by KMM. Irrigation infrastructure responsibility has a massive impact on both Konya Metropolitan Municipality and KOSKİ since the construction and maintenance are costly and labor-intensive.
- Majority of agricultural and rural services provided by the KMM consists of farmer supports, farmer trainings, irrigation infrastructure, agricultural machinery support, disinfection, supply chain infrastructure and urban services provided for these rural settlements are predominantly road network enhancement, additional development plans and meadow allocation and land use change for urban purposes if this can be considered as an urban service.
- There are several water, wastewater, water treatment plant and wastewater treatment plant projects either going on or finished in peripheral districts of Konya and these projects are funded by IPA – EU through ILBANK. This increases the short-term liabilities and interest expenses of the KOSKİ (and KMM) while increasing investment in water infrastructure.
- Solid waste is now collected by the KMM in villages and some mukhtars listed this as the major benefit of the MMS system (Indepth Interviews with Mukhtars, September 2018) and even the far-off rural neighborhoods' mukhtars said they are getting this service either from KMM or from their district municipalities such as Küçükkuyu Kadınhanı (50 km from KMM) and Canımana-Kulu (180 km from KMM).

- In all strategic documents, plans and reports, the scale of service area, the province and district borders being too large were listed as threats and weaknesses of the Konya Metropolitan Municipality especially for service provision. Yet the budget allocated to KMM are not as low as expected, also to some degree services are provided. The problem is not service levels or budget, but rather the methodological cityist perspective of the metropolitan municipality still focusing on the core districts and favoring the core in urban services while providing predominantly rural and agricultural services to the peripheral districts.
- The mukhtars of the villages/rural neighborhoods are favoring the services provided by the Metropolitan Municipality and their district municipalities more than the services provided by the Special Provincial Administration claiming that the services got better after the enactment of the Law (Indepth Interviews with Mukhtars of Çaltı, Bağrıkurt, Karaömerler and Güvenç (Selçuklu District), Küçükkuyu-Kadınhanı, Canımana-Kulu (more than 180 kms far from KMM) in September 2018). Afşar Village on the other hand (in Taşkent) was a Municipality (Belde) and with 6360 its status degraded to neighborhood without assets and services therefore not happy with the services provided by KMM (September 2018). The villages under restrictions such as dam flood zones do not get majority of these urban services and no public investment (Indepth Interviews, September 2018, Afşar-Taşkent and Dedemli – Hadim Mukhtars) This is a major issue due to plenty of irrigation projects and varying scales of dams in the basin. The service provision in sum, varies.
- Protection of Farmer Assets Directorate is abolished, the mukhtars were also responsible for this directorate and based on Law no 4081, the responsibilities of this directorate were to protect agricultural land, movable and immovable agricultural assets, water ditches, sets, dykes, drains, fences, walls, field and groove roads and solving problems of the farmers in these issues. The abolishment of this directorate, hence lack of local solutions to these problems is considered as the most problematic part of the 6360 Law for some mukhtars (In-depth Interviews with the Mukhtars of Güvenç, Karaömerler, September 2018).

5.5.6 6360 Impact on Municipal and Public Budget in Konya

The Province of Konya is among advantaged provinces in the new distribution system for the national budget tax revenues. The new MMs are the most advantaged ones while the share of Istanbul decreases (by 4%) and Izmir and Ankara's shares increase slightly (under 5%) (Koyuncu, 2012). For the case of Konya the overall share of MMs and DMs increased by around 30% while the increase in the share of MMs and DMs per person is around 9%

(Koyuncu, 2012). In other words, the local government budget per person in the provincial/municipal boundaries, whether dwelling in the core or periphery increased by 9%. In Istanbul, Ankara and Izmir, the share per person is decreased and in most of the new MMs it is increased (Koyuncu, 2012). The rank of Konya among the MMs with increasing share of Local governments is 21 and in the share of local government per person is 12 (Koyuncu, 2012).

The local government budget allocated to the province of Konya for the year 2016 is 2.1 Billion TL and the MM budget is 0.5 Billion TL. The rest 1.6 Billion is the budget allocated to district municipalities (Konya Chamber of Commerce, 2017). On the other side of the coin the investments conducted by MM of Konya in time is as follows (Ministry of Development, 2018)[151].

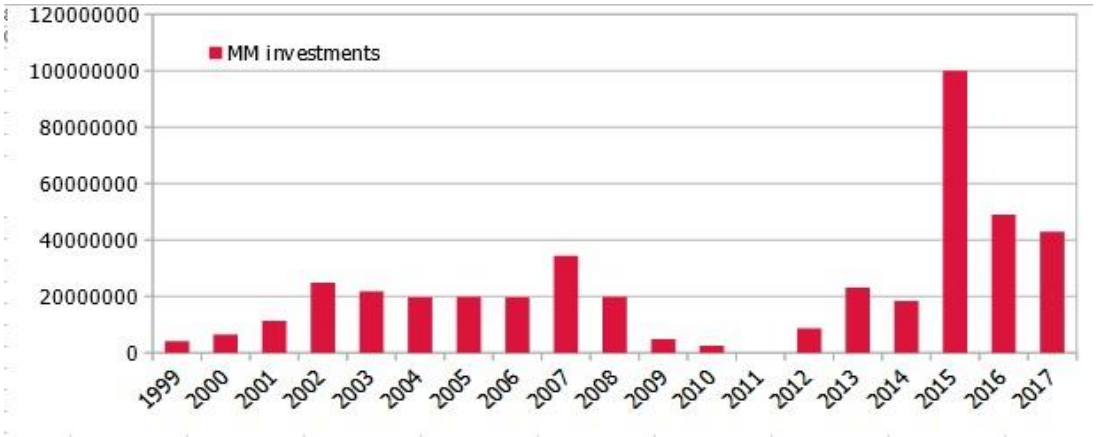

Figure 91 The MM Investments to the Province of Konya Between 1999-2017

The peak of MM investments was experienced in 2015, right after the 2014 Local Elections where the Law no 6360 has gone in effect. There is a decrease in the following two years but still higher substantially higher than pre-6360. The difference stems from the expansion in the service provision boundaries of MMs.

The total public investments in Konya done by all public bodies related has nearly consistently increased in time. Total public investments in Turkey is increased in a similar trend therefore we can say that it is not the distribution that changed but the overall volume of capital invested by State. The change in trends usually takes place in local election years (2004, 2009 and 2014). The percentage of public investments in Konya in Turkey total has slightly increased in Time (from 0.6% to 1.6%). In 2019, the public investments in Konya has

[151]The data is collected from the database of Strategy and Budget Department and for the sake of comparison, 6 zeroes were erased from the values before 2005 since the 6 zeroes from TL are deleted after 2005.

decreased to nearly one thirds and the rank 6th most invested province has decreased to 8th rank (Strategy and Budget Department, 2020)[152].

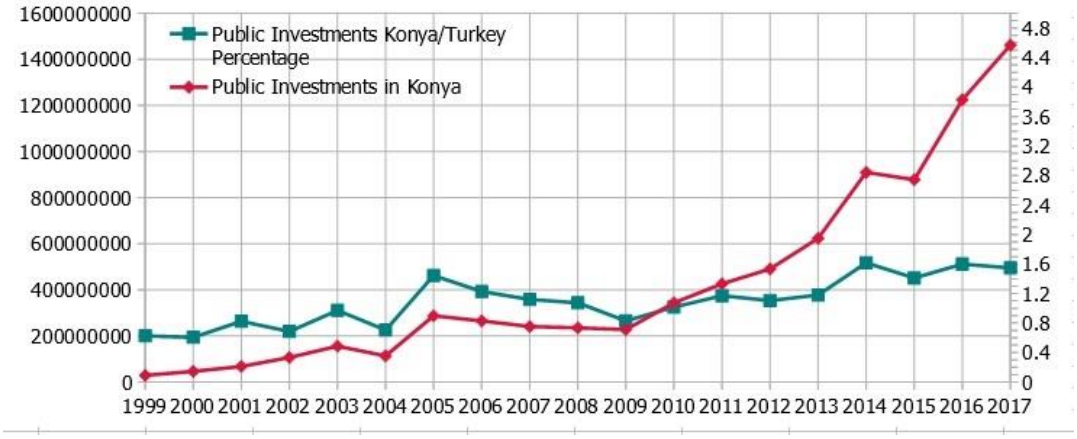

Figure 92 Total Public Investments in Konya and Turkey Between 1999-2017

In terms of Municipal Debts to the Bank of Provinces (ILBANK) Konya MM is among the most indebted ones. With 699 million TL, Konya MM is the 4th most indebted MM in Turkey (ILBANK, 2018). Larger the municipality and the province get, higher the debt gets in most of the cases since the scale of investments tend to be larger as expected.

According to the data produced by the Strategy and Budget Department for the year 2017, Konya is the second province with the highest public investment in agricultural production. With the financial expansion of state after 2000s, the amount of public investment appointed for agriculture also increased. The percentage of Konya agricultural public investments in total agricultural public investments has increased from 1.4% (1999) to 4.4% (2017). The peak point was in 2005 with 7.7%. The public investments in Konya increased nearly gradually and the rate of change increases after elections but the change of the total share of agricultural production in public investments have a varying trend. The percentage varies between 5% and 13% in total public investments, which is high on the contrary to the widespread belief. It increased until 2004, the first local elections of the Party in power and after 2004, it decreased, then after 2009 local elections the share of agricultural production increased again. While the amount in the case of Konya is increasing gradually, the national share of agricultural production in public investment is not gradually increasing.

[152] https://www.sbb.gov.tr/yatirimlarin-illere-gore-dagilimi/#prettyPhoto[rel-16762-1643382539]/0

The budget of Konya Metropolitan Municipality illustrates the change in time with the expansion of service area and the change in the budget distribution-allocation system in favor of metropolitan municipalities. 2012 is considered as the base year, 2014 as a breakpoint with the local elections making 6360 implemented, 2020 and 2021 are used to illustrate the most recent situation in the financial structure of the KMM and the financial data has been collected from the annual activity reports, performance programs and the strategic plans produced by the KMM. The findings are illustrated below.

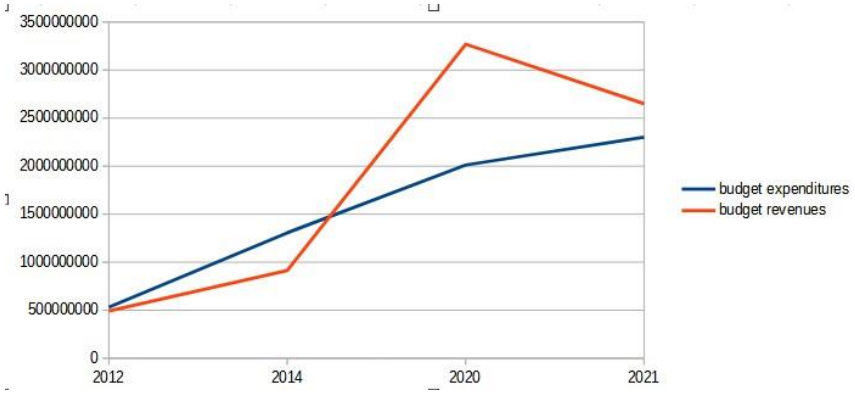

Figure 93 Expenditures and Revenues of Konya Metropolitan Municipality 2014-2021

Right after the local elections the revenues of KMM has increased slightly while expenditures increased more yet in 2020 revenues by far exceeded the expenditures even though the service area has become massive or may be even because of the massive expansion of the service area. In the recent situation the revenues decreased significantly, yet still over the expenditures used for urban and rural services provision. At this point it is significant to remind that majority of the revenues of municipalities comes from central budget allocations, real estate taxes like public resources and Konya MM is in accordance with the central

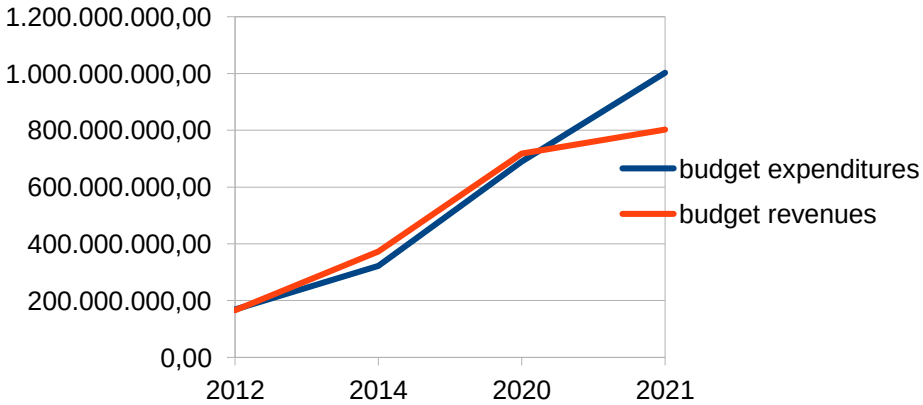

Figure 94 Expenditures and Revenues of KOSKİ 2014-2021

government in terms of political alignment, therefore does not face any controversy in budget allocation.

KOSKİ providing water and wastewater services which are essential for both urban and rural settlements as well as both urban and agricultural land uses also had an increase in their expenditures and revenues between 2012 and 2014 with the expansion of the service area but for KOSKİ dfferently from the KMM the revenues were always slightly above the expenditures until 2021. the increase in expenditures in 2021 seems to be the result of new investments in water and wastewater services, especially new treatment plants.In other words, until 2021, the 6360 did not change the financial balance of KOSKİ, for every expenditure, there were enough financial resource. This can be explained with two reasons, the first one is the increase in the number of subscribers for water, wastewater and irrigation services for urban and rural land uses. The second one is the increasing budget allocated by ILBANK from central budget. A third hidden one is the borrowings from supranational bodies (EU IPA and World Bank) through ILBANK as the increase in the short-term liabilities and interest expenditures suggest in the table below.

Table 13 Financial Ratios of the Konya Metropolitan Municipality 2014-2021

financial ratios	short term liabilities / total assets	staff expenses / total income	interest expenses / total income	investment expenses / total income	goods and services expenses / total income
2012	0.06	0.10	0.01	0.46	0.48
2014	0.11	0.12	0.05	0.69	0.52
2020	0.10	0.06	0.22	0.14	0.18
2021	0.08	0.09	0.10	0.41	0.36

Based on the financial data provided in the activity reports, some ratios have been listed in the table above to understand the level of financial strength of the KMM. In 2014, right after the elections, the short-term debts of the KMM has increased from 6% to 11% while staff expenses has seen the highest percentage in total income (12%) with the sudden increase of the number of personnel predominantly transferred from the closed SPA. The interest expenses has also increased five times but it has seen a record level in 2020 by a massive 22% of all income.According to Municipal Council Agendas, this likely stems from theb borrowings from ILBANK for transportation infrastructure investments in the core 3 districts, the city of Konya. The percentage of the goods and services expenditures has also increased from 48% in 2012 to a peak of 52% in 2014 right after the local elections. In 2020 and 2021 it decreased below 2012 level. The investment expenditures, illustrating not current but the future of service provision in municipalities had increased to 69% of the total income with the

help of borrowings that expands the limits of the revenues. In 2020 it decreased dramatically to 14% levels and hit the bottom, then recently it increased to 41% yet still below pre-6360 levels. In other words, investment expenditures are fluctuating but is lower than the pre-6360 levels.

Table 14 Financial Ratios of KOSKİ 2014-2021

financial ratios	short term liabilities / total assets	staff expenses / total income	interest expenses / total income	investment expenses / total income	goods and services expenses / total income
2012	0.03	0.11	0.00	0.42	0.31
2014	0.08	0.14	0.00	0.38	0.33
2020	0.08	0.15	0.07	0.28	0.40
2021	0.18	0.14	0.05	0.50	0.47

KOSKI providing water and wastewater services to whole Konya province had 3% ratio between short term debts and total assets and this first increased to 8% in 2014 right after the local elections induced 6360 Law and in 2021 this has dramatically increased to 18%. This means KOSKİ is debted and the reason likely to be investments in both core and peripheral districts. This is also visible in interest expenditures increasing from 0 in 2012 to 7% of total income in 2020. The staff expenses have increased from 11% of total revenues to 14% from 2012 to 2014 and remained on that level. Investment expenditures have decreased between 2012 and 2014, which can be explained the expansion of service area and rescaling of KOSKİ. In 2021 it increased to 50% of total income, even more than pre-6360 levels, yet this increase seems to be funded with credits, short term liabilities and interest expenditures suggest. The 6360 Impacts on Konya Metropolitan Municipality's and KOSKİ's financial structure have been summarized below:

- With the change in the local government budget allocation structure favoring metropolitan municipalities, the share of Konya MM in public budget has been increased by 30% while this increase resulted with 9% increase per person in whole province, therefore overall budget and budget per person are both increased after 6360 Law.
- For KOSKİ, expenditures and revenues had a parallel increase where revenues are slightly more than the expenditures before and after 6360 while KMM experienced an increase in the expenditures exceeding the increase in the revenues, later on the balance has changed in favor of revenues.
- The expansion of the service area increased the expenditures of the KMM and KOSKİ but at the same time, with the expansion, new subscribers to water, wastewater,

irrigation services have been added to the system while rural commons, the meadows as economic assets have also been transferred to the KMM. The land use changes and assignments, as well as grazing fees are some financial advantages of the metropolitan municipality system. The municipality benefited financially from the commodification of rural commons, the allocation of meadows for urban land uses.

- Staff expenses percentage has increased in both KOSKİ and KMM with the expansion of the MMS system and the ratio of the investment expenditures has fallen. After 10 years of the enactment of the law, the first one decreased a little while the second one has increased.
- Short term liabilities and interest expenses are increasing in both KMM and KOSKİ which signifies the increase in the borrowings predominantly for new investments. This trend is a country scale one rather than being a unique trait of the case of Konya as the number of IPA and WB projects suggests.
- In sum, financially speaking, the 6360 Law did not yield with the expected severe levels of financial deficiencies in the case of Konya Metropolitan Municipality, the municipal budget for each person dwelling in the province is even increased (by 9%). Yet the distribution of this financial resource is another issue. Even though there were plenty of projects proposed for 28 peripheral districts, both in terms of actions and in terms of money flow, the lion's share still remains in the city of Konya, core 3 districts.

5.5.7 6360 Impact on Household and Farmers Budget in Konya

The second dimension of the budget is the rural households' and farmers' budget. Law no 6360, with transforming the administrative status of the rural settlements, namely villages into urban neighborhoods that are a part of a Metropolitan Municipality has changed the daily economics for the households and the farmers. The costs of urban and rural services, as well as agricultural services such as irrigation and electricity are defined by different sets of rules under the metropolitan municipality system. When the Law has enacted in 2012 and gone into effect with the local elections in 2014, the billing and collection of the urban tariffs set for the services provided by the municipality or regulated by the municipality has also expanded to the provincial geography. Yet, the peripheral, rural, small-scale districts, settlements, villages now becoming urban in terms of administrative status do not comply with the purchasing power of urban settlements which are significantly higher. This problem resulted with the postponement of the billing and collection of these urban tariffs first until the end of 2019, later on until the end of 2022. Urban cost of living is significantly higher not only because of the tariffs set for each service but also the taxes collected. The collection of these taxes also has been postponed until the end of this year, 2022.

This increase in the cost of living in rural areas, small scale settlements, peripheral settlements due to urban levels of tariff setting and taxes is so problematic that it keeps being postponed. Moreover, against the will of Ministry of Internal Affairs, the designer, and the promoter of the 6360 Law and extended metropolitan municipality system regarding all villages and neighborhoods indifferent, in 2020, “rural neighborhoods” and “rural settlement areas” terms have defined in 5216 Metropolitan Municipality Law. Metropolitan municipalities are authorized to decide these rural neighborhoods and rural settlement areas with municipal council decision. The main reason behind this differentiation among neighborhoods is to give the MM the ability to differentiate both taxes and tariffs. These neighborhoods are considered urban, yet after 10 years, in many aspects they are still very rural and affording urban amenities and services are still on rural levels.

Rural households, predominantly working for agricultural production are usually tied to farmers but not only them, also service workers and precarious seasonal workers as well. The cost of living is changing and will continue to change for these populations. Rural neighborhoods and rural settlement areas are defined with reference to their distance, their level of development and/or the dominancy of their rural characteristics. In these rural neighborhoods and rural settlement areas, in these areas and neighborhoods, majority of buildings, plots and fields are real estate tax – free and only the buildings, plots, fields used for commercial, touristic and industrial land uses are taxed and the tax is implemented with 50% discount (5216, 2020). Construction and development taxes are also exempted in rural neighborhoods and settlement areas and other taxes and fees are collected with 50% discount. In these neighborhoods, an upper limit has been set for the water tariffs which is less than 50% of the minimum tariff for offices and less than 25% of the minimum tariff for residential buildings. In addition to that, in 2016 the debts accumulated have been acquitted for the water services for these rural neighborhoods as well. These precautions illustrate the gap between the economic power residing in urban and rural settlements. This also means that if a former village that has transformed into a neighborhood are not listed as a rural neighborhood, they will going to pay the taxes, fees and tariffs full after 31.12.2022. The results of this policy will likely be seen next year which is obviously out of the timeline of this thesis, yet this is a further question to be asked, which neighborhoods are determined as rural neighborhoods, which are not and why? What are the impacts on people, on agricultural production, on migration?

The observed results of 6360 in household and farmers budgets within the last ten years are summarized below.

- For agricultural production, the major loss for villages, rural households and farmers is the commodification of rural commons namely the allocation for land use change. The rural commons are privatized by the hands of the KMM and the farmers using

these are now having to rent other villages meadows in exchange of grazing fees. The number of villages (now neighborhoods) with land use changes in the meadows are 82 and they are in 24 peripheral 1 core (Karatay) districts. The grazing fees have not been implemented in Konya, therefore the impact of this policy on the budget of farmers and rural households cannot be measured.

- For the determination of taxes, fees and tariffs, which will alter the cost of living and producing in rural settlements after 31.12.2022, the rural neighborhoods have been defined by KMM in 2021. Out of 585 villages transformed into neighborhoods by the 6360 Law, 576 have been transformed back to rural neighborhoods (KMM Council Decisions, 2021) therefore the tax, fee and tariff expenditures for urban services will likely be kept under a limit that is relatively affordable for rural dwellers. The 9 villages that remained neighborhoods are the ones in the near vicinity of urban cores of the districts or the city of Konya. They are on the semi-periphery under the shade of urban and they are becoming urban which seems to be the reason for the municipal council deciding them to remain neighborhoods.
- Water and wastewater tariffs are legally expected to be full cost recovery covering all the expenditures made to provide these services but politically set in municipal councils. The water price is the fundamental urban amenity that is priced by municipalities and the rest is privatized. Therefore, water and wastewater tariffs are predominantly set with a populist approach. This is valid for the case of Konya as well therefore it is hard to measure the impact of 6360 on the water and wastewater service costs for rural households and farmers. The definition of rural neighborhoods giving the chance to the KMM to differentiate rural neighborhoods from their relatively more prosperous counterparts makes it possible to limit the tariffs under a certain level.
- The water tariff for agricultural irrigation is the visible part of irrigation costs and to a certain extend kept affordable for farmers, yet the hidden component, electricity is the real culprit in the unaffordability of irrigation. The water in majority of irrigation networks is pumped with electricity and this is the main cost of irrigation unions and farmers. This problem has become more and more visible in recent years with the dramatic increase in energy prices and as a solution the VAT (KDV) has been decreased from 18% to 8% both in residential uses and agricultural irrigation uses[153]. The use of electricity is especially significant for Konya because there are plenty of fields that are irrigated with deep wells which requires pumping with electricity. The

[153]Presidential Decree No. 5249.

drought problem of Konya decreasing the levels of accessible groundwater in the wells results with more pumping and more electricity consumption[154]. Climate and water crisis in the region becomes a budget crisis for farmers as well.

- Irrigated agriculture is far more profitable than dry agriculture which makes it more demanded in the region yet with severely limited water resources, Konya closed basin, historically and geographically a dry agriculture region with a steppe ecosystem. The cost of production increasing resulted with more demand to irrigated agriculture and the product patterns in the region favors specific crops such as sugar beet and sunflower which are both highly water demanding. The increased demand for water met with government policy supporting Konya and reallocating water from other basins with mega projects (such as Mavi Tünel from Göksu Delta). This state led investment and provision of water seems to prosper the region in the short term yet with the decreasing amounts of water while irrigated areas increasing and with production patterns in full support of high water-consuming crops, the cost of bringing water to the field increases since the need for energy increases in correlation with water becoming scarce. In long term, this will be a major problem for farmers in Konya region.
- The electricity consumption problems and the debt of farmers problem predates the 6360 Law[155] and even in 2009 the farmers were in debt due to the electricity costs of irrigation. Therefore, this cannot be considered as a result of the 6360 Law, yet with increasing the pressure over water resources, over land that is used for agricultural production, it does not benefit farmers in this problem neither.
- One of the advantages of the 6360 on the household budget is the provision of public transport by Konya Metropolitan Municipality. Public transport becomes more and more efficient and affordable with the increase in scale. As listed in the 6360 Impact on service provision section, there are 112 bus lines provided for 21 peripheral districts and on their ways these lines stop by several rural neighborhoods[156]. The distances vary from 20 to 150 and the bus fares are kept at minimum levels. For the second half of 2022, the full fee is 2.5 TL while student fee is 1.5 TL which are far

[154] https://www.aydinlik.com.tr/haber/elektrik-borcunu-odeyemeyen-ciftci-can-suyu-veremiyor-207260 accessed on August 2022.

[155] https://www.karasaban.net/konyada-ciftcinin-elektrik-borcu-600-milyon-ytlyi-buldu/ accessed on August 2022.

[156] https://atus.konya.bel.tr/ accessed on August 2022.

below dolmuş rates. 6360 and public transport provision by the KMM have made accessibility from and between districts far more affordable.

- After the enactment of the 6360 Law, the villages become urban in the eyes of the Ministry of Environment, Urbanization and Climate Change and around 2018 MoEUCC sent a notification to these rural neighborhoods for restructuring their debts for a development exemption. Some of the old buildings in the villages that are not fit in the plans of MoEUCC are fined. This fine is restructured with a development exemption notice for these former villages. This was considered the most problematic side of the 6360 Law on household budget in rural areas by some mukhtars of the villages such as Çandır and Güvenç (Indepth Interviews with Mukhtars, September 2018).

CHAPTER 6

METROPOLITAN MUNICIPALITY SYSTEM IMPACT ON THE SETTLEMENT PATTERNS IN KONYA 1990-2021

Population is one of the major components of urbanization and also of agricultural production. The geographical distribution of population is the focus of this section. Settlement pattern refers to the geographic distribution of population with reference to the scale of the settlement. The settlement pattern is affected from urban policy, and affects back urban policy, urban form and agricultural production. It is also affected by agricultural production and urban form. In this part, settlement patterns will be analyzed in two scales within the timeline starting from 1989 up to 2021 with breakpoints of 2004 AND 2014 (MMS). Since the population censuses were produced in 1980, 1985, 1990, 2000 and after 2007 annually, the breakpoints of analysis were chosen from these years. We will start with 1990 population census representing the 1989 break point, then continue with 2000 population census representing 2004 break point, and lastly use 2014 and 2017 population censuses. The change of population will be measured between 1990-2000, 2000-2014 and 2014-2021.

6.1 Settlement Pattern in the Geography of Konya Province in 2021

The scale of analysis for this part is every settlement in the province. In statistics, provinces and districts are used as the units of analysis. Since provinces and districts represent multiple settlements within one administrative boundary, it is misleading. A districts' population might be increasing yet the district city population might be decreasing as a single settlement. The same applies for the province scale as well. For instance, for the case of Konya province, the population of the city of Konya has always increased while the province has lost population between 2000-2007. Therefore, in this part, instead of administrative boundaries, settlements' real locations will be used as a unit. First scale is the whole province with 720. villages 28 peripheral districts and 1 metropolitan city consisting of 3 metropolitan districts in total 749 settlements. The second scale is the near vicinity of the city of Konya. The settlements within 20 km radius and 40 km radius, their scales and the changes in patterns in time will be analyzed. The elements affecting settlement patterns are topography and climate & water, therefore these elements will also be included in analyses. The distribution of

population among settlement size groups and the shifts in time, rescaling of the settlement patterns in other words, will be a matter of interest as well. The impacts of the changes in municipal boundaries will be evaluated based on these analyses.

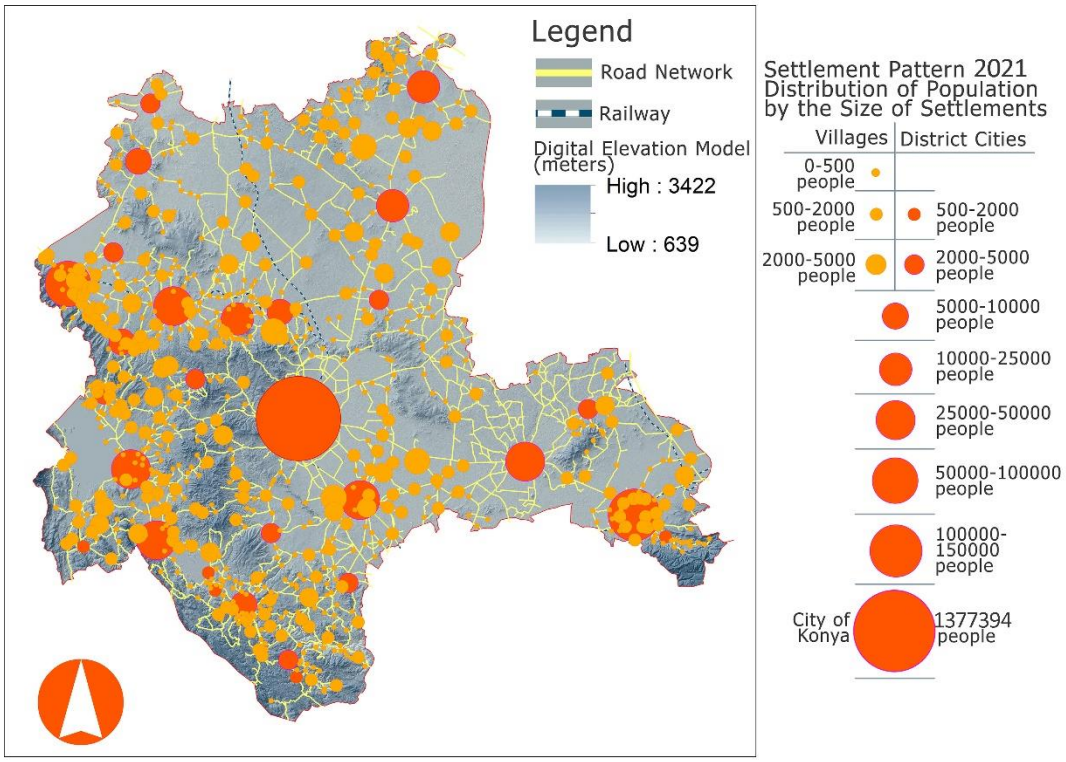

Figure 95 Konya Province Settlement Pattern 2021

The distribution of population among the 749 settlements and the geographic distribution of these settlements is shown above. Orange spots illustrates districts and the city of Konya (the largest spot) while yellow spots stand for villages. Even though their population sizes are small., villages in the mountainous region surrounding the city of Konya from south to north-west are very densely located. The most deserted part of the province is the zone surrounding Karapinar district, which happens to be the only desert region of Turkey. The distances between the settlements are higher in plain settlements than the distances between the mountain settlements. Relatively larger villages are located in plain parts of the province. Railway does not seem to have a significant impact on the rural settlements' sizes and locations yet, on the other hand, districts' sizes seems to have a correlation with existence of railways. The largest district, Eregli also has a close and densely populated villages surrounding the city as well. Aksehir and Doğanhisar, two mountain foot cities have a line of densely populated villages connecting the two cities. The reason seems to be the topography. The ages of the locations of all settlements regardless of their size are old. Hence, geography (topography, water, and soil) was highly important.

6.2 The Mountain-Plain Divide Impact on the Settlement Pattern

One of the main geographical classifications for the province, which is also used by local policy makers and urban government actors (RDA, 2014), is topography. In regional plan and in recent 1/100000 scale environmental plans, this distinction was used to develop specific policies for the villages.

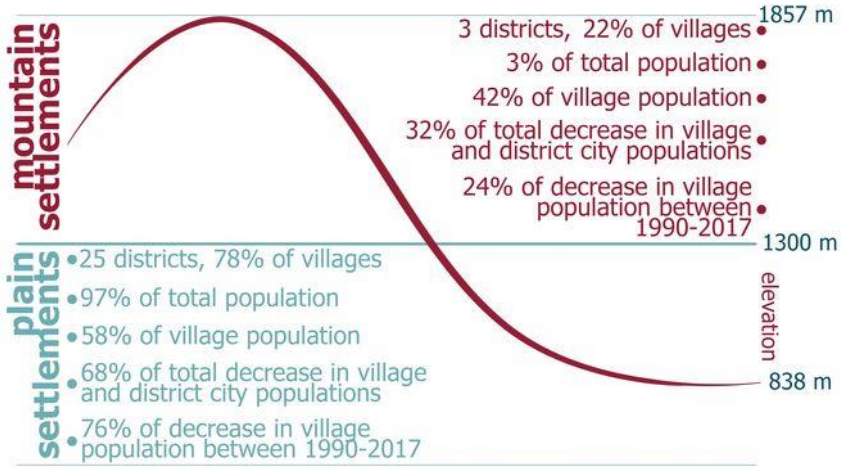

Figure 96 Mountain-Plain Divide in Settlement Patterns

The natural break in the distribution of settlements' elevation is 1300 meters, while the minimum is 838 m, and the maximum is 1857 m. The settlements located above the 1300-meter contour line is considered as mountain settlements. There are 3 (out of 28) districts located above the line and 22% of villages are settled there. Only 3% of total population is settled above the line, yet 42% of village population is settled. Therefore, it is highly rural up there, which is expected naturally. The area is less accessible, the scale of production is likely to be smaller than the one in the plain since the ownership patterns in slopped places tend to be smaller than the ones in plains so on and so forth. Number of settlements is lower in upper elevations but the percentage of decrease in population is higher with reference to number of settlements and the share of population.

Plain settlements dominate the geography, majority of settlements (25 districts and 78% of villages) and the majority of the population (97%) and the main characteristic of the province is given by the plain. Some settlements, especially the larger ones have increasing population, but majority of settlements have decreasing population since 2000. The overall population of the province had decreased between 2000 and 2007 but has started increasing slightly after 2007.

6.3 Settlement Pattern Change between 1990-2021 in terms of Settlement Scale Groups

The settlements in Konya are grouped by scale into three groups which are former villages new rural neighborhoods, urban cores of the districts and the city of Konya. The population distribution among these three classes is illustrated in the graph below[157].

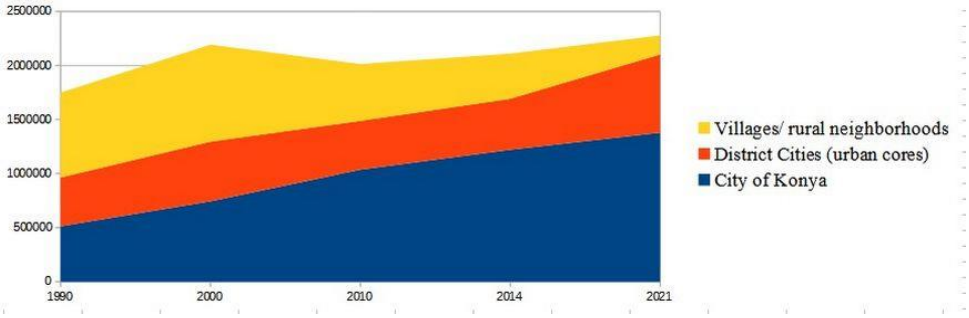

Figure 97 The Changes of total populations of three classes of settlements in time

The main breakpoint in the lines is the year 2000. Until 2000, all three classes, City of Konya, district cities and villages total population were increasing. After 2000 only city of Konya continued with the same trend while the villages' total population which was higher than city of Konya's back in that time, started decreasing dramatically. Hence, it is possible to deduct that the population is getting more and more concentrated, and the settlement pattern is rescaling in favor of city of Konya after 2000. Between 2014-2021, the population of the city of Konya continued to increase while districts' urban cores also gained significant population. This illustrates a concentration in urban cores, yet this is applicable only to larger districts. The population dwelling in rural neighborhoods / former villages has decreased severely between 2014 and 2021.

[157] TURKSTAT, 2022 population data for relevant years in neighborhood scale (to calculate district cities – urban cores', villages' populations).

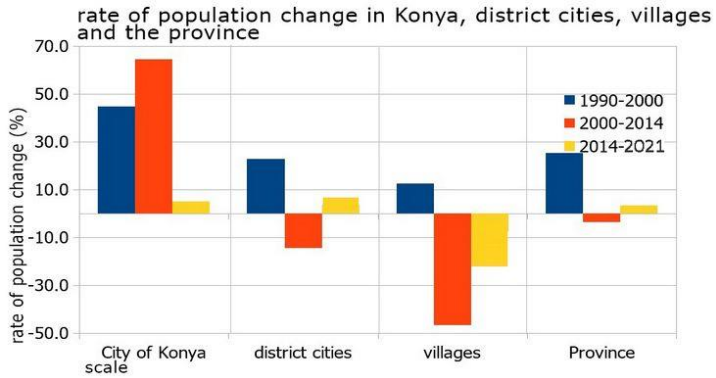

Figure 98 Rate of Population Change in Konya by three settlement classes between 1990, 2000, 2014 and 2021

The last 31 years of Konya in terms of settlement scales have been dynamic. Between 1990-2000 all four classes' populations were increasing city of Konya being the most increasing one. But the majority of increase in the population of City of Konya has taken place between 2000-2014, where all other three categories including the overall province population were decreasing. Within this period, it can be said that the population in the province was agglomerating to the core. In the last period, between 2014-2021, although the time interval is shorter and the change is less, it is now only the villages/ rural neighborhoods' class that has decreasing population. The total population of districts are increasing (even though there are districts with decreasing populations) and the total population of the province is also increasing. In sum, the population living in urban and larger settlements are increasing while the population living in rural settlements is decreasing. MMS as the guiding and the framing policy for urban governments seem to have positive impact for urban pull, while the rural push has become more severe than ever. The level of push seems to have a correlation with the size of the settlement.

6.4 Settlement Pattern Change between 1990-2021 in terms of Settlement Population Classes

To break up the change, all settlements in Konya province have been grouped into population classes[158]. The pie charts produced based on TURKSTAT data for the years 1990, 2000, 2014 and 2021 are as follows.

[158] 0-500, 500-2000, 2000-5000, 5000-10000, 10000-25000, 25000-50000, 50000-100000, over 100000 and over 1000000

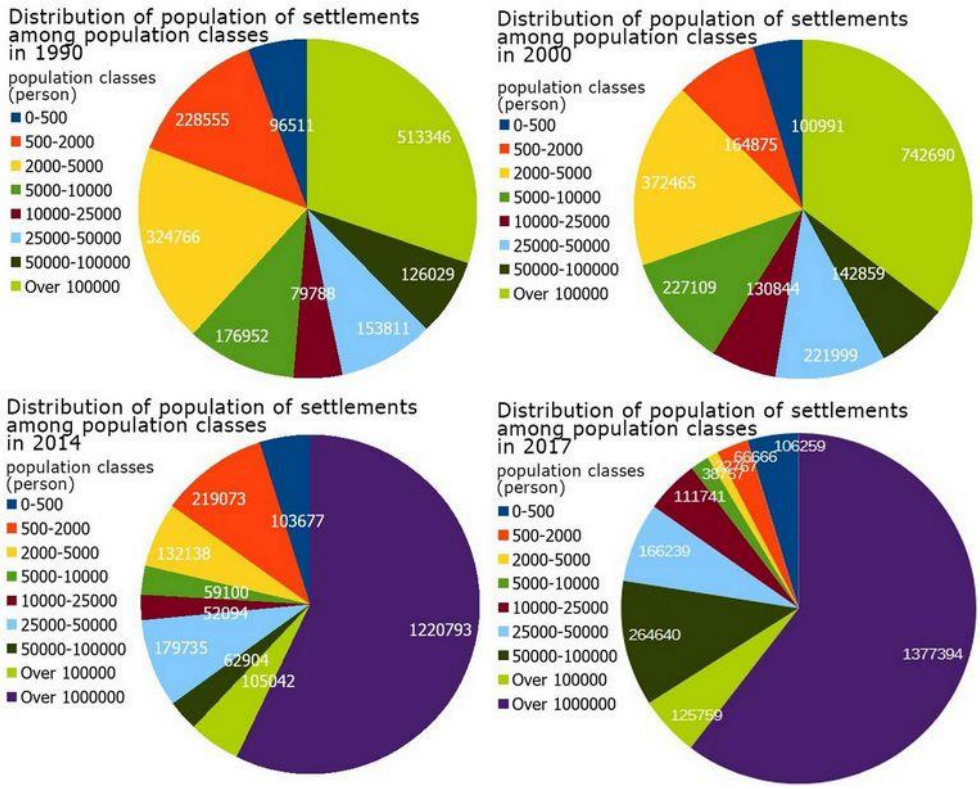

Figure 99 Distribution of Province Population among Population Classes in Four Population Census Years

Population classes were defined based on partly administrative definitions, partly natural breaks. Population of the city of Konya is the largest class and also majority of population was always in this class, yet the percentage had increased dramatically from 1990 to 2021. 60.4% percent of the province population is now dwelling in the core. There is only one district core (urban settlement) with a population above 100000 (Eregli) For the year 2021, if the city of Konya excluded, for the remaining population the majority (11.6% of whole population) dwells in cities with populations between 50000 and 100000. In other words rescaling does not only take place in favor of the city of Konya, but also in favor of settlements with a population between 50000 and 100000. The most dramatic change occurred in the total population dwelling in settlements with populations between 2000-5000. In 2000 17.7% of population was living in 2000-5000 settlements while in 2021 only 1% of population remained in this scale. The population living in settlements with population between 5000-10000 was also severely decreased from 2000 to 2021; from 10.7% to 1.7%. Although the percentage of population living in 0-500 population settlements has not changed much (from 4.8% to 4.7%) the number of people living in this scale has increased from 96511 to 106259. The reason is shrinking villages (rural neighborhoods). The number of villages with population between 0-500 have increased from 341 to 492. This is a severe problem. To illustrate more clearly, the changes in the number of settlements within each population class has been plotted below.

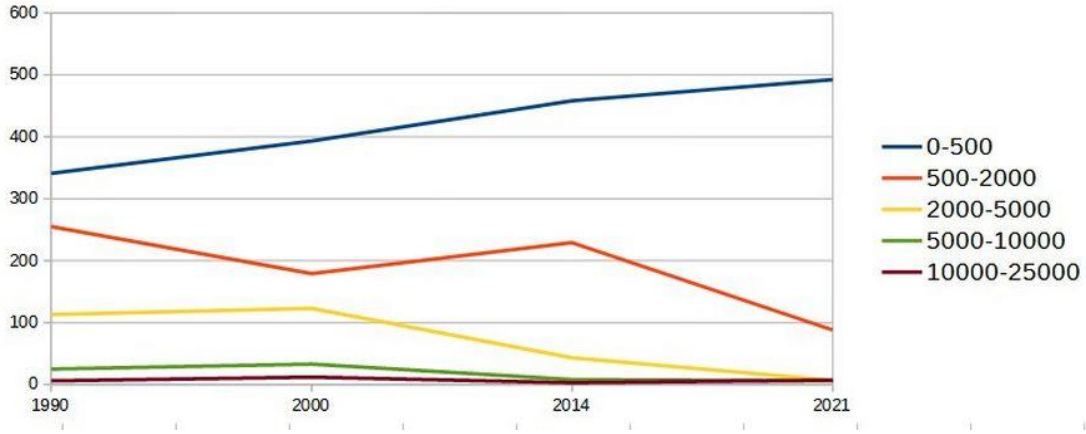

Figure 100 Distribution of Province Population among Population Classes in Four Population Census Years

The number of settlements with a population under 500 has been increasing steadily since 1990s and the basic reason is not new villages (the villages are old in Konya) but rather settlements with decreasing populations. Especially the ones between 500-2000 population in 1990s have lost population severely and had fallen under 500 thresholds. With the rescaling of settlement patterns and the agglomeration into the core, we end up with more small scale and micro scale settlements. They do not evaporate but rather fall in terms of population class. So the population living in smallest scale is increasing, while the policy is becoming more and more urban and large scale oriented. Primate cities are creating more small and micro scale settlements and policies like MMS encourages this trend.

6.5 Geography of Settlement Patterns in 1990-2000-2014-2021

To draw a clearer picture of settlement patterns and the change in time in the case of Konya, the populations of all settlements of all scales for the years 1990, 2000, 2014, 2021 were collected from TURKSTAT, and by using their coordinates, spatialized over a layer of topographical map. Two variables were illustrated on the map which are the size of the settlement in the end of relevant time interval (for example for 1990-2000 the size represents the scale in 2000), shown with the size of the point symbolizing the settlement, and the change within the relevant time interval shown with the colors. To illustrate more clearly, the settlements are divided into two main and natural groups, the urban settlements consisting of the city of Konya and the district city settlements and the rural settlements, former villages now rural neighborhoods. Red-pink colors illustrate increase (darker the red more the increase) while blue and dark blue colors indicate decrease (darker the color, more the decrease).

6.5.1 Geography of Urban Settlement Patterns in 1990-2000-2014-2021

There are 29 cities, namely urban settlements in Konya Province and these are the city of Konya (core metropolitan settlement) and 28 district cities (core urban settlements of the districts). These 29 settlements are mapped over the topographical map of Konya province with the help of the population data collected from TURKSTAT for the years 1990, 2000, 2014 and 2021. The impact of 6360 will be measured with reference to the breakpoint 2014, where it has gone full effect with the local elections. The 1990-2000 and 2000-2014 trends will be compared with the 2014-2021 trend.

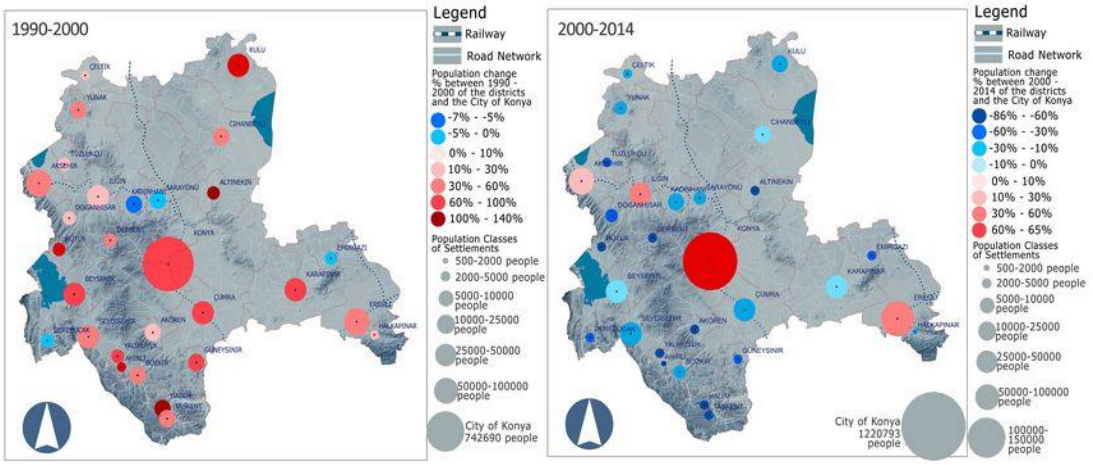

Figure 101 Population Change Percentage of the District Cities and the city of Konya before 6360 between 1990 – 2000 and 2000-2014

Between 1990 and 2000, except for four districts, all districts and the core had increasing population. The rate of growth was even passing 100% in two districts. Majority of districts was increased more than 30%. Rate of increase of districts do not seem to have any correlation with topography, railway network, distance from the core, or size of the district. Within the second stage before the 6360 Law, from 2000 to 2014 where the authority and responsibility boundaries were expanded to a circle with 20 kilometers radius, the focus of public policy has become more urban than ever, production of space has become a fundamental element of both national and local economy and major cities have become more emphasized in policy making. This paradigm shift reshaped the settlement patterns. Larger became larger and smaller became smaller within this time interval. City of Konya, largest settlement of the province was also the settlement with largest percentage of population growth with 65%. Only largest three district cities continued the increasing trend and the rest 24 of the district cities' populations has started to decrease in varying levels. Within this stage, the districts on mountainous (dark grey areas on the base map) geographies (meaning less accessibility) had experienced most severe population decrease.

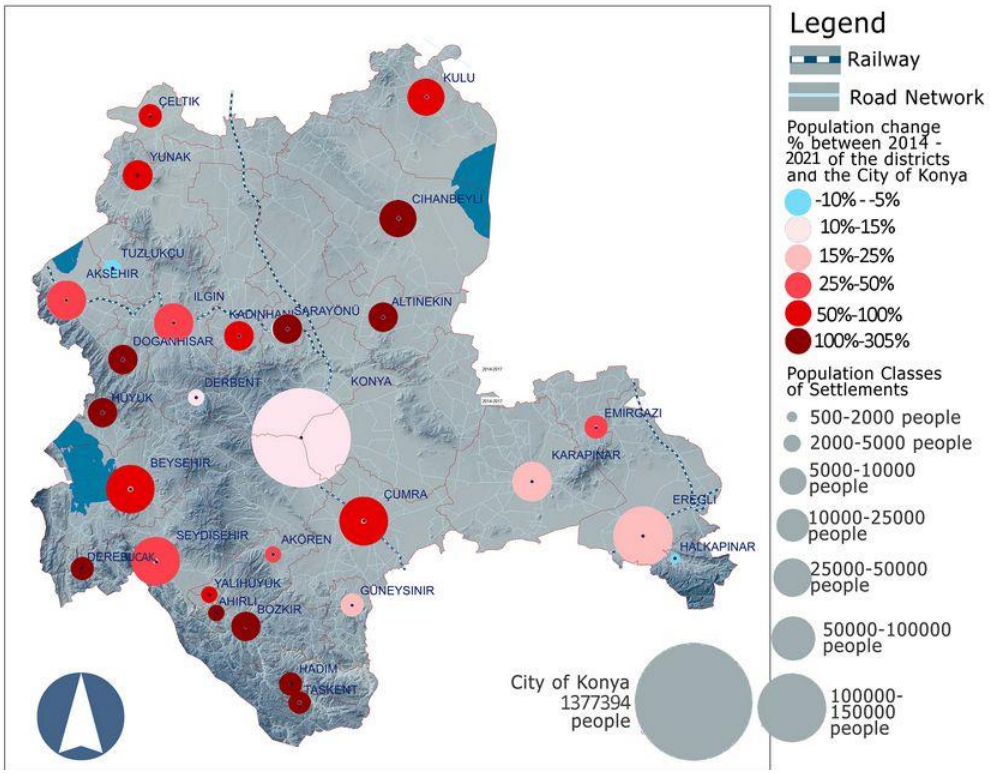

Figure 102 Population Change Percentage of the district cities and the city of Konya after 6360 between 2014 - 2021

Within 7 years of time after the first local elections following the law no 6360, until 2018 majority of districts continued with the trend of population decrease, yet after 2018 the trend interestingly changed and in 2021 massive increases in district city populations have been observed. The population census method has changed and now it is address based instead of a real census and this decreases the liability of the population data and that might be the reason, yet this might illustrate the real increase as well. Data is collected in neighborhood scale including both neighborhoods (urban) and rural neighborhoods (former villages) and these are evaluated in two different categories. The urban populations of the district core settlements are calculated by adding up urban neighborhoods' populations. Therefore, if the place of residence data is reliable, then this means a concentration of population into urban cores of districts, especially the small-scale ones with a populationfrom 500 to 10000. Interestingly and unexpectedly, smaller the scale of the district, larger the population growth rate[159]. Only two districts have decreasing population, Tuzlukçu and Halkapınar and they are

[159]Which increases the dubiousness of the data since the smaller districts, especially the ones under a population of 5000 are on the verge of losing their municipal status, therefore in dire need of an unexpected and drastic population increase. The legal framework is definitive over this process by considering only 5000 and above populations suitable for the existence of a municipal organization.

both under the 5000 population- threshold for existence of the municipality. Both have parties other than AK PARTI elected and in charge.

6.5.2 Geography of Rural Settlement Patterns in 1990-2000-2014-2021

The changes in the populations of former villages, current rural neighborhoods are analyzed geographically on the topographical map of the Konya Province under this section. Red tones illustrate increase while blue tones illustrate decrease in population and darker the color more the change.

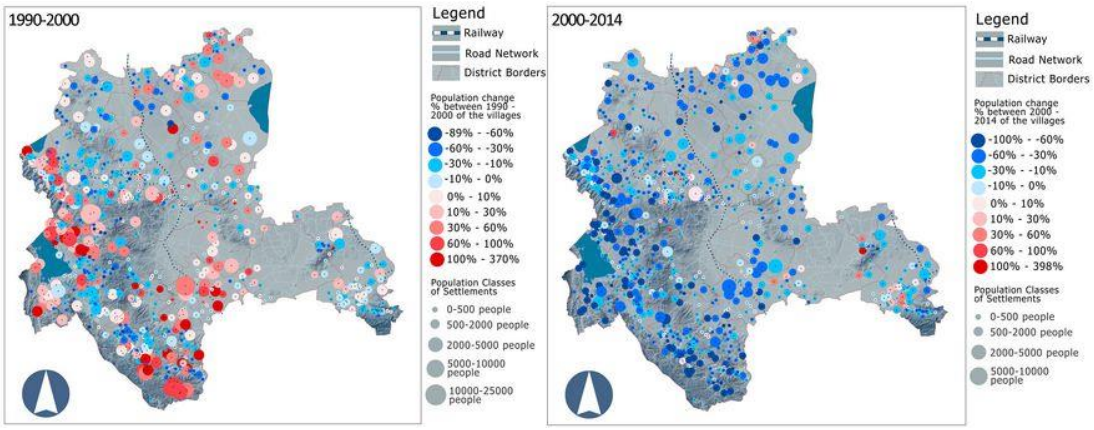

Figure 103 Population Change Percentage of the Villages before 6360 between 1990 – 2000 and 2000-2014

The rate of population changes in villages between 1990-2000 is different from the districts as expected. Larger villages' population tend to increase while smaller villages' population tends to decrease. Smaller the village, larger the decrease. Especially the villages surrounding Beysehir and the villages located on the southern perimeter of the city of Konya have increasing population. These two zones were also the most densely populated parts of the province. In this stage of the MMS, the authority and responsibility boundaries of metropolitan municipalities were still solely the planned area of the core city, the municipal boundary.

As expected, rescaling is more visible in the villages in 2000-2014 stage before the 6360 Law. Only a small minority of villages had increasing population between 2000-2014 and most of the villages had severely decreasing population. Especially the mountainous part of the province suffered most from this decrease. If this map is compared with the previous map illustrating the change of village populations between 1990-2000, rescaling in settlement patterns becomes more visible. The villages with increasing populations were the ones located on plain and close to Kadinhani, Sarayonu, Eregli (the largest district city), Karapinar and Kulu. Except from Eregli, all the district cities above had decreasing population between 2000-

2014. In other words, most villages with increasing population within this time interval are located in districts with decreasing district city populations.

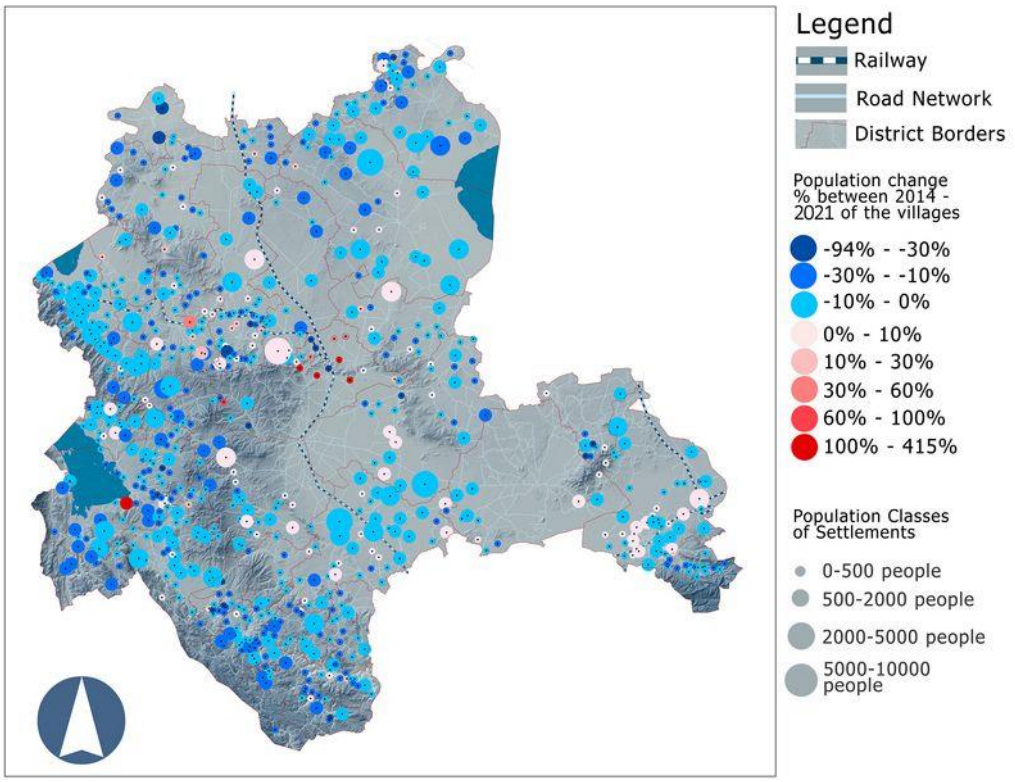

Figure 104 Population Change Percentage of the Villages after 6360 between 2014-2021

After the enactment of 6360 Law and local elections in 2014, within the seven years' time interval, there are villages/rural neighborhoods with both severely decreasing and severely increasing populations. Majority of rural neighborhoods have decreasing population as the blue concentration of the map suggests. Four of the villages with high population increases are located on the northern perimeter of the city of Konya. Another one is on the shore of Lake Beysehir and all of them are relatively smaller settlements. The common characteristic of the rural neighborhoods with increasing population is they are on the semi-periphery of the city of Konya, city of Ereğli and city of Beyşehir. Some of these neighborhoods are among the ones that are not transformed back to rural neighborhoods in 2021 municipal decisions. In other words, they are considered as urbanized by the KMM. Cities either are about to or already swallowed these villages into neighborhoods. Majority of villages with dramatically decreasing population are located on the mountainous axis on the western part of the city of Konya. Among larger villages, there are both increasing and decreasing populations. The direction of change in village populations for these seven years is more leaning towards drastic levels of decreases than the changes in district cities leaning towards increase within the same time interval.

6.6 Settlement Pattern Change from to 2021 and the Problem of Water

Konya is a province with severe water resource problem. The geography is an endorheic (closed) basin with arid climate and water resources are limited while water uses increase year by year especially due to irrigation. Therefore, existence of water resources and irrigation system is the most limited element of agricultural land rent. Water is scarce in the Konya closed basin. In 2014, with reference to Falkenmark indicator (water potential per capita), the basin is listed in the water shortage group with water problem less than absolute scarcity and scarcity and more than no water stress[160]. Turkey is categorized as a country with water stress by DSİ. There are a total of 25 river basins and 16 of them are facing water stress and Konya is one of them.

The difference of Konya is, on one side massive irrigation infrastructure and water provision investments embedded in the land since the Ottoman times starting from the end of 1800s and ongoing with the mega projects for bringing the water into the basin by DSİ and extensive irrigation network. The arid steppe ecosystem is under constant and massive intervention of the Anthropocene with extensive irrigation projects. This not only changes the geography of the province but also the economy as well. According to DSİ statistics (2019) around 10% of all irrigation areas in Turkey are in the Konya province. There are four regional scale administrations for economic development in Turkey and 2 of them focuses predominantly on irrigation and agricultural development. These are GAP and KOP, namely, South-East Anatolia Project (1989 Ongoing) Administration and Konya Basin Project (1985 Ongoing) Administration. In sum, as a national scale policy, irrigation investments are flowing to Konya and the irrigation potential of the basin is mostly used. The water resource provision on the other hand, that will be distributed by this extensive irrigation network is another issue. Konya has a long history of drought and since 1972 major drought years and seasons have been recorded. Being the region with lowest precipitation average in the country and being home to the sole dune, Konya has experienced 16 drought events between 1972-2021 (Bayramoğlu, Z. and Ağızan, S., 2022: 147). The most severe one has been experienced in 2014, with massive impact on agricultural production, food chain and economy of the country as well as grain supply in global scale (Bayramoğlu, Z. and Ağızan, S., 2022: 147). With the climate crisis, it is only expected to be more and more dramatic in time. The groundwater levels due to excessive agricultural usage is another side of the drought problem. According

[160] Industrial Development Bank of Turkey (TSKB). Water is the Next Diamond. TSKB, 2019. Available at https://www.tskb.com.tr/i/assets/document/pdf/TSKBThemeLook_WaterIstheNextDiamond.pdf, p. 11.

to WWF 90% (2014) of water according to DSİ 87% (2019) of water is used for agricultural irrigation in Konya. In order to sustain this massive consumption, water has been transferred from the neighbor basins and there are further transfer projects. The water is also limited in neighbor basins and occasionally problems are encountered in the efficiency, utilization and maintenance of these projects.

Until this part, we have analyzed the settlement pattern change in Konya within three consecutive time intervals. In this part, the change from the first year of MMS to today is illustrated. The maps produced also includes irrigated areas as base map, since water might be the reason of migration. The relationship between the settlement pattern, population change in time and irrigation services provision are mapped below[161].

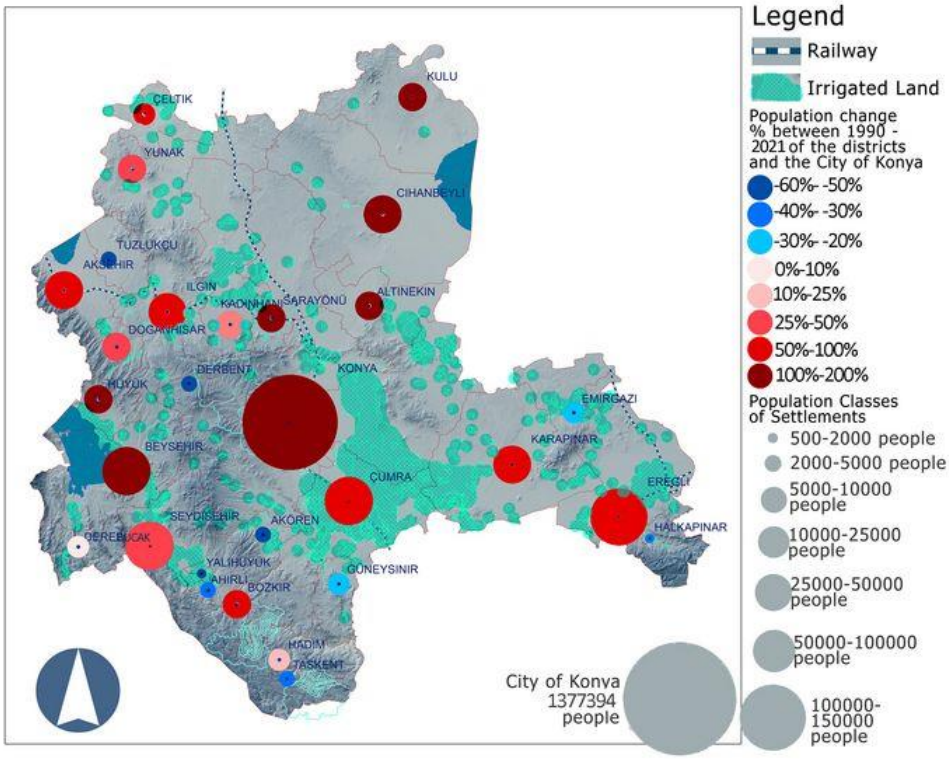

Figure 105 Population Change Percentage of the Villages between 1990-2021 and Irrigated Agricultural Land

As expected, the increase in the population of the City of Konya is among the highest with a percentage of168%. The settlements with the highest increase are Beyşehir, Kulu, Hüyük, Cihanbeyli, Sarayönü and Altınekin yet they are not the largest districts. As the scales of the circles suggests the largest ones are Ereğli, Çumra and Seydişehir. All three have also increasing populations by between 50% and 100%. The district with the highest amount of

[161] Irrigation areas basemap: ormansu.gov.tr, agricultural map, accessed in 2018, topography map: openstreetmap topography and 1990-2021 population data from TURKSTAT, 2022.

irrigated land is Çumra and it is followed by Karatay which is among three core districts (Bayramoğlu, Z. and Ağızan, S., 2022: 43). Çumra is located at the agricultural heart of the Konya basin, which is also the oldest in terms of settlement location. Ereğli and Altınekin follows Çumra and Karatay. Altınekin is an interesting case illustrating the impact of irrigation on the local economy followed by population change. Until 2017, the districts' population was stable, neither increasing nor decreasing (TURKSTAT, 2018), yet with the investments done after 2017 by KOP, by MoAF Local Branches and DSİ[162], the trend changed, and it has become the district that is experiencing third highest growth percentage in the province by 171.6% after the completion of irrigation investments in the region. Seydişehir has the highest precipitation levels in the province and Konya closed basin (SYGM, 2018)[163] and 64.8% of agricultural land is irrigated (Bayramoğlu, Z. and Ağızan, S., 2022: 43). Smaller districts all lost population in varying degrees and all of them have the least amounts of irrigated agricultural land. Their agricultural areas are also among the largest, yet the amount of irrigated land is significantly low in all.

The change in the populations of villages, now rural neighborhoods is significantly different from the districts' urban cores. Not only in metropolitan city scale but also in districts and villages as well, majority of irrigated land is in close perimeters of settlements. Therefore, urban sprawl is not only an urbanization problem but also and severely an agricultural production problem too. Vast majority of villages have decreasing population since 1990. The villages with increasing population vary in size, it is not possible to say that there is a correlation between the rate of increase and the scale of the settlement. They are also dispersed in the geography and there seems to be no specific pattern in the distribution. Yet, two zones stand out, the two largest irrigated agricultural land. There are plenty of villages with increasing population within these two zones. In addition to that, majority of villages decreasing in population and in smaller scale are located on the mountain range within the province as can be observed on the map.

[162] http://www.kop.gov.tr/haber/kop-destekliyor-altinekin-gelisiyor/395

[163] https://www.tarimorman.gov.tr/SYGM/Belgeler/NHYP%20DEN%C4%B0Z/KONYA%20KAPALI%20NEH%C4%B0R%20HAVZASI%20Y%C3%96NET%C4%B0M%20PLANI.pdf

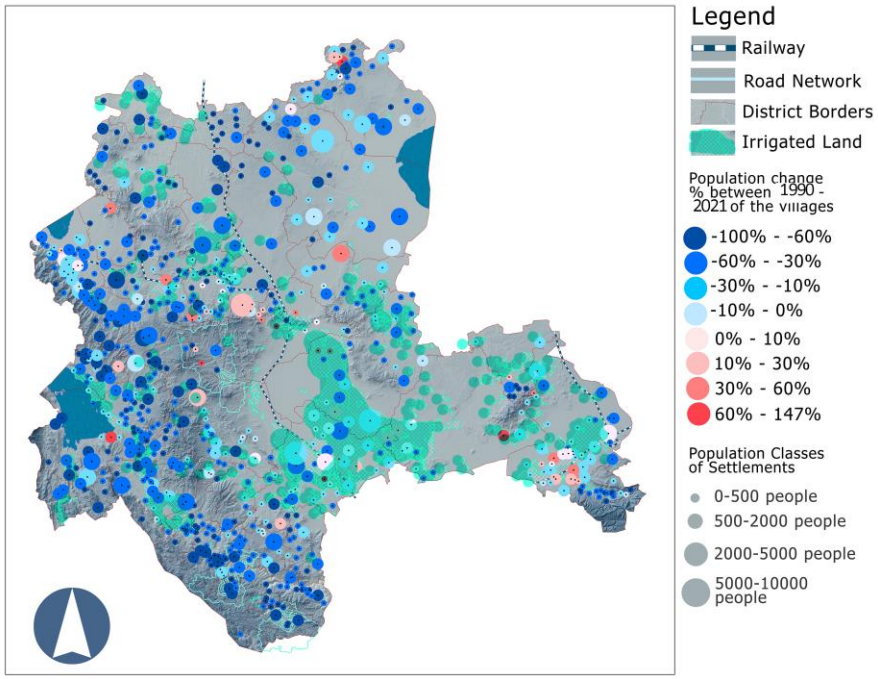

Figure 106 : Population Change Percentage of the Villages between 1990-2021 and Irrigated Agricultural Land

There are plenty of reasons behind the formation of the settlement patterns and the change in settlement patterns in time in any geography. To put in a nutshell, the layers that has an impact on settlement patterns are geography, history, economy, politics, and society in relation with each other. MMS as a structural change in public administration and urban politics is only a recent and minor one of these elements. Hence, it is hard to claim that the changes in population of settlements and rescaling in settlement patterns are solely result of the change in MMS. Yet, it is still possible to observe, MMS as a part of a massive and structural paradigm shift towards city, towards larger settlements, have resulted with more rural push and urban pull in settlement patterns and rescaling favoring larger settlements.

6.7 Settlement Pattern Change in the 40 Km Radius of the City of Konya Before and After 6360 Law

In the year 2004, with the acceptance of 5216 Metropolitan Municipality Law, municipal borders were expanded to a 20-kilometer radius circle. The impact of MMS in the close vicinity of the city of Konya is the point of departure for this part. City of Konya is a sprawled city (see urban form analysis chapter) and covers an area larger than her population suggests. Therefore, 20 kilometers radius is barely covering the urban form of the city. Moreover, there are no other settlements than the city of Konya within this perimeter. In order to measure the impact of the gravity of the city of Konya and the impact of Law no 5216 on settlements

surrounding the city of Konya, the radius of analysis was extended to 40 kilometers and the time interval was extended to 1990, in order to observe the zone with and without expanded MMS boundaries.

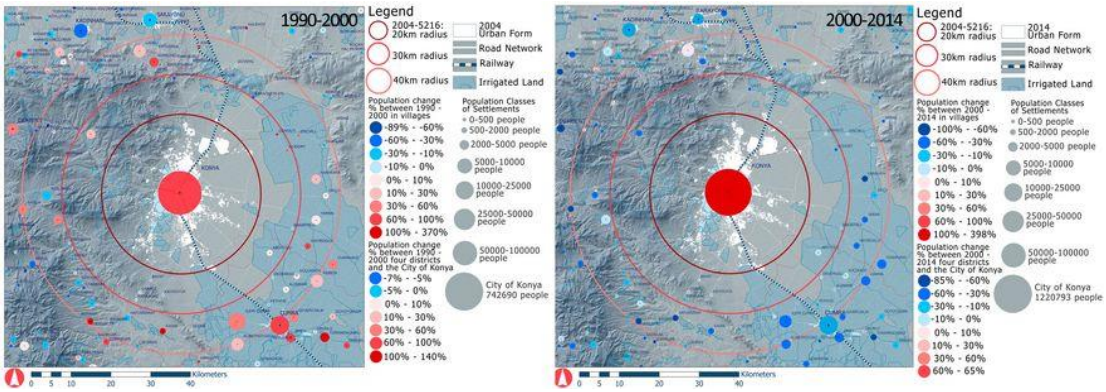

Figure 107 The Change of Population in Settlements within 40 kilometers Radius Between 1990-2000-2014

Nearly all of plain settlements and a significant percentage of mountain settlements within 40 kilometers radius had increasing population between 1990-2000. These settlements are located on irrigated agricultural area and topography is also favorable. There were villages with increasing population with a rate more than the city of Konya in this area. The ones with decreasing population were the villages on mountainous areas. Except for Baskarakavak, the villages between 20 km and 30 km radii are the smallest villages. The settlements are getting larger from 30 km to 40 km. Between 1990 and 2000, the gravity of city of Konya affected nearby settlements in this way. There are four districts close by, Kadinhani, Sarayonu, Derbent and Cumra. Cumra was both the closest and the largest among these four while Derbent is the smallest in terms of population. Kadinhani is the furthest one and also it is the one with most severe rate of decrease in population. There are no geographical barriers between city of Konya and Cumra, but the other three are either on or behind the mountainous zone. Within this time interval, the MM only had authority within municipal boundaries which was covering the plan boundary of 1990 KonPlan for the year 2020.

In the second stage of MMS, after 2004 to 2014, the Municipal Boundary was expanded to 20 kilometers radius. Within this time interval, all four district cities in the zone have started losing population. 54 out of 64 villages had decreasing population as well while city of Konya was having a 65% rate of growth in population. The only settlement with increasing population and relatively larger at the same time was Ladik, located on the northern perimeter of the city. Therefore, it can be deduced that the gravity of the core, the city of Konya was exploded within this time interval and rural push from villages and small-scale settlements

had increased. The larger settlements, namely the district cities were also losing population and this phenomenon seem to stem from the gravity of the urban core. The difference between the 1990-2000 and 2000-2014 time intervals is dramatic. MMS is not the only reason, but methodological cityism in local governments and urban policy making combined with the new frame of MMS favoring metropolitan municipalities underlines the metropolitan city, and this, for sure, increases the gravity of the urban cores within the provinces.

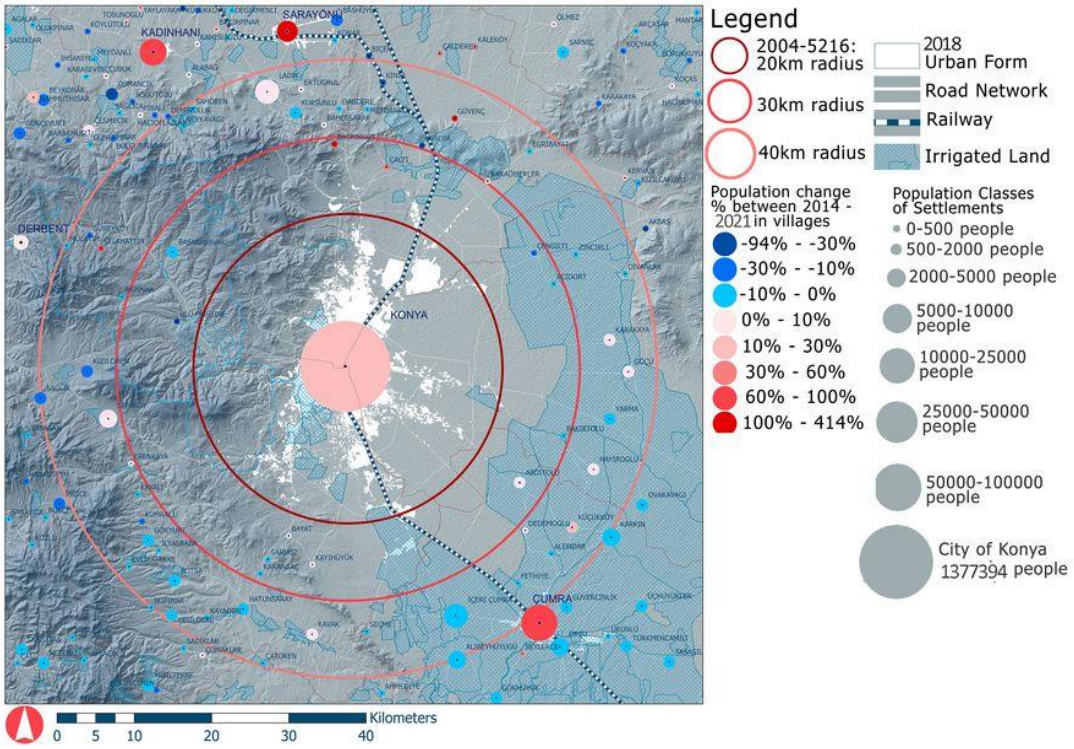

Figure 108 The Change of Population in Settlements within 40 kilometers Radius Between 2014-2021

The last time interval is the seven years that have passed after the 6360 Law on Metropolitan Municipalities has gone into effect. The time interval is short, yet the changes in populations of nearby settlements and the trends are visible. Çumra, Sarayönü and Kadınhanı district cities has started gaining population and more than 30 settlements among around 100 settlements within 40 km radius are also experiencing population increase. Between 2000-2014, all three districts within the zone, Çumra, Sarayönü and Kadınhanı were all losing population in varying degrees. The population of four villages in the northern perimeter have even increased more than 100% in just last seven years. These villages are about be swallowed by the urban form of Konya. Northern part is also planned to be the major development zone for the future growth of the city in the recent plan of MM, the 2043 plan, and now being within the endless municipal zone, these areas started gaining population. All four villages had decreasing population between 1990-2000 and 2000-2014. The 180-degree shift in the trend

of rate of population change in these four villages are direct result of MMS and the plan produced within the MMS frame. The rest of the rural neighborhoods are predominantly losing population while the district cities have drastically increased population.

6.8 Rescaling: Mobility of Settlements among Population Classes

Which settlements in which population class tend to have increasing population? Which settlements in which population class tend to move downwards to a lower population class? How settlements moved within population classes between 2000-2014 pre 6360 period and after 6360 Law? To decipher rescaling in settlements, we are going to trace back the upward and downward mobilities of settlements. A Sankey diagram[164] was drawn showing which settlement moved upwards, which settlement remained in the same class and which settlement moved downwards in population classes in each break point of the MMS timeline. With this diagram, it is expected to understand the dynamics of population change and rescaling in the settlement hierarchies.

The population classes used to classify the districts are 500-2000, 2000-5000, 5000-10000, 10000-25000, 25000-50000, 50000-100000 and over 100000. The debate which settlements are urban or city and which settlements are rural or village is an ongoing debate. A settlement between 500-2000 is more likely to be a village, yet there are district cities/core settlements with this population, and in administrative terms these are cities. For some approaches the lower limit is 20000 for a settlement to be a city, while for some approaches 5000 is enough. Within this part, I am not going to get into this debate but assume that all the district cores are cities regardless of their population, and hence they will be named as district cities. The problem whether they possess urban qualities or not is irrelevant for this part for now. Since they are regarded as cities in urban politics in local governments (they have municipalities) and policy making, they will be regarded as cities within this part.

[164] Produced in https://flourish.studio/visualisations/sankey-charts/ with TURKSTAT data in August 2022.

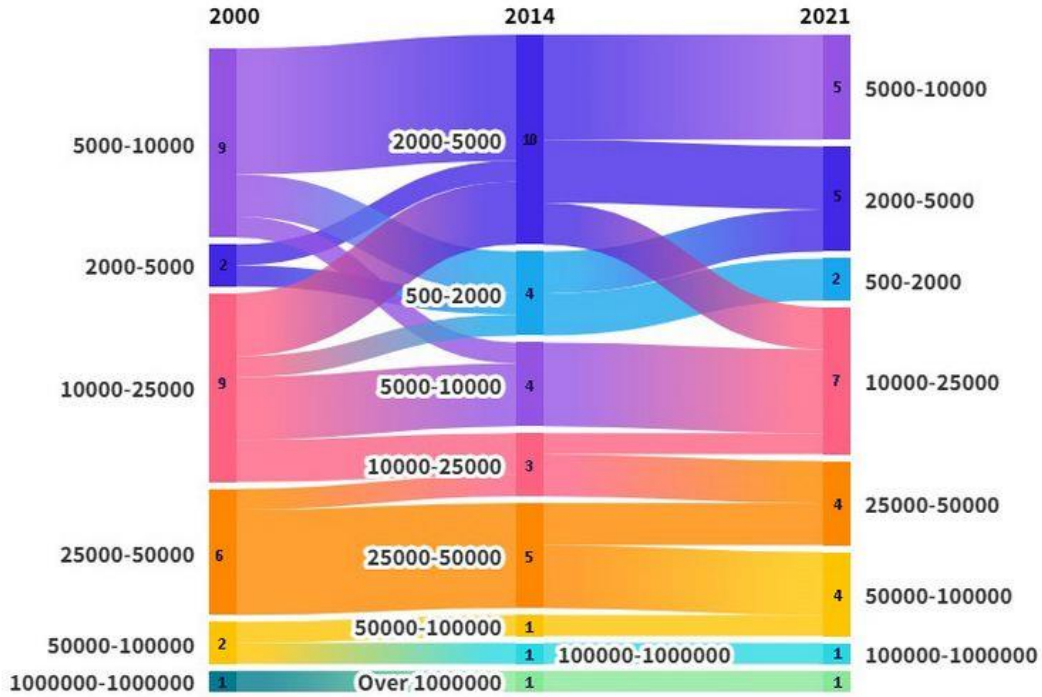

Figure 109 Sankey Diagram of Mobility of District Cities among Population Classes in Between 2000-2021

In the year 2000, 24 out of 28 districts were between 5000 and 50000 people. 5000 people being the minimum standard population for sufficient service provision (Ersoy, 2009), majority of districts were suitable for sufficient and efficient service provision while still within manageable limits. 18 districts in total have populations between 5000-25000. Overall, majority of change took place in settlements below 25000 population thresholds.

For several reasons, 2000-2014 time interval is the interval with the most change. The district cities population classes were nearly shuffled within this time interval. The upwards trend in the previous interval has transformed into a downwards trend following the increase in district cities with decreasing populations. From 2000 to 2014, 10000-25000 population class and 5000-10000 population class had eroded. These two classes had the most dramatic change and majority of districts with a population between 5000 and 25000 had lost population and moved downwards in population classes. Therefore, even though this interval is good for service provision and manageable in scale, it is also fragile against external variables. Economies of scale, rescaling, paradigm shifts in local politics and urban governments are some of these externalities. The largest district city (Eregli) has surpassed 100000 limits within this time interval while the smallest city (Ahirli) severely lost population (from 5685 to 989) and moved downwards to 500-2000 class which can barely be regarded as urban or city. The district cities in 5000-10000 population class were the most fragile against externalities. Only one city remained in the same class while 6 cities moved downwards to 2000-5000 class and

2 to even 500-2000 class. These cities are severely shrinking and local governments that are now responsible from these cities in the MMS framework must take this into consideration. The cities in these classes (2000-5000, 5000-10000 and 10000-25000) are under risk of erosion of population unless a policy measure is taken.

2000-2014 is the longest of the intervals and at the same time severe changes occurred in urban policy and national economy. A turbulence in population movements and settlement patterns is expected, but the scale is more drastic than the expected. One of the 9 district cities 10000-25000 population class, Taskent, had even fallen to 500-2000 population class with a decrease of 84.5 percent (from 10779 to 1661 people). From the same class, three districts have moved two classes downwards to 2000-5000 class and three districts have moved downwards to 5000-10000 population class. The cities in 25000-50000 population class were more resilient within this period of time. Only one district city moved downwards to 10000-25000 population class and the only upwards movement was the largest district's, Eregli's, upwards movement surpassing 100000 population limits. Rescaling is highly visible within this period. Largest getting larger and majority of districts below 25000 population becoming smaller are the indicators of the changing game in local economies, local politics, national economies, and national politics.

The picture in 2014 is highly unbalanced. Half of the 28 district cities have a population less than 5000, which makes it harder for service provision and which makes these settlements more fragile against economic, political and social externalities. There are now only four district cities in 5000-10000 population class and three in 10000-25000 class. The smallest population classes are getting larger in terms of number of cities and populations dwelling in these scales. This is the backside story of urban population surpassing rural population and massive population increase in primate cities, urban agglomerations, city-regions, metropolitan cities, whatever the name is given.

The 2014-2021 time interval, after the 6360 Law is relatively shorter with only 7 years yet the changes among population classes are not subtle. The downwards trend in almost all district settlements reversed. The majority of the upwards mobility has taken place in 2000-5000 population group, among 10 districts that had population between 2000-5000 in the year 2014, 5 of them moved to 5000-10000 population group and 2 of them even moved 2 classes up to 10000-25000 population group. The district settlements with a population above 10000 were 10 in 2014 while 6 of them moved upwards in classes. The number of settlements with a population above 10000 were 11 and increased to 17.

The 720 villages analyzed within this part is also divided into population classes. Except for three cases with a population above 10000, the upper limit of village populations is 10000. There are villages with more population than or same population with district cities,

yet, to be clear, they will be named as villages within this section. It is not a matter of being urban or rural in characteristic, but rather the administrative status given to that settlement that matters for this part of the study.

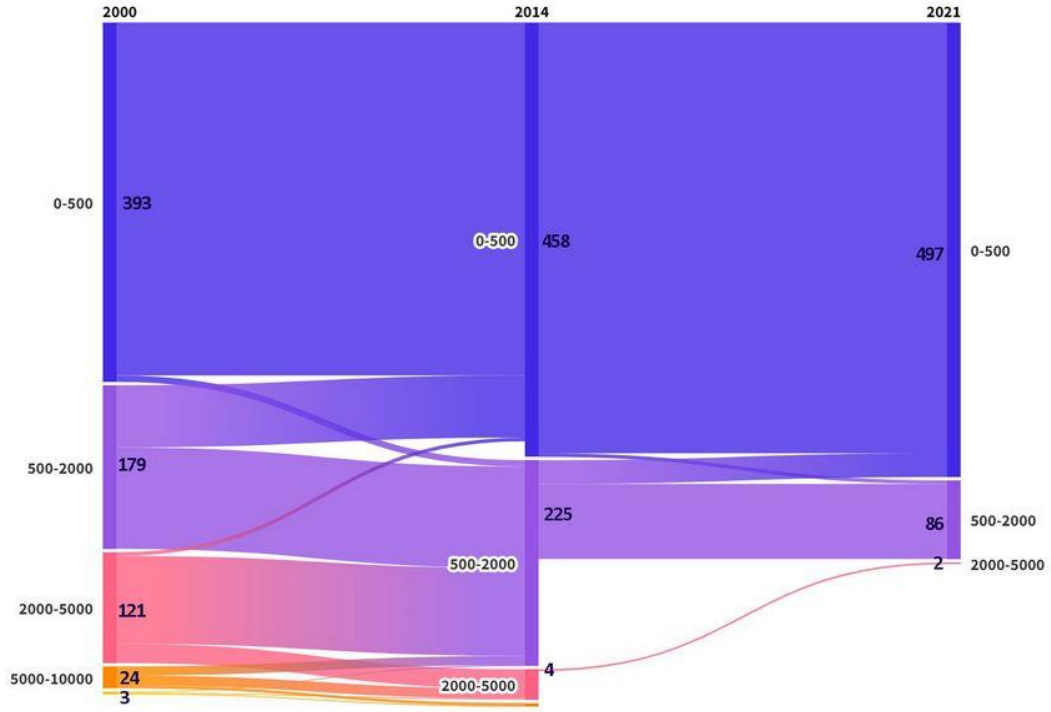

Figure 110 Sankey Diagram of Mobility of Villages among Population Classes between 2000-2021

In 2000, more than half of all villages' population were under 500. 393 villages with a percentage of 54.5% were in 0-500 population class. The number of villages with a population between 500-2000 was eroded to 179 while the number of villages in 2000-5000 population class were increased to 121. Even though the number of villages under 500 people was increased, the percentage of number of villages under 2000 population decreased to 79.4% (was 82.6% in 1990).

In the second stage of MMS, between 2000 and 2014, the most drastic change took place in 2000-5000 population class. 96 out of 121 villages moved downwards to 500-2000 population class. The percentage of this change is 79.3%. Four villages moved two classes downwards to 0-500 class. Only 21 of 121 villages remained in the same population class in the consecutive break point. 68 out of 179 (37.9%) villages were moved downwards from 500-2000 to 0-500 population class. 21 of 24 villages in 5000-10000 population class moved downwards to 2000-5000 and 500-2000 population classes. All three villages with population above 10000 moved downwards to 5000-10000, 2000-5000 and even 500-2000 population classes. The trend in sum, is a downwards one.

In 2014, 63.6% of all villages' population were under 500. The graphic is dominantly blue at this point and 458 is the number of villages with a population below 500. The 500-2000 population class has 225 villages in it and 94.8% of all villages had a population below 2000. The number of villages in 2000-5000 population class had fallen from 121 to 33 and there were only four villages with a population between 5000-10000. The distribution became more unbalanced in time and lower classes are now highly dominant in overall picture. The most severe rescaling occurred in 500-2000 and 2000-5000 population classes and the majority of movement was downwards. With the rescaling, province of Konya ended up with more micro scale settlements, which are highly problematic for policy making and service provision.

The last time interval, 2014-2021 covering the last and recent stage of the MMS, after 6360 Law even though being relatively shorter, the change is still visible. The downwards mobility trend in 2000-5000 population class continued. The total number of villages already were decreased between 2000 and 2014 and in 2014 all villages were transformed into neighborhoods in terms of administrative definitions. Later on in 2021 they are transformed into rural neighborhoods and differentiated from their urban counterparts. Within this time interval, almost all districts have increasing populations while majority of rural neighborhoods faced severe population decrease. Today, 84.9% of all rural neighborhoods have a population below 500 (in 2014 this percentage was 63.6%). 5 out of 33 villages moved downwards to 500-2000 and one villages downwards to 0-500 population class. The majority of movement has taken place in 500-2000 class in downwards direction. Only 86 rural neighborhoods have a population between 500-2000 and only 2 have a population between 2000-5000 in 2021. Rural geography of Konya is in her most deserted and dispersed state. Policy making and urban policy is either facing or going to face severe problems due to this form of rescaling, and there is a need for tuning and refining in urban policy and policy making in order to meet the emerging needs of these micro scale settlements in metropolitan municipalities and in metropolitan scale. The 86 villages in 500-2000 population class are under high risk of decreasing population and downwards mobility towards 0-500 class while the villages with a population under 500 is already highly unmanageable for policy makers, unfit for economic development and mostly uninhabitable for the villagers due to lack of services and a future of some form of economic development (apart from being swallowed by urban growth).

6.9 Conclusions: 6360 Law on the Settlement Pattern of Konya

The 6360 and metropolitan municipality system impacts on the settlement patterns in the case of Konya province are summarized below. From 1990 to today, the settlement pattern changes, the geographical distribution of population within the borders of the Konya province

has been analyzed in this chapter. These borders are the borders of the metropolitan municipality service area since 2014 after the 6360 Law and this is the main variable in the equation. Yet, the settlement patterns illustrate a strong correlation with the existence of water in the form of irrigated agriculture as well as existence of plain land in contrast with mountainous areas. The existing scale of the settlement also seems to be definitive in the direction of change as well. With these parameters at the background and 6360 on the foreground, the results are as follows.

- Between 2000-2014, pre-6360, the majority of populations of district cores/cities were decreasing, some severely, while right after the enactment of 6360, majority of districts, apart from the smaller ones (which have a population below 5000) all have started growing in terms of population while the former villages now rural neighborhoods have continued their downwards movement. 6360 Law might or might not be the reason and there are several parameters such as irrigation or slope in farmlands, proximity to urban cores or transportation nodes etc., yet it did not favor small scale and rural settlements. A rescaling took place, and the direction of rescaling is different from 2000-2014 interval.
- In 2000-2014, the majority of population flow were into the city of Konya, but between 2014 and 2021, district core cities were also started attracting population from the former villages' current rural neighborhoods. The development rights given by district municipalities were much higher even though the populations were decreasing between 2000-2014, while one positive aspect of 6360 Law, making planning more centralized in local scale while increasing its immunity against district scale interest groups, enabled metropolitan municipality to produce a comprehensive plan for whole province covering all districts and the development rights given by the plan to the districts are drastically decreased and have become more in accordance with existing situation.
- Historically less accessible mountainous geographies are already disadvantaged for settlement patterns and the scales are relatively smaller. This is observed in the case of Konya as well while they also experienced massive decrease both between 2000-2014 and 2014-2021. Their scale being already smaller, with less agricultural land to use, with significantly low levels of irrigation and low accessibility, this is expected. These settlements in these areas require specific policies produced while the 6360 enabled metropolitan municipalities are highly cityist and focused more on larger scales: more focused on urban development, larger scale agriculture and even irrigation. Even though 6360 Law and the metropolitan municipality system are not the sole parameters affecting these areas, it is safe to say it did not help either with

specific policies produced for mountainous areas. The mountain-plain divide is considered as the prime divide in the case of Konya by the MEVKA Regional Development Agency while in the services provisioned by the metropolitan municipality after 2014, this differentiation is not observed and a specific policy for these mountainous villages / rural neighborhoods cannot be found on a widespread scale. Agricultural and rural services predominantly focused on irrigation and agricultural production on the Konya plain zones rather than mountain ranges. Therefore, it is safe to say that after 6360 Law, with the methodologically cityist approach of the Konya MM favoring larger scale settlements and larger scale irrigated agricultural production, the decrease of population in these geographies have been increased.

- In 2000, 54.5% of settlements had a population under 500 while in 2014 this has increased to 63.6% and within 7 years of time a record-breaking increase has taken place between 2014 and 2021 it increased to 84.9%. In addition to that, even though slightly, the total number of people that are living in villages with population under 500 has also increased. This means the service provision is becoming harder and less possible for these sparsely dispersed small scale, sometimes micro scale villages (some has even become hamlets). This should be a significant element in urban policy making by metropolitan municipalities now serving these sparsely dispersed geographies of settlements. 497 is the number of rural neighborhoods under 500 population threshold and the majority of 86 rural neighborhoods with a population between 500 and 2000 are also under risk of decreasing population. This trend increased after the 6360 Law and the service provision of the metropolitan municipality, extracted from their activity reports, did not provide any counter measure.
- The settlements with a population above 25000 back in 1990s, almost all had increasing population while the ones with a population below, experienced varying degrees of fluctuation in population and between 2000-2014 predominantly experienced a decrease in population. 25000 population and above in a settlement seems to make it more stable or prone to growth. The ones below, both district cities and rural neighborhoods are likely to have fluctuating populations. After the enactment of 6360, district cities have experienced increasing populations and the rate of change increased by the accessibility (mountain-plain division) and existence of irrigation. The existence of these two elements did not affect rural neighborhoods that much and the decrease in rural neighborhoods continued regardless of being on the plain or having irrigated agricultural areas. The most dominant parameter for these

former village now rural neighborhoods is their proximity to either the city of Konya or larger and growing districts. In other words, urban development rights, urban sprawl and urban areas swallowing these rural neighborhoods are the main reason behind these former villages to gain population. The existence of villages, the existing ownership patterns on the periphery of cities, on the semi-periphery, the urban shadow, or fringe, changes the end result in the urban form. This does not seem to be considered by the plan produced by the metropolitan municipality. In addition to that, the villages/rural neighborhoods, dangerously close to the urban settlement boundaries are also not planned or controlled. The twofold policy that is needed for these rural neighborhoods one for deep rural ones with decreasing population and one for that are in the near vicinity of urban development pressure with increasing populations is not existent in the rural services provided by the metropolitan municipality as observed in the previous chapter and these two extreme ends of the spectrum seem to continue in their directions. The decreasing population trend in the further rural neighborhoods continued after 6360 while the ones that are under urban development pressure continued with the trend of increasing population.

CHAPTER 7

METROPOLITAN MUNICIPALITY SYSTEM IMPACT ON THE URBAN FORM IN KONYA 1990-2021

Urban form in this study, refers to the macro-form of the city. Metropolitan Municipality System (MMS) refers to the structure of local government favoring metropolitan municipalities and its transformations and for this specific case, Konya MM becoming authorized over whole province. In this part, the macro-forms of all settlements of Konya Province, namely city of Konya, districts and villages will be evaluated first. For the city of Konya, the distribution of density over the urban form and the level of compactness – the degree of urban sprawl will also be measured. Building up on this, the changes in the urban form of city of Konya and districts will be illustrated. To measure the impact of MMS over urban form, the timeline starts with 1989, has 2004 and 2014 as nodes of analysis and ends in 2021. With this, we aim to measure the impact of MMS over the way cities grow in the case of Konya.

7.1 Urban Forms of Cities and Rural Neighborhoods in the Province of Konya

7.1.1 Urban Form in the City of Konya

City of Konya is a sprawled city. The settlement is limited by topography on the east side and the settlement nearly has reached the threshold. Southern and south-western areas are irrigated agricultural land and highly valuable in terms of agricultural production if the water scarcity is considered. Urban fabric produced on these lands are the most sprawled ones. The settlement area, the macro form of Konya is drawn in the map below[165].

[165] Basemaps: SRTM (30x30m) (JPL, 2004), Google Earth Satellite View 2021-2022

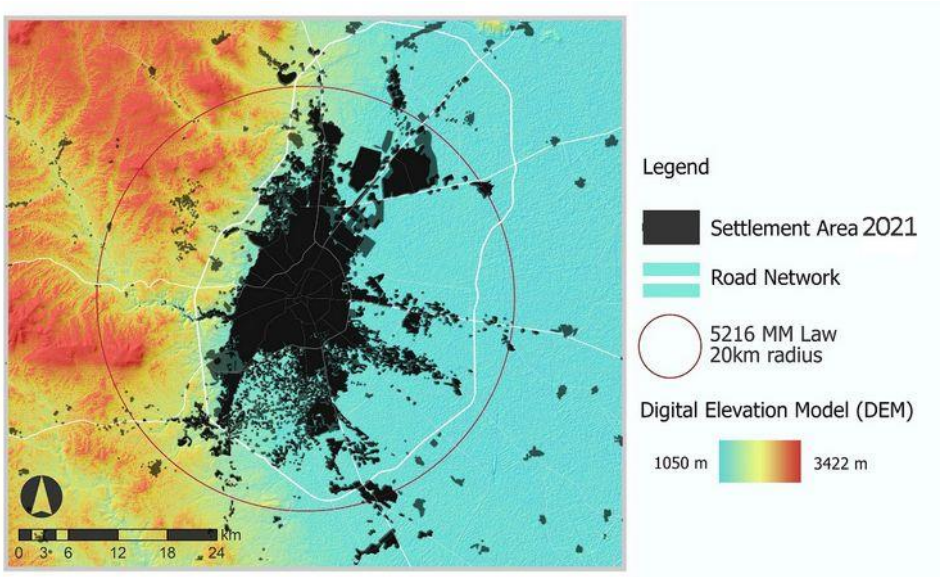

Figure 111 Urban Form of the City of Konya, 2021

Today, Metropolitan Municipality of Konya controls whole province in terms of production of space, yet between 2004 and 2014, the control boundary of MM was within the drawn circle of 20km radius. As can be seen from the figure above it barely covers the settlement area. Back in 2004, the settlement area was less yet it was still not enough to control urban form via also controlling surrounding land uses. The 20 km radius was defined by 5216 Metropolitan Municipality Law depending on the population of the province. 20 km radius being insufficient for the city of Konya illustrates two problems, first, defining control boundaries based on solely population may result with inconsistencies in some cities and second, city of Konya is more sprawled than expected regarding her population.

Urban form, the settlement area of the city becomes more legible with addition of one more ingredient: density. The geographical distribution of the population within the urban form helps us understand the form better and gives a hint to the future, to which direction the city will likely grow. The density of neighborhoods in Konya is drawn below[166].

[166] Sources: TURKSTAT 2017 Neighborhood Populations, Google Earth 2017 Konya neighborhood boundaries, Google Earth 2017 Satellite View.

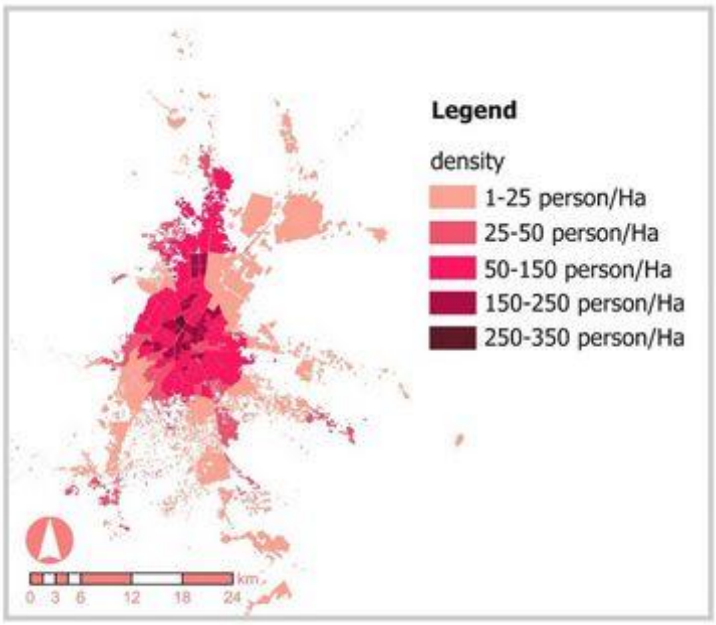

Figure 112 Konya Urban Form - Settlement Density Distribution

Konya urban form shows symptoms of urban sprawl on every direction, yet with the density map, the level of problem on each side becomes clearer. Northern part, surrounding Selcuk University has higher density than the rest of the periphery and similar to the core part of the city, relatively compact. On the other hand, southern and south-western areas have lowest density and shows severe symptoms of sprawl. Three nodes in these areas, the main gravitational pull for the city growth is towards north, where university, airport and the organized industrial zone is located. In addition to that, the 1984 Plan and 1999 Plan had proposed city to grow towards north. Hence, the development on the northern part of the city is supported via plans and the land uses proposed in plans since 1984. These two plans' decisions are highly visible on the density map. Another interesting point of the map is the three relatively higher density spots on south-east, south and south-west major transportation axes. South-eastern (Erler) and south-western (Cayirbagi) spots were villages swallowed by urban growth after 1980s. This explains the concentration of population in these neighborhoods. The concentration on the southern axis on the other hand can be explained with the existence of railway and a major road connecting Konya with Cumra district and Karaman Province (previously largest district). In 183 neighborhoods and three metropolitan districts (Selcuklu, Meram, Karatay), within the urban form shown above, total population is 1377394 for the year 2021 (TURKSTAT, 2022) and the average density within the urban form

is 80.8 person per hectares. The distribution of these neighborhood densities are drawn below in the map[167].

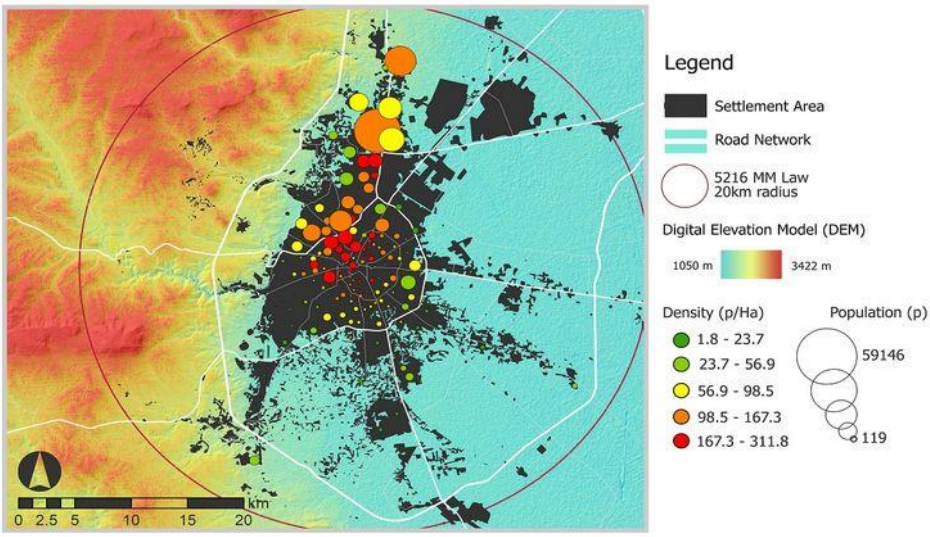

Figure 113 Distribution of Population Sizes and Densities of Neighborhoods over the Urban Form in the City of Konya

The sizes of circles vary based on the total population of the neighborhood, which is between 59146 and 199 persons, while, the colors vary based on the density; red shade has highest density and green shade has the lowest. This thematic map clearly illustrates that majority of population is concentrated in the nucleus and on the northern axis as a secondary center of the city. The core of city has high density as expected yet as the large orange dots point out, in terms of total number, majority of population dwells on the north-east to north axes, on the Konya-Isparta and Konya-Afyon roads. Especially the north sub-center near the Selcuk University is likely to change the gravitational pull of the core and direct the growth pressure to the north. Regarding the irrigated agricultural land on the southern and eastern peripheries of the city, this pull is rather positive. Excluding the north axis, the rest peripheral areas have both low density and low population. This increases the extend of the sprawl problem and illustrates the consumption of (agricultural) land instead of production of needed urban space.

[167] Basemaps: SRTM (30x30m) (JPL, 2004), Google Earth Satellite View 2017-2018, Google Earth 2017 Konya neighborhood boundaries, TURKSTAT 2017 Neighborhood Populations.

7.1.2 Urban Form in the Districts of Konya Province

The form of urban settlements or any settlement regardless of their size, urban-rural qualities and scale, is partially affected by geographic features of the region. There are 28 districts in the province excluding the core three districts of the city of Konya. One fundamental feature of geography is topography. It defines the geographic frame for development, accessibility, and urban form. Hence, topography also impacts how a district is affected from the MMS as the settlement pattern chapter suggests. MMS controlling districts is a recent development with only seven years of history (as of 2021) and within this short amount of time, will it be possible to observe results over the urban forms of the settlements within the province is a significant question. Yet here we will be producing this analysis for further research and to note down the significance of urban form in measuring the impacts. To start with, the topography of the province and the distribution of 28 districts are as follows:

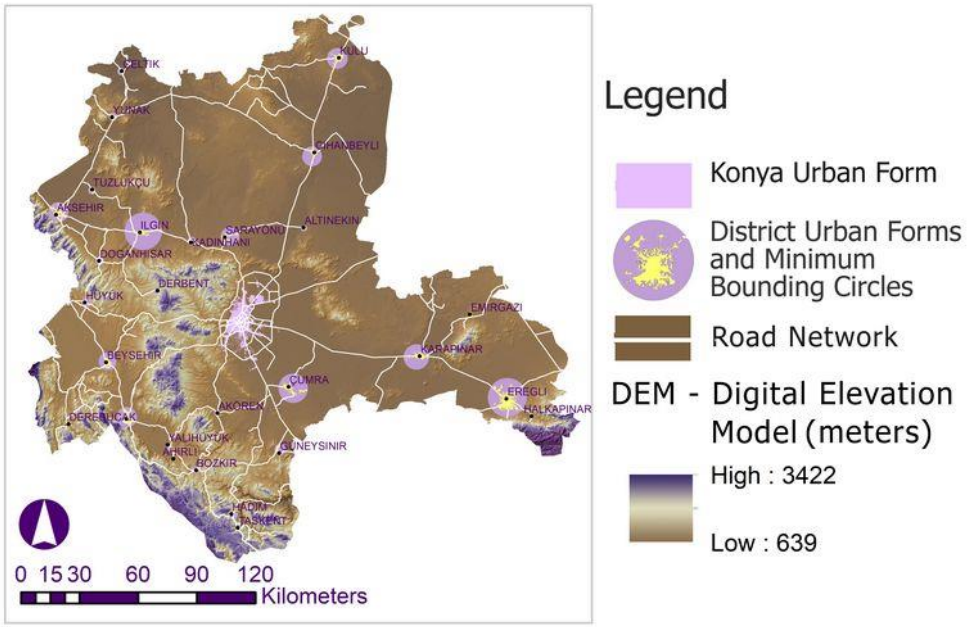

Figure 114 Topography and Accessibility of the Province and the Geographical Distribution of Districts

Some districts are too small in scale; to illustrate them we have used minimum bounding circles surrounding the urban form of each district city. They highly vary in population (see settlement patterns part) and following this, their sizes are also highly varied. As expected, the ones on the plain are the largest while the slope getting steeper, the size of the district decreases as well. The district that has highest interaction with city of Konya is Cumra, the third largest district in terms of urban form area and the fifth largest in terms of population. Cumra is in the close vicinity, and more significantly, does not have any

topographic thresholds decreasing accessibility from city of Konya. Except from Cumra, all other larger districts are on major transportation routes connecting the city to Ankara, Afyon and Adana cities. The districts on steeper slopes and far from major transportation routes are the smaller districts and majority of them show no sign of further development if not intervened with policy.

There are four geographic categories that districts were divided into: plain, foot slope (mountain slope), valley and waterfront. Via visual interpretation from google earth satellite view 2017, districts are divided into these categories. 19 out of 28 districts (67.9%) are located on the plain, 5 on foot slope (mountain foot), 3 on valley and 1 on waterfront. All of larger districts are plain cities and all valley and foot slope cities are smaller cities in terms of urban form.

There are four geographic categories that districts were divided into: plain, foot slope (mountain slope), valley and waterfront. Via visual interpretation from google earth satellite view 2017, districts are divided into these categories. 19 out of 28 districts (67.9%) are located on the plain, 5 on foot slope (mountain foot), 3 on valley and 1 on waterfront. All of larger districts are plain cities and all valley and foot slope cities are smaller cities in terms of urban form.

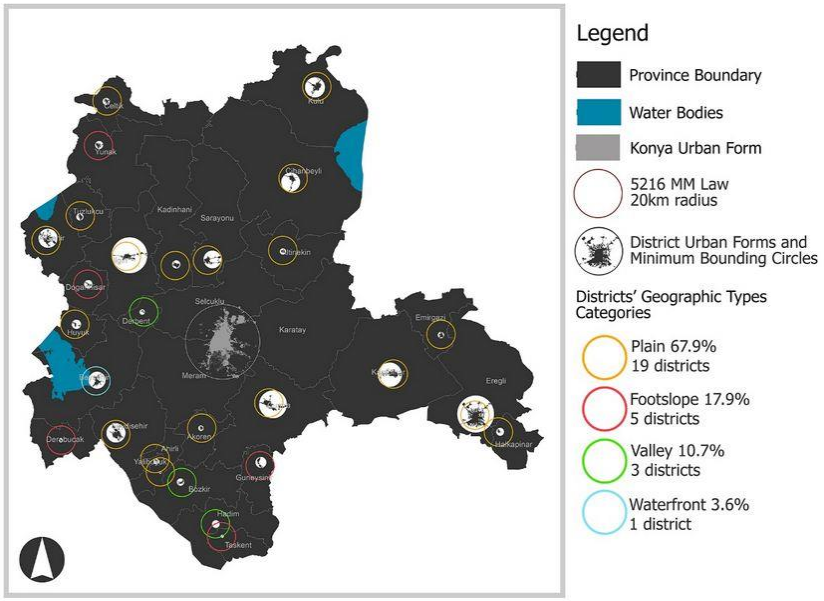

Figure 115 : Districts by Geographic Features

Only four of 28 district cities have a compact urban form, six of them are linear and the rest 18 cities are dispersed/sprawled. Some of the linear cities were also sprawled cities but their form is closer to linear, so they were included in the linear category. We have to state that compact category is also for relatively compact settlements, they are by no means totally

compact. All larger districts are sprawled/dispersed cities and all linear or compact cities are smaller cities. Previously main authority over these cities were district municipalities but after 2012 with the acceptance of 6360 law and the 2014 local elections making the law operative, the authority has passed to metropolitan municipality. It is still early to measure the effects of MMS on urban form of districts, whether they are becoming more sprawled or not, however it has to be a part of analysis, in order to illustrate the MMS's spatial impacts.

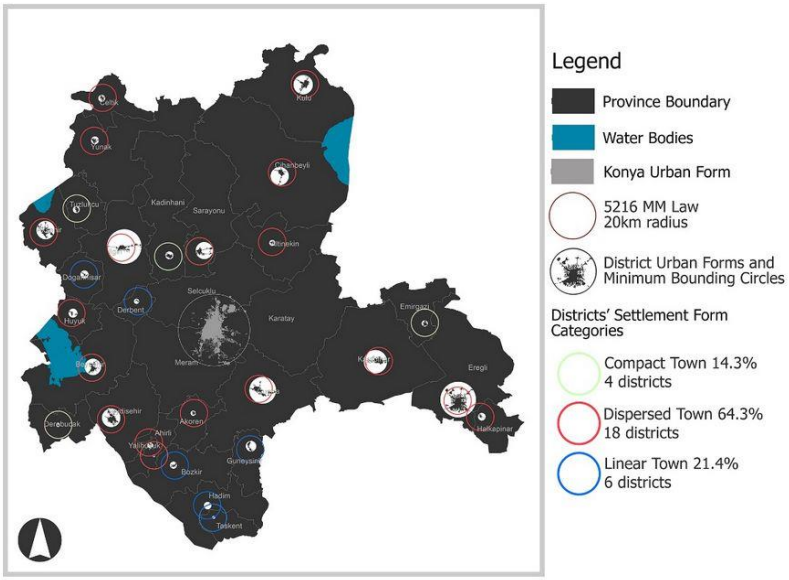

Figure 116 Districts by Urban Form Settlement Types

All valley cities are linear, which is expected, three of foot slope cities are also relatively linear, while no plain cities are linear. Therefore, for the case of Konya, linearity of an urban form is highly dependent on geographic limitations. 88.9% of dispersed towns are on plain. Foot slope cities shows all three categories of settlement types so they are the most versatile.

Table 15 Distribution by Settlement Type and Geography

distribution by settlement type

%	total	compact town	dispersed town	linear town
waterfront	3.6	0.0	5.6	0.0
valley	10.7	0.0	0.0	50.0
plain	67.9	75.0	88.9	0.0
foot slope	17.9	25.0	5.6	50.0
	100.0	100.0	100.0	100.0

distribution by geography

%	total	waterfront	valley	plain	foot slope
compact town	14.3	0.0	0.0	15.8	20.0
dispersed town	64.3	100.0	0.0	84.2	20.0
linear town	21.4	0.0	100.0	0.0	60.0
	100	100	100	100	100

71.4% of districts (20/28) are under 5% of mean slope while 7 of them (25%) have a mean slope between 6-10%. In only one district the mean slope is higher than 15%. Therefore, the urban forms of cities are relatively flat. The 2017 urban forms of cities by three categories and ranked based on their population size (from large to small) are as follows:

Table 16 Distribution of District Cities among Slope Classes

slope classes distribution	number of districts	percent
1-5% Slope	20	71.4
6-10% Slope	7	25.0
11-15% Slope	0	0.0
16-20% Slope	1	3.6
21-25% Slope	0	0.0

All six largest cities are sprawled cities. Some cities such as Aksehir, Seydisehir, Yalihuyuk and Cihanbeyli shows signs of ribbon development while some cities such as Sarayonu and Huyuk swallows villages nearby. Some have more severe sprawl, like Eregli, Aksehir, Karapinar and Yalihuyuk, while some have more curable relatively lesser sprawl like Ahirli, Yunak and Altinekin. If their populations and densities are taken into account, the depth of problem of sprawl increases. Aside from Yunak and Kulu districts, all cities are surrounded by agriculturally productive lands and this pattern is highly visible from the satellite views. In other words, they are sprawling into agricultural areas.

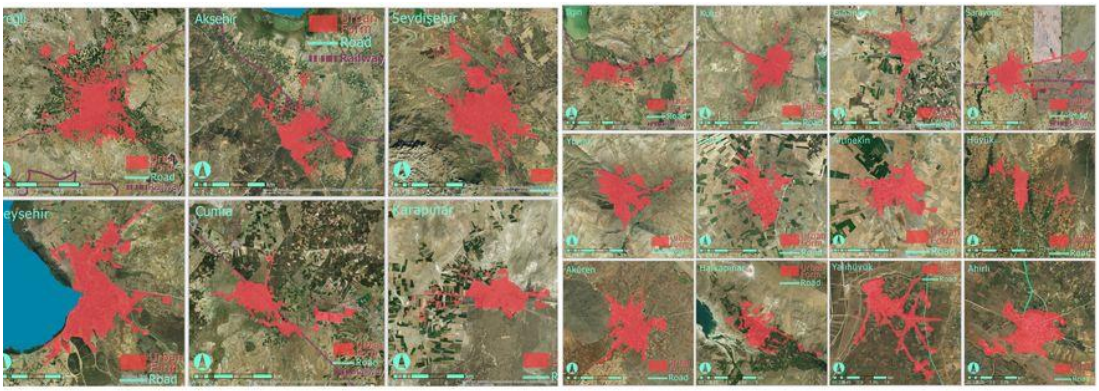

Figure 117 Urban Forms of Dispersed/Sprawled District Cities of Konya

The second category is compact cities. They are far from being perfectly compact, yet close enough to be categorized as compact. First three of them are plain cities and are surrounded by agriculturally productive lands as well. The last one is a foot slope city with limited agricultural land available. Except from Kadinhani, they are not on major transportation routes.

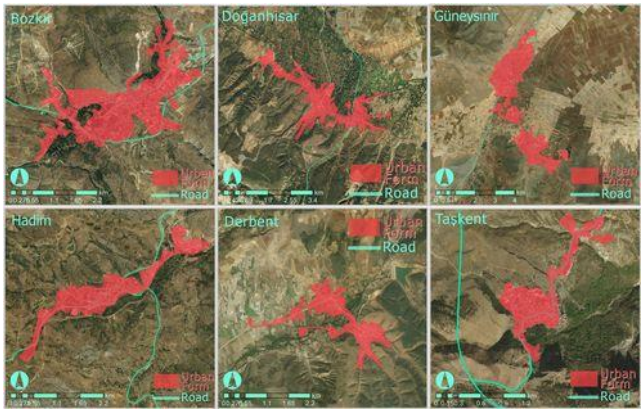

Figure 118 Urban Forms of Linear District Cities of Konya

Three valley cities have relatively limited access to agricultural lands while three footslope cities have more available. They are not in the perfect sense linear, yet linear enough to categorize as one. They are either linear by spine or because of linear sprawl, meaning ribbon development.

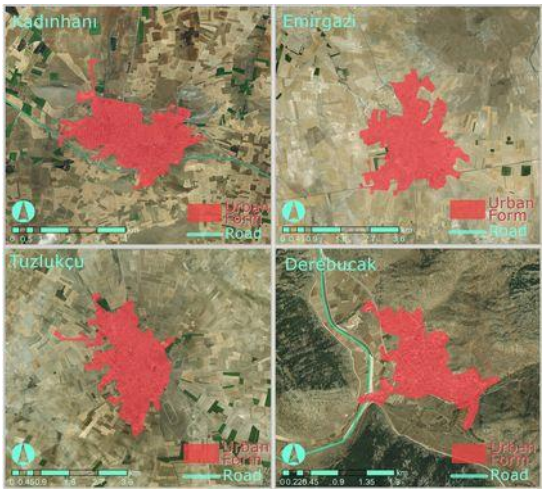

Figure 119 Urban Forms of (Relatively) Compact District Cities of Konya

These three categories of cities will be affected from the MMS and the decisions produced by local government players in the core of the province, in the city of Konya, differently. Hence, spatial policies must be tailored for each category. In addition to that, not all cities are constantly growing, some of them are decreasing in terms of population, so, as planners we need to develop ways to cope with and plan shrinking cities.

7.1.3 Form and Settlement Geographies of Villages (Rural Neighborhoods) of the Konya Province

Forms of any settlement, regardless of their size, are affected from the geography they are on. Since there are plenty of villages dispersed over the large geography of the whole province, the geographical features and forms of each village are summarized in province scale. Geographic features of settlement areas are categorized and simplified to produce a legible base map for form analysis. The first categorization is the slope. Slope is the major geographic divider for villages. The villages are divided into two main groups: plain villages and mountain villages and for Konya Metropolitan Municipality (KMM), the Regional Development Agency, and for other urban and public policy makers, this is the main categorization for villages. The line dividing the villages into plain and mountain villages lies around 1300 meters elevation[168]. In other words, the villages above 1300 meters of elevation are mountain villages while the ones under 1300 meters of elevation are plain villages in general. The overall mean elevation of the province is 1076 meters and 76% of province area is under 1300 meters of elevation. Within this context, the elevation of 164 villages among 746 are above 1300 meters and can be categorized as mountain villages. The percentage of mountain villages is 22%, they are not the majority, yet the percentage is too high to neglect. The local policy should be tailored with this in mind since the needs and problems differ drastically between mountain and plain villages.

Table 17 Distribution of Villages by Slope

slope classes distribution	percent
1-5% Slope	50.9
6-10% Slope	36.4
11-15% Slope	9.3
16-20% Slope	2.8
21-25% Slope	0.7

The second element of the topography is slope. Slope distribution of Konya Province area located in Konya Endorheic Basin illustrates that 43.2% of all provincial area has a slope under 5% (2.8°). Therefore, the province is relatively flat. Parallel to this, 50.9% of villages have a slope less than 5% within their settlements. 12.8% are steeper with a slope above 10%. The average slope of all villages is 7%.

[168] Calculated with DEM and village coordinates.

The Geographic categories used for settlements are plain, plateau, valley, foot slope (mountain foot), slope, ridge, forest, and waterfront[169]. The distribution of the villages, now rural neighborhoods between these categories is as follows[170]:

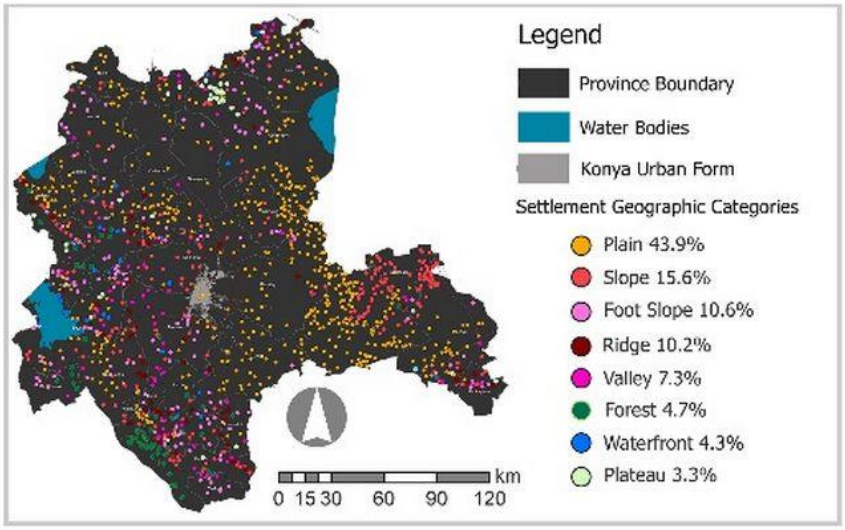

Figure 120 The Geographic Distribution of Villages by Geographic Categories

43.9% of all villages are in Konya Plain, while 36.4% of villages are on the slope, foot slope or ridge. 4.7% is forest village, 4.3% is waterfront village, 7.3% is valley village and 3.3% is plateau village. These geographic features illustrated in the map above are highly valuable as inputs in policy making. It is possible to divide the province into zones using these categories and plan settlements accordingly. The forms of villages were also under impact of these geographic features alongside other elements such as ownership patterns throughout history.

In this geographical context, there are three basic settlement form types for Konya villages: compact villages, dispersed villages and linear villages[171].

[169]The categories defined by Public Administration Institute For Turkey and Middle East (TODAIE) in yerelnet.org village profiles were used. Settlement Geography categories and settlement types are collected from the yerelnet.org webpage village profiles village by village (2017).

[170] Sources: Settlement Type Data collected from yerelnet.org.tr village profiles accessed in 2018 and Google Earth Satellite View 2018. The categorization of settlements is based on visual interpretation rather than a numerical approach.

[171]Our categorization is similar to the one in the yerelnet.org.tr village profiles study.

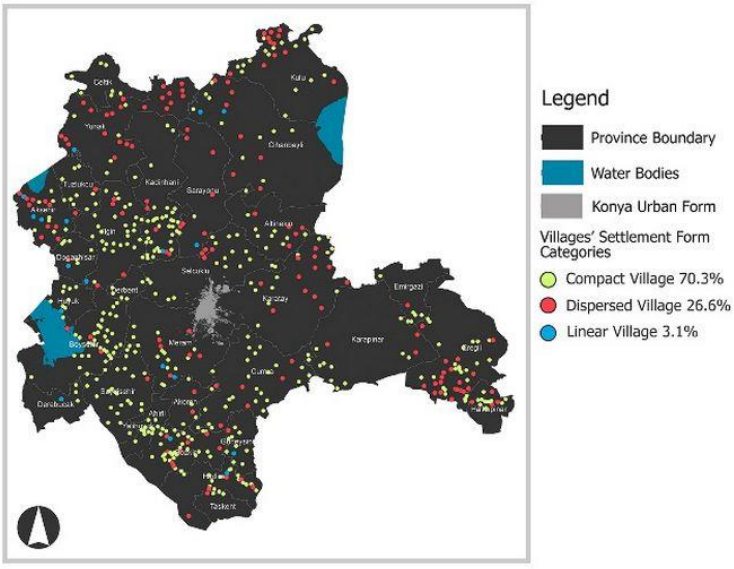

Figure 121 The Geographic Distribution of Villages by Settlement Form Types

70.3% of 746 villages are compact while 26.6% is dispersed. Only 3.1% of villages are linear. Although there is no significant pattern in the distribution of compact and dispersed villages there is a concentration of dispersed villages in the northern part of the province. Majority of dispersed villages in the northern part of the province is located in Yunak district which is the 16th largest district in terms of population and geographic categories are highly mixed. The second major concentration of dispersed villages is in Eregli district on the eastern branch of the province. Eregli is the largest district following the three central districts. Dominant geographical feature is plain on the south of the district and slope on the north. The third major concentration of dispersed villages is in Karatay district which happens to be one of the three core districts. Most of the villages in the Karatay district are dispersed villages and these villages must be closely observed regarding their locations being close to city of Konya. As long as accessible, villages sometimes become spaces of hidden urban development due to lower land rent and lack of regulations. We will be looking closely to the population trends in the settlement pattern section of this part.

Compact villages are concentrated on the semi-circle surrounding the city from north-west to south where the elevation is dramatically higher, and the slope is steeper. This zone is out of the boundaries of plain and has more compact villages than the rest of the province. There are seven districts in this zone. Derbent, Ahirli, Yalihuyuk and Huyuk are the smaller districts with lower populations while Seydisehir and Beysehir are among the largest ones. One of the three core districts, Selcuklu is among the districts with a high concentration of compact villages, and this basically stems from the steep slope of the mountain geography limiting and surrounding Selcuklu district. Linear villages show no legible patterns to interpret.

Majority of all settlement form types are in plain areas since the majority of villages are plain villages. Slope settlements have the second highest number of compact villages by 18.5%. Foot slope areas on the other hand has the second highest percentage of dispersed villages with 13.6%.

Table 18 Cross Distributions of Settlement Geography Categories and Settlement Form Types

distribution by settlement type

%	compact village	dispersed village	linear village
waterfront	4.2	4.5	5.6
valley	6.7	8.4	11.1
slope	18.5	9.1	5.6
ridge	10.8	8.4	11.1
plateau	2.0	5.8	11.1
plain	44.1	46.1	22.2
forest	4.9	3.2	11.1
foot slope	8.9	13.6	22.2
	100	100	100

distribution by geography

%	compact village	dispersed village	linear village	
waterfront	68.0	28.0	4.0	100
valley	64.3	31.0	4.8	100
slope	83.3	15.6	1.1	100
ridge	74.6	22.0	3.4	100
plateau	42.1	47.4	10.5	100
plain	70.5	28.0	1.6	100
forest	74.1	18.5	7.4	100
foot slope	59.0	34.4	6.6	100

Compact villages are majority of types in every geographic category. The ratio is highest in slope category settlements with 83.3% and is followed by ridge settlements with 74.6% and forest settlements with 74,1%. plain settlements which are also the majority of all villages have a 70.5% of compact villages. Only in plateau villages dispersed villages have higher percentage than the compact ones with 47.4%. The second highest ratio of dispersed villages is in foot slope with 34.4% and followed by valleys with 31%. with 10.5% majority of linear villages are located on plateaus. Even though the spatial distribution map suggests that majority of dispersed villages are in plain parts of the province, this statistic clearly illustrates that plateau and foot slope settlements have significant number of dispersed villages and their percentages are among the highest. It is hard to put forward a statistical correlation between each geographic category and settlement form. Yet, it is easier to sprawl in some geographies and in some not.

The forms of villages' settlement areas give hints about the ownership patterns in that village. On this scale, while producing a province scale analysis, it is impossible to put forward the correlations between the forms of village settlements and the ownership patterns, yet, with further study, this relationship can be deciphered. Ownership patterns might be one of the answers to the question why cities sprawl the way they sprawl today and why agriculturally productive land is consumed for urban development. It might also give hints about the impacts of MMS over provinces and how MMS affect each settlement and why it affects that settlement that way. This is one of the further questions that this study points.

These villages are now subject to MMS and under control of Konya Metropolitan Municipality planning authority since 2014. Within this short amount of time, it is not highly probable to measure the impact of this framework change thoroughly over the villages, yet in time, with this typology combined with urban form analyses of districts and the city of Konya,

it will be possible to compute and interpret the impact. This analysis should be interpreted in coordination with settlement pattern and agricultural production analyses of the province.

7.2 Measuring Urban Sprawl in the City of Konya 1989-2022

Konya is a sprawled city, yet what is the scale of sprawl? How did it change in time? There are several methods for measuring the level of sprawl, or compactness in other words, and these methods are utilized to illustrate the degree of the problem in the case of Konya. The methods are borrowed from compactness studies focusing on redistricting (see methodology for which methods have been chosen and why these methods have been chosen and see the Appendix L for technical details of the methods) and some already utilized in urban form and urban sprawl studies. The seven methods introduced in the methodology part were applied on the case of Konya to picture the sprawl problem of Konya in quantitative terms.

The first measure is the contiguity index. Two different types of contiguity index is used to illustrate and understand the change in the urban form of Konya after the 6360 Law and the impact of the MMS. The first one is to compute the ratio of core continuous settlement to the overall fragmented urban form[172].

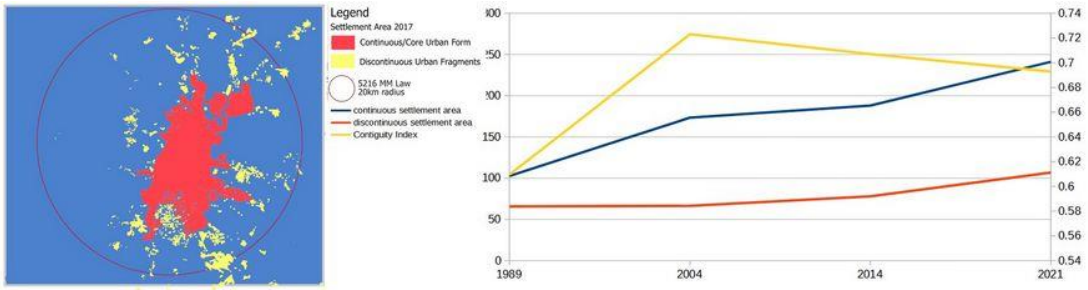

Figure 122 Contiguity Measure on the Urban Form of City of Konya 2022

For this measure, the urban form of Konya is divided into two parts: red and yellow. The ratio of core continuous settlement, which also has a meandering outline, to the whole area of urban form is 0.70, which is a good score. This means majority of Konya settlement area is continuous even if it is highly fringed. 30% of urban form, on the other hand, is discontinuous (yellow spreads) and sprawled within a circle with a radius around 30 kilometers. In Dynamic of Urban Expansion, Angel et al. (2005) have calculated the contiguity index for 3943 cities and obtained regional averages for contiguity indexes for those cities. For 2000, the average of selected cities of industrialized countries is 0.76 while underdeveloped countries' is 0.68.

[172] The complex geometry of the urban form is drawn with reference to the Google Earth Satellite View, August 2022.

For East Asia & Pacific contiguity is 0.47 while for Europe it is 0.67. For Latin America and the Caribbean, it is 0.82. In Northern Africa, the average is 0.56, in Southeast Asia 0.90, South and Central Asia 0.69 and Sub-Saharan Africa 0.81.

The average contiguity for cities with population between 528000 and 1490000 which is the interval the city of Konya with a population of 1377394 for the year 2021 is in, is 0.65 for the year 2000. Hence, Konya is doing good in terms of contiguity within her population league, yet it is slightly below the global average of 0.72 meaning slightly more sprawled than the global average. The change in time for this index illustrates that until 2004 Konya had increasing contiguity while after 2004 it started decreasing dramatically meaning a more sprawled Konya. For this study, our focus is the year 2014 where the Law 6360 has gone under affect and even though not as dramatic as 2004, 2014 also seems to be a breakpoint with an increase in the pace of growth both in the area of the continuous settlement and the discontinuous settlement. The continuous one demonstrated faster growth which may imply a slight increase in the compactness of the city while the form of the continuous settlement (red) is more fringed.

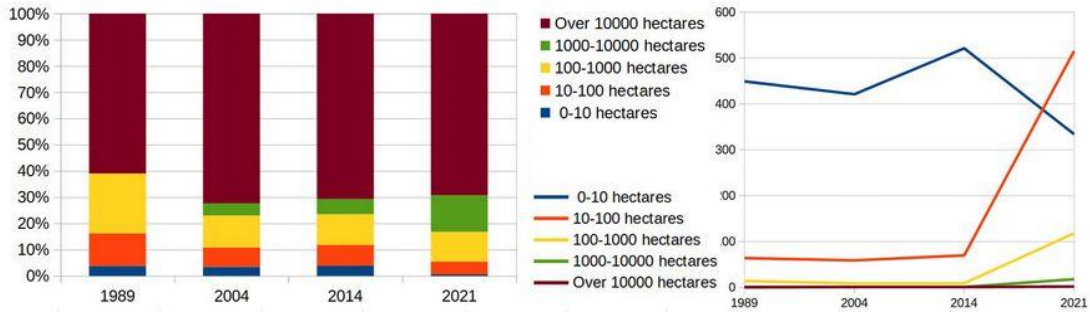

Figure 123 Secondary Contiguity Measure: Urban Fragment Areas (Left) and Numbers (Right) Distribution

The second contiguity score is calculated with the number of fragments by their size. This index illustrates the scale of urban settlement fragments in the discontinuous settlement area of the city of Konya. The yellow fragments illustrated on the previous map are categorized by their area here. 2014 seems to be the major breakpoint for this index. Trends have been changed directions for all scales. From 1989 to 2004 the number and area of fragments between 0-10 hectares were decreasing and the trend changed in 2004. These are the smaller fragments of the urban settlement signifying severe sprawl. In 2014 these smaller pieces started to decrease severely both in terms of number and area. While this is the case for this interval, the urban fragments between 10-100 hectares in size started drastically increasing after 2014, even surpassing the number of the 0-10 hectares pieces. Yet this does not mean a compactness since these are already fragments but the urban pieces are becoming more chunkier in time which means a rescaling in urban sprawl. The scale of leapfrog development

has changed in the city of Konya after 2014 in the after 6360 Era. The development scale has become larger, the development rights given become more dispersed in the geography and getting chunkier. It is hard to say that this is solely because of the enactment of the 6360 Law and the current form of the metropolitan municipality system but, the rescaling taking place in the local government with the MMS is parallel to this rescaling in the urban sprawl of Konya.

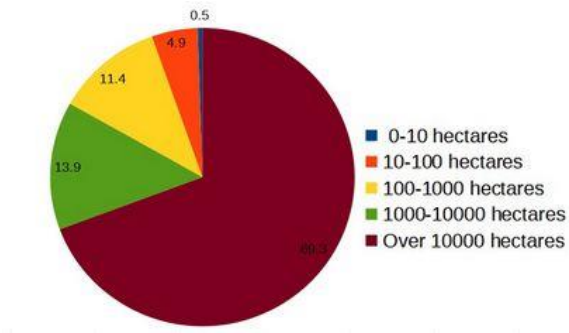

Figure 124 Distribution of Urban Form Fragments by Area in 2022

For the year 2022, the 0.5 percent of the area of urban form is clusters under 10 hectares and there are 334 fragments. 4.9% of the urban area consists of the fragments between 10 and 100 hectares in size and there are 515 fragments in this scale which is by far the largest in number. There are 118 urban fragments between 100 and 1000 hectares and the total coverage area of these fragments is 11.4% of the whole settlement area of the city of Konya. There are 18 urban fragments between 1000 and 10. 000 hectares, and it covers 13.9% of the urban form area. These are predominantly the development areas on the northern perimeter of the city. The main polygon, the core continuous settlement covers 69.3% of the whole urban form.

The third urban sprawl measure is the Polsby-Popper measure, the ratio of an urban form's perimeter to a circle's perimeter with the same area as the urban form, or to visualize more easily, it is the ratio of the settlement area to the area of a circle with the same perimeter with the urban form (Azavea, 2010). The Konya urban form is meandering, severely fringed and partitioned, therefore the perimeter, the long-flattened line surrounding all the continuous and discontinuous parts of the urban settlement is very long.

For the year 2022, the perimeter of the Konya urban form, with all fragments and indentations included is 2094.3 kilometers. If a circle is drawn with the same perimeter, the radius will be 333.3 kilometers. Therefore, the circle including several other provinces alongside Konya has the same perimeter with the Konya urban form, which illustrates one facade of severe urban sprawl problem. The Polsby-Popper score for the year 2022 is 0.0010 (See Appendix L for calculations). The score varies between 0 and 1 and the closer to 1 it gets,

the more compact the form and Konya's score is closer to the 0 end of the interval. According to this measure, the compactness of the continuous settlement of the city of Konya (the central piece) had decreased dramatically from 1989 to 2004. For the whole urban form, both continuous and discontinuous urban settlement area, the score is falling in time and in 2014 the pace of decrease increased slightly.

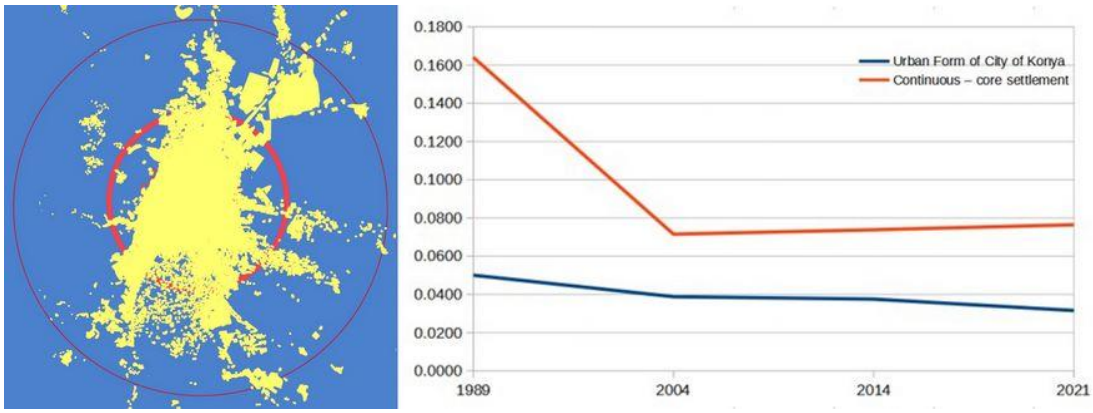

Figure 125 Polsby - Popper Measure on the Urban Form of the City of Konya

The fourth measure is the Schwarzberg score, the ratio of the area of the urban form to the perimeter of the urban form. To make it more visually illustrative, a circle having the same area with the urban form is drawn.

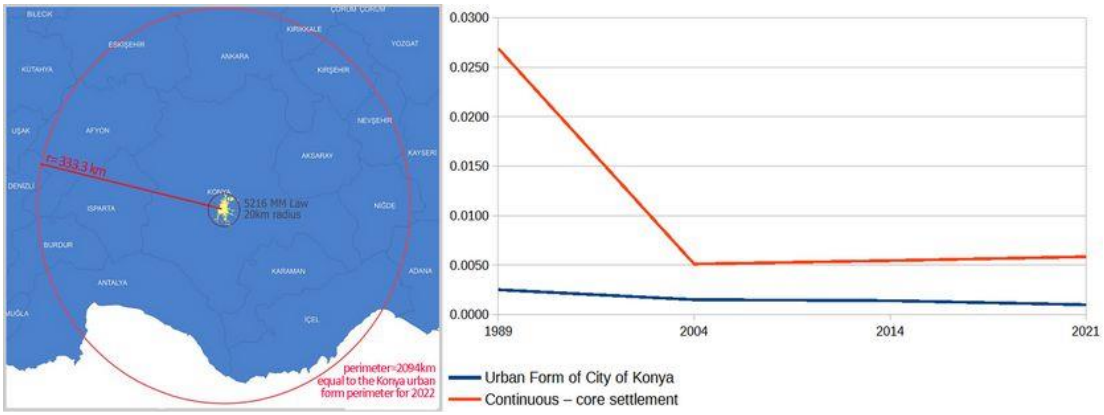

Figure 127 Schwarzberg Measure on the Urban Form of City of Konya 2022

If city of Konya was a perfect circle, the absolute compact form, the radius would be 10.5 kilometers without a change in the densities of neighborhoods. For the year 2022, the Schwarzberg score is 0.0316 (See Appendix L for calculations). It is better than Polsby-Popper score yet still not that high. The Schwarzberg and Polsby-Popper Scores on the other hand had decreased between 2004 and 2014 and increased between 2014 and 2021. This means the major expansion of the city of Konya had taken place between 1989 and 2004, the outer

bounding circle of urban form (the maximum radius from the center) was mostly defined back in 2004. After 2004 the radius of the surrounding circle did not increase that much. For the urban form of the Konya city, the pace of decrease increased after 2014 signifying more sprawl.

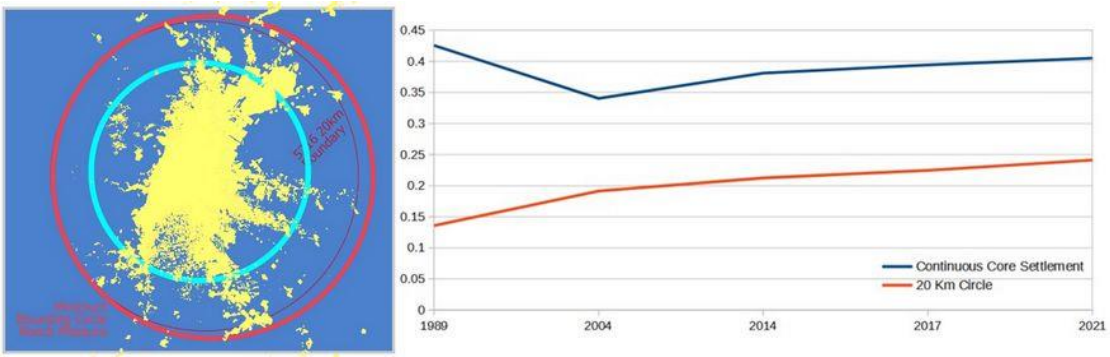

Figure 128 Roeck Measure on the Urban Form of City of Konya 2022

Roeck measure was calculated for two forms, first the overall urban form with continuities and discontinuities (the red circle) and second for the core – continuous part of urban form (the light blue circle). The Roeck score for the whole urban form, the red circle is 0.24 and for the core continuous settlement, the blue line, it is 0.41. This means within the circle that bounds the urban form, the rate of urban development is 24% and for the core continuous settlement it is 41%. In other words, higher percentage illustrates more compact and less sprawled settlements. The historic core of Konya city is radial circular in terms of urban form; hence, the Roeck score is not too low, yet not high either. If the change in time is added to the analysis, the trends in time can be observed. For this measure, 2004 seems to be major breakpoint where Roeck score for the continuous part of the settlement decreased significantly while within 20 km circle it increased meaning less sprawl.

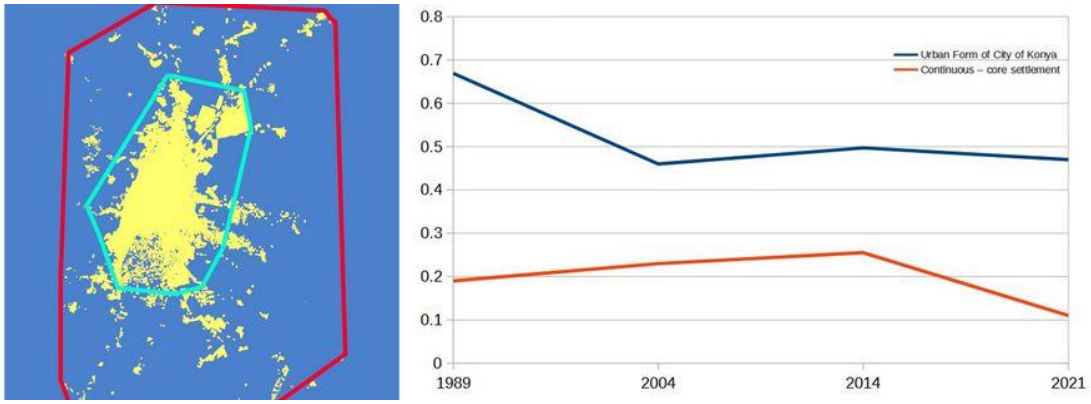

Figure 129 Convex Hull Measure on the Urban Form of City of Konya 2022

The sixth measure is the convex hull score. It is the ratio of the settlement area to the convex hull area where convex hull is the minimum convex shape covering the urban form. For this case two convexes have been drawn for Konya, one for the core continuous (but fringed) settlement (blue) and second for the overall urban form (red).

The convex hull polygon covering whole urban form is larger than the circle with 20 km radius defined by the 5216 Metropolitan Municipality Law. This illustrates the insufficiency of the previous borders of MMS for the case of Konya. 20 kilometer radius is defined by the city's population, yet fails to regard the geography of the city, which is highly sprawled. The convex hull ratio for the outer convex hull, the red line surrounding whole city, is 0.12 while the convex hull ratio for the core continuous settlement of urban form is as expected higher with a ratio of 0.47. The interesting change in this graph is the trend change after 2014 post 6360. The convex hull score is decreasing meaning more sprawl in the urban form with the development rights given implemented in a leapfrog fashion. This change is observed both for continuous settlement and whole urban form. The rate of urban sprawl significantly increased in the post 6360 era.

The last compactness measure is slope compactness. Not only geometric but also a geographic measure, slope compactness enables us to calculate the ratio of developed area to the area that has slope fit for development within the minimum bounding circle of urban form. For practical purposes we have followed footsteps of Angel et al. (2005) and calculated the minimum bounding circle according to the core continuous settlement.

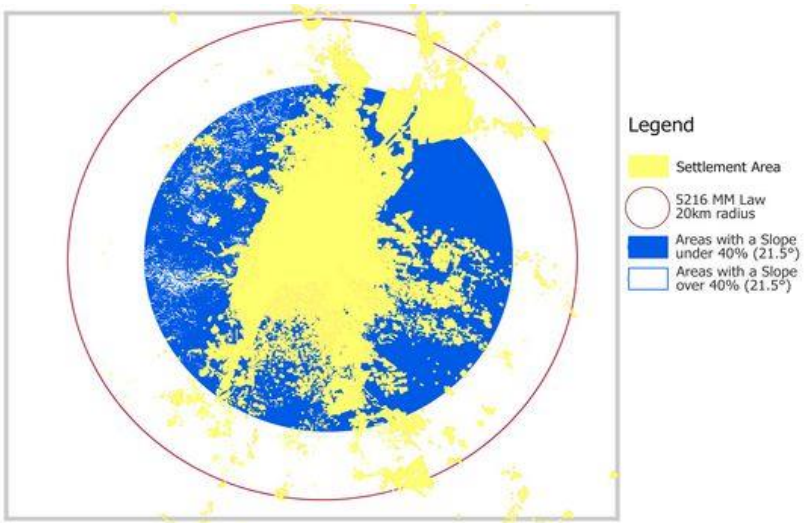

Figure 130 Slope Compactness Measure on the Urban Form of City of Konya 2022

The slope compactness score of the city of Konya for the year 2021 is 40.6% which means within the blue circle, the white areas that have a slope steeper than 40% meaning steeper than 21.5° are excluded and the settlement area within blue circle (yellow areas) is

divided to blue area. In Dynamics of Urban Expansion study (Angel et al., 2005) slope compactness was also calculated for 3943 cities. For comparison, the average slope compactness for industrialized countries is 33% while in underdeveloped countries it is 0.35. It is 0.31 in Europe, 0.40 in Latin America& the Caribbean 0.40, in Northern Africa 0.34 and in Western Asia it is 0.26. The average of slope compactness for cities with populations between 528.000 and 1.490.000 is 0.32. Hence, Konya has higher slope compactness than the average of her own population group and it is also one of the highest. Since we have calculated the slope compactness solely based on core continuous urban form with neglecting the rest of the fragments sprawled, it is relatively high. Yet in global scale Konya is doing good since the global scale is not doing very good in terms of sprawl either.

At this point, to make it easier for the reader to understand the scale of the sprawl problem and the meaning of all the computations above, it is useful to use satellite views of the city of Konya. The computations above are the numeric translations of the space produced and illustrated below[173].

Figure 131 The Urban Fabric Fragments from Southern Sprawl Areas of the Urban Form

The urban fabric pattern is highly loose and low rise, low density on the southern part of the urban form. In most of the zone, agricultural production continues as it can be read from the views and it is irrigated agriculture, which is highly valuable for a city like Konya, since water is scarce. The development of the urban fabric followed the agricultural ownership pattern and existing property lines. The dominant form of housing is single detached houses

[173]Google Earth Satellite View, 2018.

in the area. The form of sprawl is mostly ribbon development. This part is where the sprawl is most severe and the most problematic for agricultural production[174].

Figure 132 The Urban Fabric Fragments from Northern Sprawl Areas of the Urban Form

The northern part of urban form shows signs of leapfrog development. Apartment blocks and housing estates are dominant form of housing in the area and this explains the leapfrog development tendency of the area. The area is relatively arid and not irrigated, and therefore is relatively less significant for agricultural production. In addition to that, although the fabric produced is not highly qualified as a well-designed urban area, it is still higher in density. The population living in the northern part of the city is highest in size (in neighborhood scale).

Figure 133 The Urban Fabric Fragments from North-Western Sprawl Areas of the Urban Form

In the north-western part, the housing stock is a mixture of single detached and apartment blocks. The boundaries of apartment block fragments are well-defined (yet still not well-

[174]Google Earth Satellite View, 2018.

designed), but the boundaries of single detached housing fragments are loose. North-western neighborhoods have higher population than most of the neighborhoods in other zones[175].

Figure 134 The Urban Fabric Fragments from Western Sprawl Areas of the Urban Form

The western developments on the urban form is limited with natural topographic threshold. Yet sprawl is still visible in urban fabric in this zone as well. The inner western parts are like the southern sprawl with single detached housing, yet, higher in terms of building density. Inner west zone is also one of the richest parts of the city in terms of socio-economic status (Atac, 2014). Majority of housing is single detached housing.

Figure 135 The Urban Fabric Fragments from Western Sprawl Areas of the Urban Form

The last zone is the east zone of urban form. This part is partially arid and partially irrigated. In terms of socio-economic status, this zone is among the poorest (Atac, 2014). Both ribbon development and leapfrog development are visible in the area and majority of the housing stock is low rise apartment blocks. The densities are not high, yet the amount of population living in this zone is relatively high.

To put in a nutshell, these are the spaces produced on the peripheral parts of urban form in the city of Konya and the fabric is suffering from urban sprawl in a variety of degrees.

[175]Google Earth Satellite View, 2018.

The impact of urban sprawl over agricultural production in relation with the MMS will be analyzed in agricultural production in the city of Konya in the next chapter.

7.3 6360 Impact on the Development Rights and Plans

City of Konya as analyzed in measuring urban sprawl part, is a sprawled city today. Is it a recent phenomenon or is it a historic one? In this part, we will be dealing with this question on a timeline framed by Metropolitan Municipality System (MMS). The year that Konya has become a MM with 1989 Local elections is the starting point. The urban form of Konya for the year 1989 and 2004 were drawn with the help of Google Earth Historical Satellite Imagery Service.

By the year 1989 when Konya has first become a metropolitan municipality, it is an already sprawled city. The first hints of sprawled urban development were already existent, yet the scale of sprawl seems to be lesser.

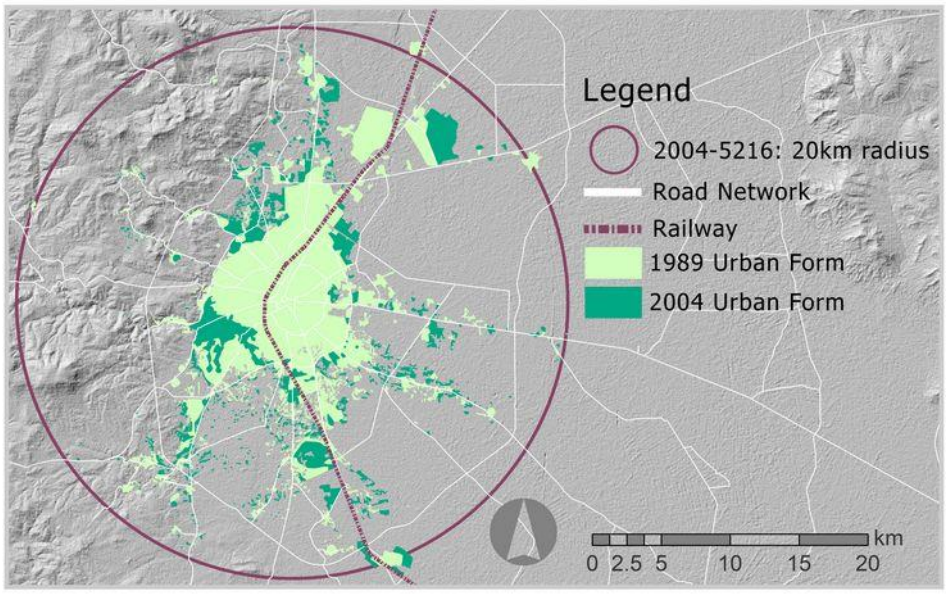

Figure 136 Urban Form of Konya for the years 1989 and 2004

As the figure suggests, in both years Konya form was a sprawled one. The main characteristic of urban sprawl (or urban growth in the form of urban sprawl) in 1989 is it shows signs of leapfrog development instead of continuous urban sprawl. The difference between the 2004 form and the 1989 form illustrates that some gaps of 1989 form was filled with infill development, which is a positive development for curing urban sprawl. Hence, we can say that, for the core continuous settlement, the degree of sprawl decreased between these years. Yet, peripheral parts and outer fragments of urban form are another story.

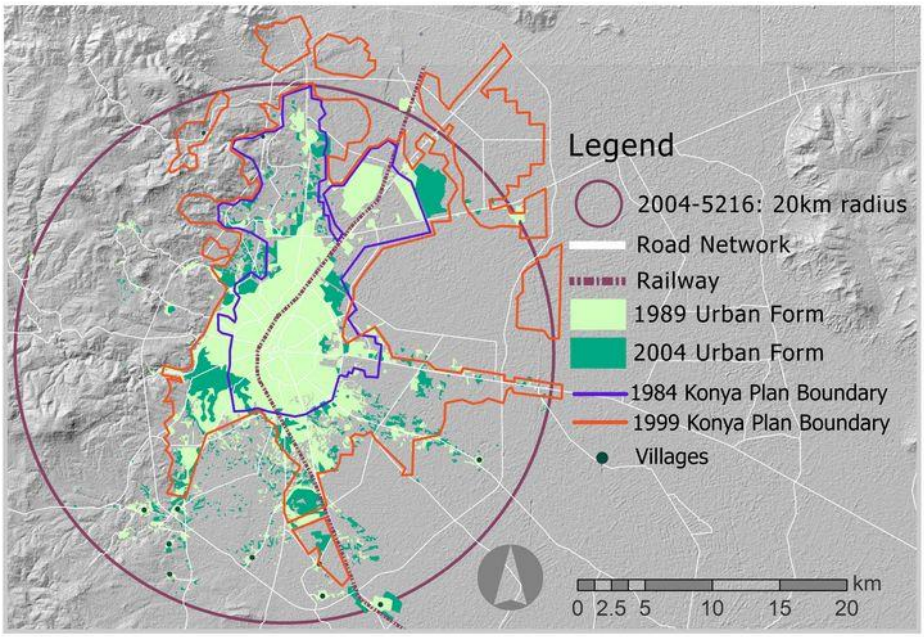

Figure 137 Urban Form of Konya for the years 1989 and 2004 and the Plan Boundaries – Municipal Boundaries for the years 1984 and 1999

The extend of urban form back in 1989 was already filling 20 kilometer radius authority boundary given by the 5216 Metropolitan Municipality Law. The area of the urban form in 1989 was 16800 hectares. In 15 years, the area had risen to 23900 hectares increasing by 1.4. The population on the other hand, from 1990 to 2007 had increased by 1.8. Therefore, the area developed for the new population cannot be categorized as over-consumption and the extend of urban growth is not out of scale. Yet, the sprawled form is still problematic. In order to illustrate the impact of the metropolitan municipality system and the changes in the system throughout the history, it is useful to evaluate the changes in urban form with reference to plan boundaries. There are two plans produced for the city of Konya close to these dates, 1984 Environmental Plan and 1999 Metropolitan City Plan/ Kon-Plan.

1984 Environmental Plan was produced by the Bank of Provinces and the 1999 Kon-Plan was produced by Metropolitan Municipality, it was the first plan to be produced by the MM, hence a good point of departure for understanding the spatial results of the MMS. The 1984 Plan boundary is highly compact. The irrigated agricultural lands on the south, south-east and south-west of the city at that time were regarded as monolithic and already sprawled leapfrog development in these areas alongside villages with unnaturally increasing populations and sizes (due to being in the near vicinity of the city of Konya) was ignored by the plan. Considering the approach of planning of that era, it rather seems that this is what is intended in order not to encourage development on these areas since they are agriculturally significant. As a central body, the Bank of Provinces were above the local rent and power struggles, and more importantly not suffering from the land speculation pressure and land development

pressure taking place in local scale. Therefore, the plan kept the southern part compact and clean. Yet, looking from today, although the intentions are good, we can observe that, this approach did not work in the case of Konya. The plans main perspective, directing the growth to the northern part and developing the city accordingly did not work for reasons beyond planning. The difference between the form proposed by 1984 plan for the year 2000 and the urban form in the year 2004 shows us the decisions made centrally by the Bank of Provinces in this plan was not followed by settlement trends. The northern development planned in both of the plans were not realized fully.

In 1984 plan for the year 2000, the total area proposed for urban form was 201.9 kilometer squares while the realized urban form in the year 2004 was 239.8 kilometer squares. The planned population was highly over the realized population of the year, and even though this is the case, the proposed area is still lower than the realized urban form area. Two results can be harvested from this statement. First, the urban form exceeds plan boundaries for some reasons that we will be questioning throughout this study and second, the realized urban form has lower density than the 1984 Plan's proposal.

The urban form proposed in 1999 Konya Metropolitan City Plan exceeds the 20 km radius boundary suggested by 5216 Metropolitan Municipality Law. It is more welcoming towards the leapfrog developments on the southern and eastern part of the periphery, but it also proposes dramatic scale of development on the northern and north-eastern part of the city. Unlike the single-monolithic continuous development proposed by 1984 plan, 1999 Kon-Plan proposes subcenters, adjacent settlement areas and leapfrog development. Total area proposed by the plan for the year 2020 was 523.9 kilometer squares, which is 259% higher than the one in 1984 plan. For comparison, in 2022, one year earlier than the deadline of the plan, the coverage area of the urban form of the city of Konya is around 300 kilometer squares. It is nearly double the size.

Another significant point of the map above is the villages on the southern vicinity of the city. These villages have strong relations with the core due to physical closure and high accessibility. We will be observing in settlement patterns part in detail, but also there are villages nearby growing in terms of population but not yet swallowed by the urban form. These kinds of swallowed villages, before getting swallowed, have increasing population unlike other rural settlements suffering from the rural to urban migration trends and the zeitgeist of our era: re-scaling. Therefore, it is significant to keep an eye on the villages that are close enough to have an increase in their population but far enough to not to be counted as urban areas. This should be one of the elements of spatial planning under MMS. To sustain this control, MMS provides tools to the metropolitan municipalities.

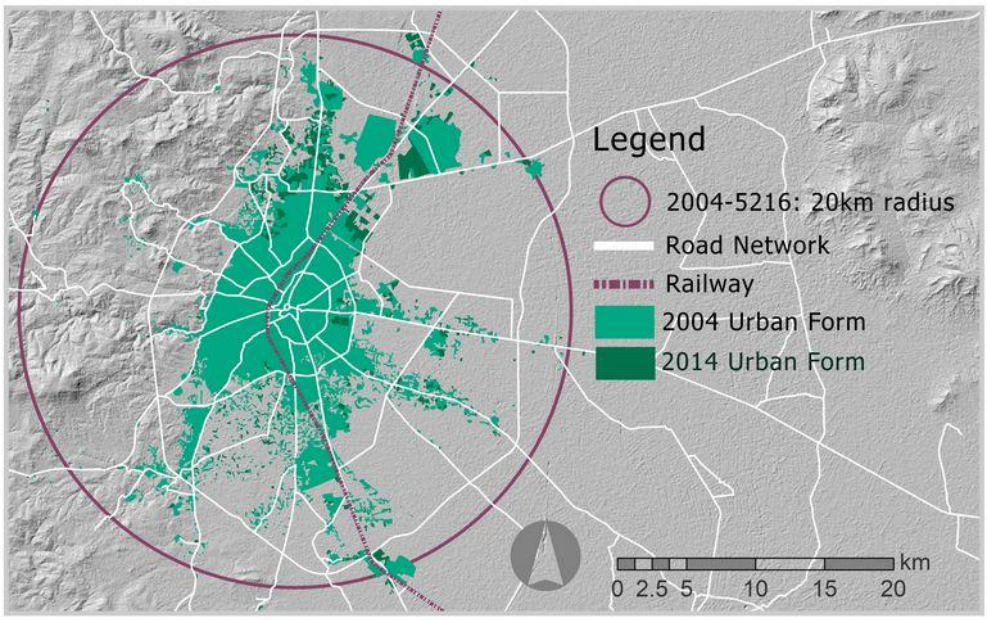

Figure 138 Urban Form of Konya for the years 2004 and 2014

Comparing two plans, the one produced by the MM (1999) is more generous in terms of distributing development rights over the geography of Konya while the former one produced by the central body, The Bank of Provinces, keeps it much more compact. Yet, the ignored leapfrog developments and the urbanizing villages on the southern part of the city got out of control in both cases. “Why this happened?” is a hard question to answer with versatile elements. Yet, one basic reason could be the micro decisions on 1/1000 and 1/5000 development plans produced by districts and MM. It is hard to keep the principles while producing 1/1000 and 1/5000 plans under the impact of the local power structure.

Within this ten year of time interval, the change in the urban form is relatively minor. There is development on especially the northern part, partially in the form of infill development and partially leapfrog development on adjacent areas. In the 2004, 20 km radius boundary had become the control zone for the MM of Konya. From 2004 to 2014, the area of the urban form had increased from 23900 hectares to 26600 hectares. The rate of increase is 1.1, which is lower than the previous rate (1.4) of time interval 1989-2004. The population between 2007 and 2014 was increased by 1.2. Within the previous time interval, it was 1.8 and it had dropped significantly. The rate of increase in land development is decreased, but at the same time the population increase rate is also dropped. This explains the slowed down urban sprawl although there were plenty of development rights given in previous plans. Majority of new settlement areas within urban form were not developed within the time interval.

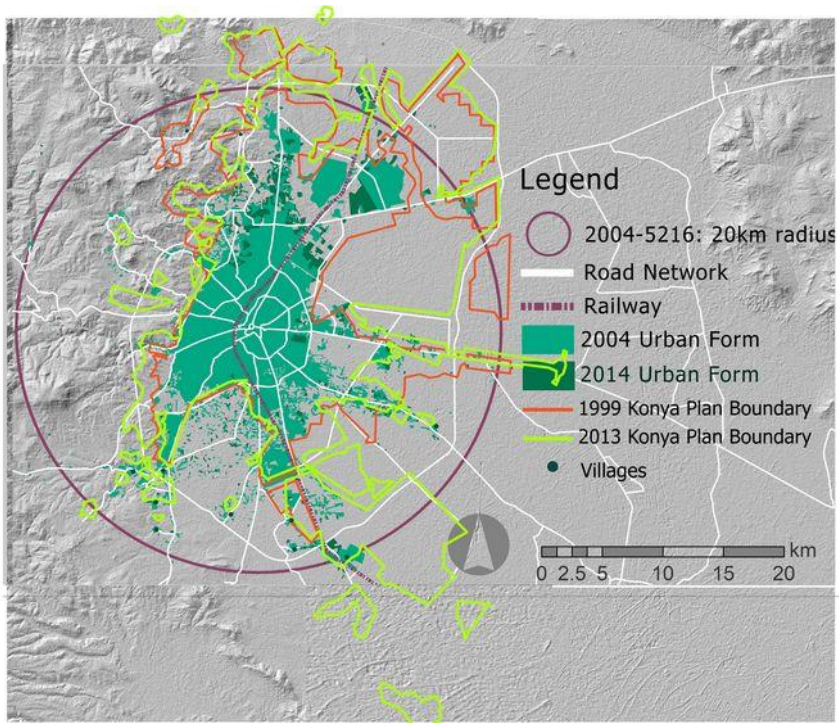

Figure 139 Urban Form of Konya for the years 2004 and 2014 and the Plan Boundaries (Municipal Boundaries) for the years 1999 and 2013

2013 Konya-Karaman Environmental Plan was produced for the year 2025 by the Ministry of Environment, Urbanization and Climate Change, a centralized and central body unlike the 1999 Kon-Plan. On the contrary to the form proposed by another central body, the bank of Provinces back in 1984, 2013 Plan has a sprawled urban form in all directions. Leapfrog type urban sprawl, ribbon development is all existent in the proposed form. 779.2 kilometer square of area was proposed as urban form (including all the urban land uses) and this is around 50% larger than 1999 plan, and also three times higher than the existing current form of the city of Konya.

Most of the villages on the southern part of the city are now swallowed by urban form while also increasing in size. The plan targets the year 2025, and today, in 2022, city of Konya does not seem to keep up with the vast development areas especially on the north and east of the city. This time, the plan was produced by a central authority, yet fails to propose a compact form for the city of Konya. The fragments, the increasing entropy of the urban form within the plans is highly significant.

It is hard to read the impact of MMS system within the 20 km radius circle between 2004 and 2014 for two reasons. First, the city is already sprawled within the 20 km radius and second, the ten years, from 2004 to 2014, is not the main time interval where majority of development, a leap in terms of development have taken place. As it can be seen in the settlement pattern analyses in time, the major leap in population increase was taken place

between 1980 and 2000. After 2000, the trends have changed, and it is legible in the change of the urban form of the city.

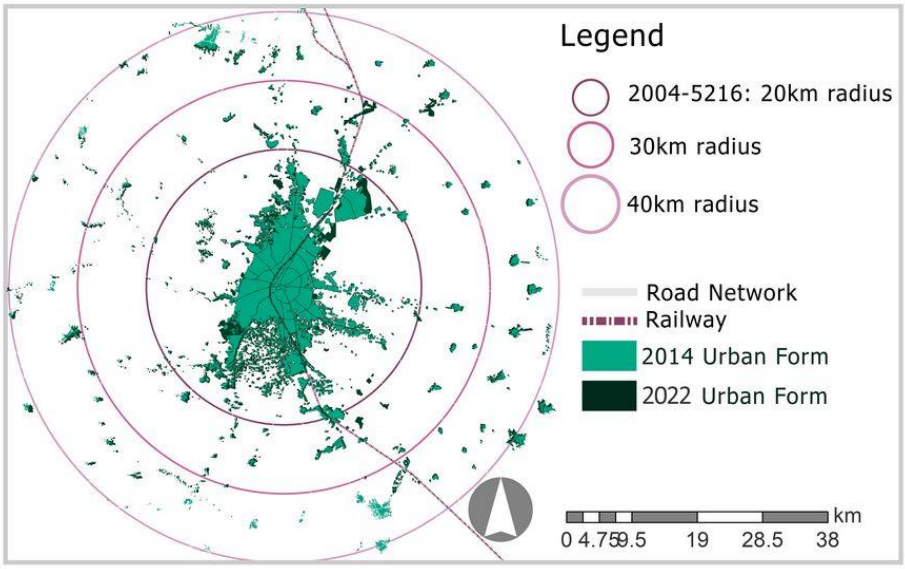

Figure 140 Urban Form of Konya for the years 2014 and 2022

In the year 2014, Konya MM control boundary has become the whole province. To measure the change from 2014 onward, the analysis boundary for the city of Konya was increased to 40 km of radius. Whole province is now under control of MM but by nature, the affected zone of a city is defined by accessibility. Therefore, the boundary is limited to 40 kilometers of radius in order to detect growing villages under the impact of urban sprawl and the future villages to be swallowed by the urban form. With the 6360 Law, they are no more villages but neighborhoods, yet most of them are still distinctively different from their urban counterparts. Hence, they will be still named as villages within this study. Although they are named as villages, especially the closer ones to the city are under heavy pressure of urban development. Some villages are increasing in population, some are in size, some both.

Within the 20 km radius, between 2014 and 2022, in 8 years, the rate of increase of the area of the urban form is 1.45. It has increased from 26600 hectares to 34801 hectares the rate of increase in population within same time interval is 112.8%. Therefore, even though the time interval is short, the area grows larger than the population, which in return decreases the gross density of urban form and indicating sprawl problem getting wider. If the time interval extended the picture gets clearer:

Even though for the last time interval, 2014-2021, the area significantly increased more than the population increase, the lines are keeping up with each other. The figure above clearly illustrates that the trends of area increase follow the trends in population increase.

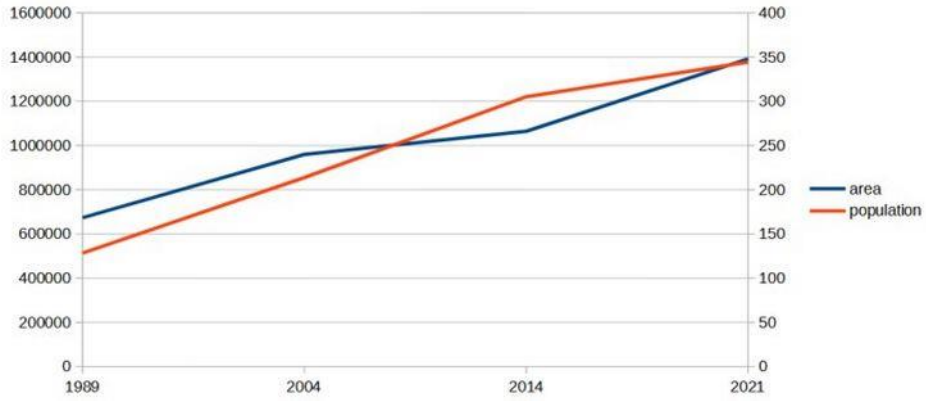

Figure 141 Urban Form Coverage Area and Population Change for the City of Konya 1989-2021

This might seem an obvious truth, yet, sometimes forgotten, by policy makers and by local governments. The development of land has a strong relationship with population increase. Even if housing is used as a financial commodity, as an investment, and in major cities more than needed housing is produced, the rate of increase in developed land depends on the population increase rate. The plans on the other hand, assumes perpetual growth in population and opens up plenty of areas for development. The development rights given are excess most of the time since 1980s and the case of Konya is no exception. Yet, the amount of land developed seems to have a natural upper limit. This is also the reason behind most of the sprawl problem (Yasar, 2010). The vast amount of land with development rights given and without a staging timeline, ends with apartment blocks on the fields in the middle of nowhere.

Figure 142 Questionably Urban Fabric from the Northern part of the City and a block on the north-west part of the city

Leapfrog development is widespread in sprawled parts of the Konya urban form and this kind of development produces housing areas without a sense of neighborhood, without streets and without lively public life. Within this study, we are mainly focusing on this fabrics impact on agricultural production and its relationship with metropolitan municipality system, yet the produced fabric itself should be questioned.

The previous legal framework did not give the municipalities to produce comprehensive plans covering the city and its surroundings. The districts nearby usually conflicted with plans due to demanding more development rights or giving more development rights within their district plan produced by themselves without a larger perspective, without realistic population projections and under the pressure of the local power structure. The smaller the scale of the planning authority, the more the exposure to local power structure and its pressure over planning process. Yet, without regulations controlling the population projection calculations, the amount of development rights given, the form of urban growth (will it be ribbon development, leapfrog development or compact development with infill development encouraged), it is unrealistic to expect more compact cities with less consumption of land and mostly agricultural land in the future. This is the problem behind the excess development rights, with a threshold analysis, the majority of the available land surrounding cities are developed in most of the cities and in the case of Konya, with nearly no or very little reservation for future development, say 100 years or 200 years. The plans are usually short-sighted even though they are long-term plans. The population trends are not as rapidly increasing as in 1980s and some cities will likely to lose population in near future. The planning praxis on the other hand, is blind against shrinking cities. The plan, in Turkish experience, means increasing and new development rights, expanding and sprawling urban form, new settlement areas and increasing densities. Projected plan populations are dramatically higher than the real expected populations of the cities in most of cases and this happens in all scales other than villages. It is as if only in villages the population is decreasing, but the reality is different. In districts and in small and some medium scale cities the population is also decreasing. If the trends continue, we will be seeing shrinking cities surrounded with an empty development belt with rights given, plotted with sub-division plans yet with no real development. The sub-division plan and the pressure of the development right given most probably scare the farmer, and because of the uncertain future, the farmer will leave the land for no future development at all. Since, there is also not much staging in the praxis, the fabric produced within this belt will be highly sprawled leapfrog development with fragments sized less than 10 hectares. This is already happening in some cities, and Konya is one of the largest cities experiencing this, with population not increasing much enough to sustain the projected population in the plans.

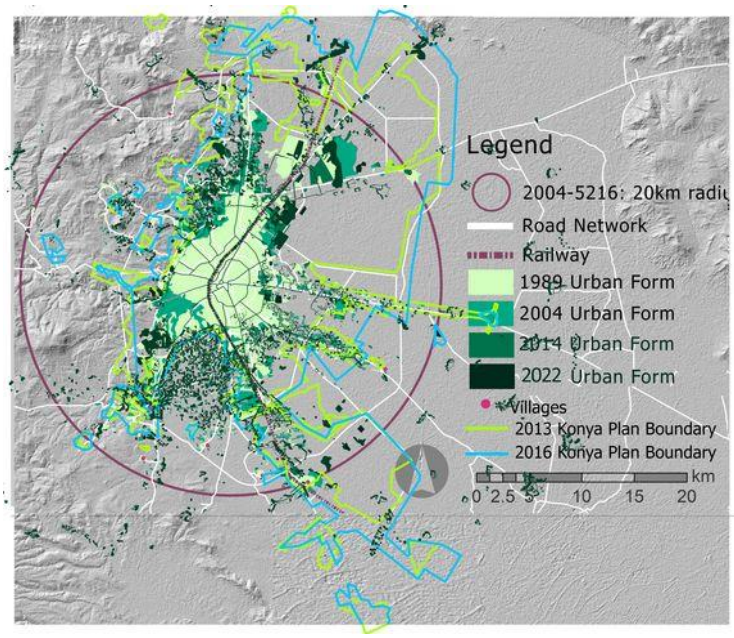

Figure 143 Urban Form of Konya for the years 1989, 2004, 2014 and 2022 and the Plan Boundaries for the years 2013 and 2016

2013 1/100000 Konya Environmental Plan for the year 2025 is produced by Ministry of Environment and Urbanization, a national scale central body, yet the form proposed for the city of Konya is less compact than the previous 1999 Kon-Plan and the following 2016 1/100000 Konya Environmental Plan for the year 2043 produced by the Metropolitan Municipality of Konya. Therefore, it cannot be said anymore that central bodies tend to produce plans with more compact urban forms than local bodies. It depends on different reasons, but at least in the case of Konya, the metropolitan municipality system and metropolitan municipalities produces relatively more compact urban forms than the one in the last central plan. At this point, it is crucial to point out the size of the urban form and the amount of land where development rights are given.

The total area of the urban form including all urban and urban-related land uses is 779.2 kilometer squares for 2013 Konya Environmental Plan for the year 2025 of the Ministry. The area of urban form of Konya for the year 2017 is 281.8 kilometer squares. The proposed area for the target year is 2.76 times the existing area today. Even though we are not in the target year yet, in only eight years, it does not seem possible for the urban form to grow around three times the size. This plan is no longer valid and replaced by the 2016 Environmental Plan for the year 2043 produced by the MM.

The 2016 Environmental Plan for the year 2043 covers a larger timeline than the previous plan. This partially explains the increased amount of land that development rights are given. The total area of urban form including all urban land uses is 869,1 km, 90000 hectares

higher than the previous plan and three times the area of existing urban form. The target year is 26 years from 2017, yet it is crucial to check the population growth trends of the city.

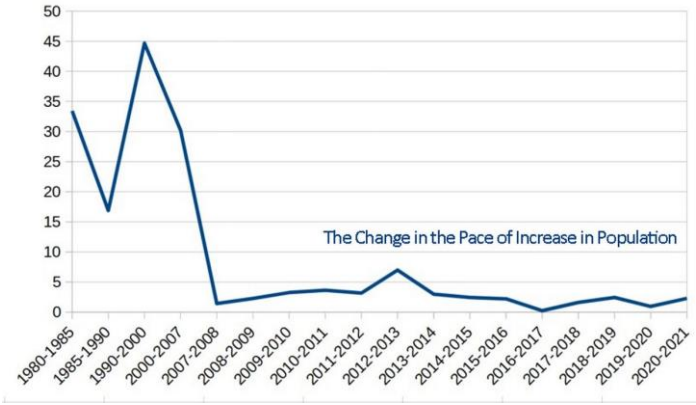

Figure 144 Annual Population Growth Rates from 1980 to 2021 for the city of Konya (within urban form) (%)

The population growth rate was at its maximum in the year 2000 but after that it has fallen. After 2008, it is usually very low, and the trend is a continuous decline after 2013. Between 2020 and 2021, it is 2.2%.

This clearly illustrates that; the population of Konya will not be increasing dramatically in short and medium term if a specific policy to boost the population is not applied. Even with the policies applied to increase the population, it might be impossible. Moreover, more significantly than this, is that much increase in population is needed? Is it good for the city and the province? The emerging water problem indicates exactly the opposite. The closed, endorheic basin of Konya is lacking in terms of water resources, and the geography cannot supply the needed water for settlements and agricultural production. The area is getting dependent on other regions' water resources. Within this context, an increase in population by this scale might create severe problems in water provision. Therefore, it is not only the excess consumption of land with both developed and underdeveloped areas due to given excess development rights but also the increasing need for water that is problematic.

The impact of metropolitan municipality system is materialized in the last plan of Konya since it is a direct product of this system and within contemporary context, via creating more developed land than needed and consuming more land with development rights, regardless of the realization of development, the MMS, in the case of Konya, affected agricultural production on the near vicinity of the city, where majority of irrigated agricultural lands of the province is located, negatively. It is not only the amount, but also the quality of the land that matters, and for the case of Konya, by irrigated lands being close to city center due to historical reasons, accessibility, and infrastructure investments of public bodies (Water Works), the damage is high. Even though MMS enables MM to control the form of the city

and the city – agriculture relationship/balance with a more comprehensive way, as a tool MMS is not enough to secure a comprehensive plan with a compact urban form and with preventing over consumption of agricultural land. With the MM as the main local government player gaining localized power over the production of space, over planning processes and production activities in the province; the risk of planning to be exposed to local power structure, rent pressures and land speculation is increased drastically. Although the form proposed by MM in 2016 is relatively compacter than the one proposed by the Ministry of Environment, Urbanization and Climate Change, the area of urban form is higher, so the amount of land with development rights given. Planning requires a local perspective, yet also an immunity, authority being freed from local power structure is needed for a plan to prioritize public interest.

Back in 2013-2015, within the planning process of the 1/100000 Environmental Plan for Konya under the authority of Konya Metropolitan Municipality with the rights given by the 6360 Law and this current form of the Metropolitan Municipality System, the existing approved development plans produced by district municipalities, village settlement plans, approved regulatory development plans were analyzed. The base work for the Plan (Ege Plan – KMM, 2015) produced valuable results in understanding what has been changed in terms of development rights given in the province and in relation with that the urban form changes. The province has been divided into 6 different planning zones and within zones existing development rights have been compared to population projections accepted by the Plan. This analysis has given us a foundation for illustrating the change while also a foundation for the Plan itself as well. Right before the enactment of the 6360 Law and the expansion of the planning authority of the Konya Metropolitan Municipality, the amount of land planned to be developed with development plans were 20701 hectares for the whole province collected from partial and dispersed 1/1000 development plans, rural settlement plans, 1/5000 regulatory development plans (Ege Plan, 2015). After the enactment of the 6360 Law Konya Metropolitan Municipality started working on the plan (with the plan bureau: Ege Plan). The plan targeted 2043 and decreased the proposed development area more than 41.3% with slightly denser settlements and significantly more realistic and lesser populations (Ege Plan, 2015). The 2043 Plan of the KMM, the local center of the Konya Province, proposed significatly lower development areas and plan populations in 24 peripheral districts (Ege Plan, 2015). Only in 4 districts the 2043 proposed population is higher than the partial plans of the pre-6360 era and the difference is less significant (Ege Plan, 2015). In the core city on the other hand, this trend changes, and the population proposed for the city of Konya is 35.9% more than the one proposed by 2025 Plan, yet the 1/25000 were also produced by the KMM and the difference were the planning authority zone, the municipal area of the MM pre-6360

Law. This increase in the plan population for the city of Konya is explained by the increased time interval from 2025 to 2043 which is understandable.

It is safe to state that the development rights given by plans has been decreased significantly with the enactment of the 6360 Law in the case of Konya with the 2043 plan controlling the future development with reference to more comprehensive approach to planning and population projections. In the case of Konya, this is among positive results of the 6360 Law. Yet, the story of development does not end here. With the increasing deregulation in planning authorities in national scale, especially visible in plan changes and revisions, the comprehensive and population projection-oriented approach of this province scale environmental plan has been disrupted. The monolithic structure of the metropolitan municipality system is a part of more centralized presidential system in national scale while the decision-making process including plan changes and revisions is becoming more partitioned, partialized yet central. The plans can be modified even in parcel scale by presidential decrees, Ministry of Environment, Urbanization and Climate Change,
TOKİ, Konya Metropolitan Municipality and district municipalities.

Since the enactment of the 1/100000 Environmental Plan by MoEUCC in 2013, 25 changes and revisions have been made directly on 1/100000 Plan by MoEUCC (MoEUCC, 2022)[176]. In addition to that, after 2018, there has been 54 presidential decrees enacted on Konya and these are also modifying plans and changing the geography of Konya in partial scale. Moreover, there are massive amount of plan changes and revisions done by Konya Metropolitan Municipality and District Municipalities since the enactment of the plan. To illustrate the scale, solely the last month of changes and revisions of plans from the displays of KMM. There are currently 114 plans on display for Konya and according to MoEUCC, this is by far the largest number in Turkey and 90 of them are by KMM (MoEUCC, 2022)[177]. The distribution of plan types on display is also illustrative[178].

[176] https://mpgm.csb.gov.tr/konya-karaman-planlama-bolgesi-i-82220

[177] https://e-plan.gov.tr/ accessed on August 2022.

[178] https://e-plan.gov.tr/ accessed on August 2022.

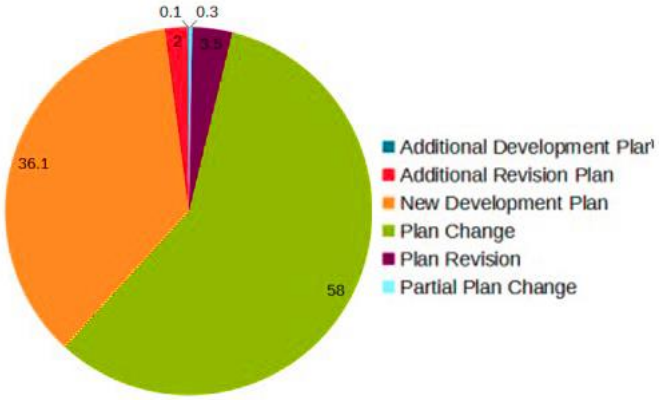

Figure 145 Distribution of Plan Types on Display in 2022 August (MoEUCC, 2022)

Only 36.1% of the plans on display this month are new development plans and the rest 53.9% are either additional plans or revisions and changes. This trend seems to sustain in time and it illustrates the partial approach disrupting comprehensive plans. The relative comprehensiveness achieved by the 6360 Law and the metropolitan municipality system in provincial scale has been lost again with partial interventions from both central and local authorities.

7.4 Conclusions: 6360 Law on the Urban Forms of Konya

The urban geography of the Konya province has been analyzed in this chapter. The problem of urban sprawl is at the heart of this chapter and while the agglomerations of population analyzed in the previous chapter on the settlement pattern, this chapter deals with the distribution of these agglomerated populations over the urban geography of the urban settlements. In the previous chapter it has been found that the population tends to agglomerate in larger scale settlements which hints a rescaling, this chapter illustrates the agglomerations under question are not compact, the agglomeration of population, the increasing population in larger settlements does not mean compact urban forms. The dynamics of compactness or sprawl level of urban forms are a different issue. The impact of a monolithic metropolitan municipality system structure in the local governments is analyzed with reference to urban development patterns in the case of Konya between 1989-2022, from the date when Konya Municipality has become a metropolitan municipality. This is not only the impact of the MMS but also the concentrating population in the city of Konya over the semi-periphery of the city. The results are as follows:

Konya is a sprawled city with a fringed continuous settlement and massive number of fragmented urban fabric on the semi-periphery and this trend is an ongoing one especially after 2004. The growth of the urban form of the Konya city is limited with mountains on the west

while north, south and east are prone to sprawl with more plain geographies, and the south is especially problematic with existing irrigated prime farmland. The east is the Konya basin where massive, large scale agricultural production (including livestock) is taking place, it is also problematic for agricultural production.

As expected, the increase of the total coverage area of the Konya city settlement is parallel to the increase in the population yet the density is decreasing in settlement scale, indicating increasing production of space per person. Between 2014 and 2022, in 8 years, the rate of increase of the area of the urban form is 145%. It has increased from 26600 hectares to 34801 hectares while the rate of increase in population within same time interval is 112.8%.

For the city of Konya, the density of the neighborhoods within the city settlement area is more higher to the north of the city creating more rent and development pressure over the northern perimeter of the city which is also the area where most of the development rights are given by the KMM 2016 Environmental Plan produced with the authority given by 6360 Law and the scale of urban sprawl is larger in this part, with larger chunks (in hectares) of leapfrog urban fabric/produced urban space.

On the southern part, the scale of urban fragments is significantly smaller while the densities are also significantly lower which means more severe sprawl than the northern perimeter even though the scale of the total sprawled area is relatively smaller. The smallest urban fragments are in this area, on the previously irrigated agricultural lands of the Meram district with prime farmland. After 2014, the sprawl problem is deepened in the area with low density leapfrog development. Yet, this does not seem to be a problem created by the 6360 Law since the 2016 KKM Plan produced based on 6360 Law did not give development rights in this area. The rent pressure is at work here with plan revisions, uncontrolled development, plan changes and additional development plans. Therefore, it is a partial development tradition problem that defines Turkish urbanization for a long time now and deepening in scale.

19 out of 28 peripheral districts are located on plains and they are prone to urban sprawl, majority of them already sprawled, all largest peripheral districts are in this category. 8 districts are either on foot slope or valleys and the valley ones are linear in form as expected while foot slope ones tend to be compact. There is one district on the waterfront, which is also sprawled. These districts being in compact, sprawled linear forms and on plains, foot slopes, valleys or waterfronts will likely to be affected from the spatial policies of the MMS differently. Urban development is not a one size fits all policy while this differentiation is not observed in the plans produced.

43.9% of all former villages (rural neighborhoods) are located on plains while 47% are located on foot slopes, ridges, valleys, or plateaus. Plain ones are more prone to sprawl while the others tend to be more compact with decreasing populations due to less accessibility and

lower amount of available agricultural land. 4.7% are forest villages while 4.3% are waterfront villages. 70.3% of all villages are compact in the case of Konya province which illustrates that sprawl is as expected an urban problem specific to urban settlements. 26.6% villages are sprawled, and these are almost all plain villages. There are also 3.1% linear villages which are either located on the ridges or valleys. These differences in settlement forms that are results of geographies and production histories of the settlements are also a parameter in the impacts of MMS over these villages. The mountain-plain divide is utilized for these villages in the planning process.

The sprawl problem in the urban form of Konya has been analyzed with 7 quantitative measures in time with reference to the breakpoints relevant for the metropolitan municipality system and in 5 of the indicators the situation is worsened in terms of urban sprawl. In 2 of them there are positive results indicating Konya is getting better in these elements of urban form. The perimeter of the urban form of Konya (all fringe and fragments' perimeters) is getting extensively larger meaning the overall form is getting further from compact (Polspy-Popper Measure). The ratio of change in the continuous and discontinuous parts of the settlement favors the discontinuous (fragmented) urban fabric (Contiguity Index). The number of fragments increases in time while each fragment is also getting larger from 0-10 hectares pieces to 10-100 hectares and 100-1000 hectares pieces. The continuous part of the urban settlement is the 69.3% of whole urban form and this percentage is slightly decreasing. A record number of 515 urban fragments are between 10-100 hectares in size (Secondary Contiguity Index). The ratio of the circle with an area equal to total urban form area to the minimum circle covering the whole urban form with its fringes and fragments (continuous and discontinuous settlement areas) is also slightly decreasing in time illustrating more sprawl (Schwarzberg Measure). The percentage of the settled area in the minimum bounding circle is slightly increasing which is a positive sign towards compactness yet the reason behind this is Konya is already sprawled to a very large circle with reference to its scale and in time, the massive gaps (undeveloped areas with or without development rights) are slightly getting filled by further urban development usually in the form of urban sprawl and leapfrog development but within the minimum bounding circle (Roeck Measure). The land suitable for development within the minimum bounding circle for the urban form with reference to slope is calculated and excluding areas with a slope above 21.5° 40.6% is settled which is a high ratio for a city like Konya with reference to her population (Slope Compactness Measure). This is also a positive sign towards compactness. The minimum bounding convex illustrates another picture and the sprawl problem seems to be increasing since the minimum bounding convex is getting larger with more fragmented urban development in time (Convex Hull Measure).

In 4 of the measures illustrating increasing scales of sprawl in time, from 1989 to 2022 the metropolitan era of the Konya city, the major breakpoint is 2004 which is also the year 5216 Law with 20 km radius control boundary has gone into effect. In two of the measures, 2014 is the major breakpoint which is also our major breakpoint with the 6360 Law. The continuity of the urban form is constantly decreasing after 2004 with faster increasing areas for both continuous and discontinuous parts of the urban form after 2014. The number of urban fragments is severely increasing after 2014 while the number of fragments between 0-10 hectares are severely decreasing and the number of fragments between 10-100 hectares are dramatically increasing. The urban fragment chunks are getting larger while their number is also increasing severely signifying leapfrog development and severe urban sprawl. From 1989 to 2004 the perimeter of the urban form with all fringes and fragments has been severely increased. After 2004, the area/perimeter ratio slightly increased with most probably urban fragments getting larger, yet the increase is too small to be significant or positive. 2014 is not a breakpoint for this measure. For developed area within the minimum bounding convex ratio, from 1989 to 2004 it severely decreased illustrating severe sprawl while between 2004 and 2014 it started getting better with a slight increase, yet interestingly in 2014 the trend changed, and ratio started to decrease again signifying more sprawl. The extension of the urban form area is affective over this trend shift.

Rescaling in this part, in the 6360 impacts on urban form has taken place in two aspects. First, the scale of sprawl increasing in time and the scale of urban fragments getting larger while getting further from the continuous part of the urban form.

The plan proposed settlement area boundaries for the city of Konya is larger in KMM 2016 Environmental Plan which is a direct result of 6360 Law from the 2013 Environmental Development Plan by MoEUCC in the pre-6360 era. The development rights given is extended over the geography which likely to yield with more sprawl with the undeveloped land with development rights given and lying in the middle of leapfrog development induced by the development rights. The population of Konya is increasing but not as much as expected in the plan population projections.

6360 Law and the KMM 2016 Plan produced based on this law resulted with more sprawl in the city of Konya and likely to cause more in the near future due to population projections more than the increase in population and lack of staging in the implementation plans. The plan targets 2043 which is good for upper scale plans while the implementation plans are not staged by the municipality and the massive development area of the plan is now under either direct impact of production of space or rent pressure. Plan revisions and changes do not help solving the problem either.

For the districts on the other hand, the results are the opposite. The KMM plan produced based on the 6360 Law approached the districts much more comprehensively with projections much more realistic and the development rights given in the districts with development plans in 1/1000 and 1/5000 scale were signficantly decreased. The sprawl problem of the districts would be much higher if they are the ones still deciding the development rights to be given in their districts. The total percentage of decrease in given development rights in the peripheral districts is a record of 41.3%. In sum, 6360 worked in favor of preventing further sprawl with diminishing development rights on the peripheral districts while deepening the sprawl problem of the core city, the city of Konya.

The problem of planning in Konya (and in Turkey for that matter) is much larger than the problems faced in plans of all scale. The plans on display illustrates that more than 65% of plans on display are either plan changes and revisions or additional development plans. The regulation produced by plans are deregulated by changes and the change can come from all scales and directions. District municipalities, metropolitan municipalities, MoEUCC and several other public bodies are authorized to revise and change plans and even presidential decrees are used to intervene into plans in hyperlocal scale. This deregulation is not helping the problem of urban sprawl either. It also counteracts with the comprehensive approach suggested by 6360 in provincial scale.

CHAPTER 8

METROPOLITAN MUNICIPALITY SYSTEM IMPACT ON THE AGRICULTURAL PRODUCTION IN KONYA 1990-2021

Konya as the largest province with the largest number of farmers and agricultural land is an agricultural province even though industrial production is also dominant in the geography. The position of Konya agriculture within national context is summarized in the 5th chapter and building up on this I will be dealing with factors of agricultural production in the case of Konya pre and post 6360 in this chapter. Land, labor, capital, the three factors of production will be the subsections of this part. Corine Land Use Data and Maps for the years 1990, 2006, 2012 and 2018 will be main sources for the Land subsection. The breakpoints of MMS were 1989, 2004 and 2014, even though they are not exactly same with the Corine land use maps, they are close enough. Hence, for 1989 breakpoint we will be using 1990 Corine, for 2004, the 2006 Corine and for 2014, 2012 Corine. For most recent analysis 2018 Corine Land Cover will be used.

Following the changes in Land, the Labor factor of agricultural production and the impact of MMS will be analyzed. The number of farmers retiring from agricultural production, total number of agricultural workers and rural population, aging population and seasonal migration of agricultural workers will be the elements of analysis. The last subsection of this part is the Capital factor of agricultural production. The scale of production, ownership patterns, land consolidation, the rent problem: the speculation and development of land.

Agricultural production process with its factors and means of production and massive number of kinds produced both in plant production and livestock production is a highly complex process as illustrated in politics of production of space and spaces of production section. Therefore, agricultural statistics are severely layered and fragmented. Amount of land sown, inputs, tools and machinery utilized, a variety of products, revenues, prices, labor working in the process, seasonal workers, average ages of labor, number of farmers, share of informal sector, enterprise scale are some statistics relevant for an agricultural production analysis.

8.1 The Change in Agricultural Production Patterns in the Province: Core Vs. Periphery

8.1.1 Changes in Plant Production under MMS

The agricultural production pattern in Konya province mainly consists of crop production. Grains, legumes, potato, sugar beet and sunflower (for oil) are main varieties of products. In wheat (10% of national production), barley (12%), sugar beet (29%) and seed (30%) production Konya is the first ranking province. Also, in beans (30%), carrot (61%) and tulip (98,5%) production Konya is the leading producer (Food, Agriculture and Livestock Provincial Directory, 2017). 10% of all grain production of Turkey takes place in Konya, therefore the provincial agricultural production is fundamental for not only Konya but also in national scale. The change of total production in time with a reference to MMS breakpoints will be illustrative (TURKSTAT, 2022).

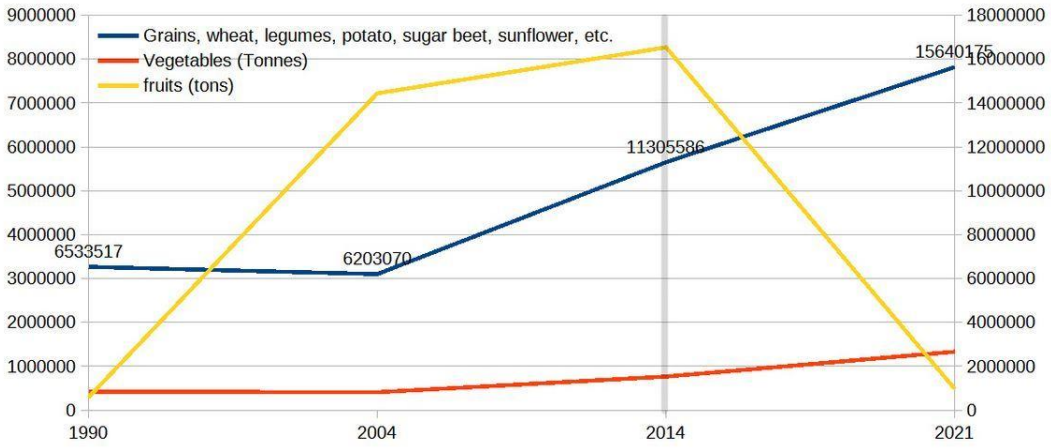

Figure 146 Total Production (in Tons) of Grains, Crops, Vegetables and Fruits in Konya 1990-2021

The coverage area and tonnes of production is massively higher for grains and crops; therefore, a secondary axis is utilized in the graphic. Between 1990 and 2004 the grain and annual crop production were slightly decreasing while in 2004 the trend changed, and it started increasing rapidly. On the contrary, fruit production which requires perennial and irrigated patterns was rapidly increasing from 1990 to 2004 and the increase slowed down between 2004 and 2014. 2014, the breakpoint for 6360 Law is also a massive breakpoint for fruit production which plummeted after. Grain and annual crop production and vegetable production in provincial scale did not encounter a trend change in this year.

Wheat production is one of the key agricultural production sectors since it is crucial to feed populations especially in underdeveloped countries. The wheat production, which is a

native variety for Konya, alongside sugar beet is the core agricultural product for the province. The product amounts from 1991 to 2021 are plotted below (TURKSTAT, 2022).

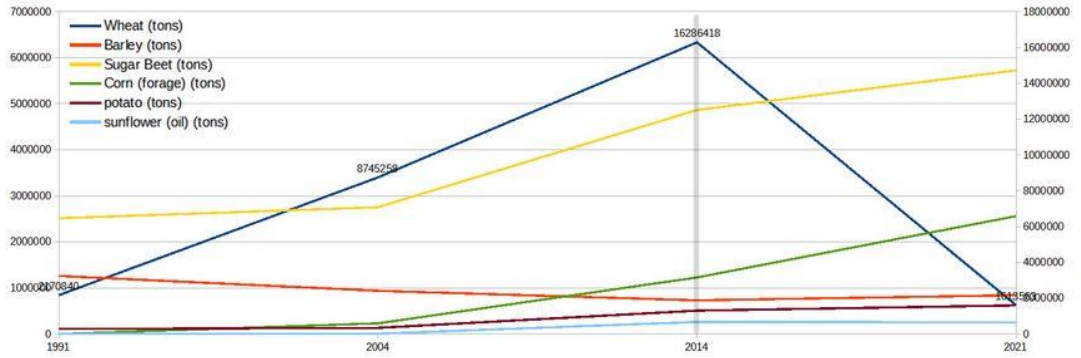

Figure 147 Production Change in Selected Crops in Konya between 1991 and 2021 (Tons)

Apart from barley, all crops' productions have increased from 1991 to 2014. wheat shows the most fluctuating pattern for production, and it is by far the largest product of Konya (therefore a secondary y axis was used to illustrate). 2014 is a major breakpoint for wheat and the production decreased dramatically after this year. This seems to originate from several reasons some of which are increasing irrigated agriculture patterns, increasing sugar beet, corn and sunflower production in the production pattern, decreasing populations in smaller villages with dry agriculture, drought in some parts, etc. In sugar beet, corn, potato and sunflower production the increase from 1991 to 2004 was slow and minor. While after 2004, the increase became higher. Especially in sugar beet production, which requires irrigation and severe usage of water, the increase after 2004 is drastic. The pace of change slowed down a little after 2014 but the trend continued. This poses a problem of severe water usage which is already insufficient in the endorheic basin of Konya.

Konya Plains Project Administration is established in 2011 solely for solving the water problem of the region and there are plenty of infrastructure projects for transporting water into the closed basin of Konya. Therefore, sugar beet production is not a sustainable product for the Konya basin and the products with less consumption of water should be preferred in the region. On the other hand, the competition going on between starch-based sugar production and sugar-beet based sugar production (healthier for human consumption) is another facade of the problem. Privatization of sugar factories using sugar beet for production are the visible part of this debate. Konya sugar factory is already privatized, yet partially luckily is now under control of sugar beet producers' cooperative (PankoBirlik) one of the largest producers' cooperatives in the country. The sugar beet production and producers, especially PankoBirlik is very strong over the local politics (see politics of production of space and spaces of

production part). Therefore, for today, it seems hard to change this production pattern consuming massive amounts of water. The increase in corn and sunflower production are also fastened after 2004 and these increases yield similar results for water consumption. Corn, sugar beet and sunflower are highly industrialized agricultural products in terms of scale of production and as being inputs for agriculture-based industry and forage industry.

To dig deeper and to understand more about pre and post 6360 Law agricultural production patterns in the province, the core 3 districts namely the city of Konya and 28 peripheral districts with varying degrees of rurality are analyzed in comparison with each other.

The productivity of land and labor increases in time and the rate of increase in productivity usually increases while getting closer to the urban agglomerations. In other words, rent theories suggest that the land closer to metropolitan cities more likely to have a more well-developed irrigation and transportation infrastructure, the industrialization of agriculture also starts from this direction and the land market has more circulations (sometimes enabling sometimes disabling land consolidation) and technologies including agricultural technologies usually spread from the core. Therefore, the infrastructure and technological developments alongside ownership patterns and the productivity are favoring core districts producers most of the time. Yet, the changes in production amounts in core districts versus peripheral districts tell a different story (TURKSTAT, 2022).

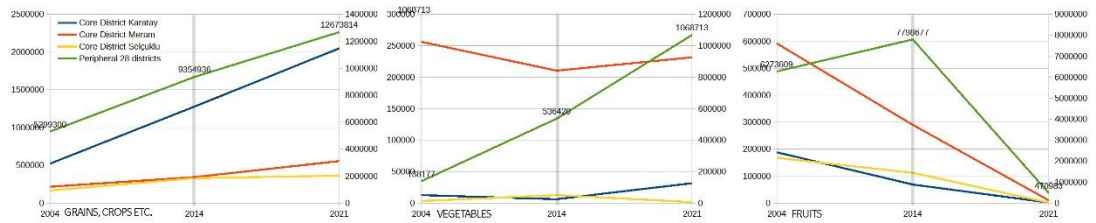

Figure 148 Change of Production in a. Grains and Crops, b. Vegetables and c. Fruits in 3 Core versus 28 Peripheral Districts 2004-2021

The trend of increase was similar between Meram, Selcuklu and 28 peripheral districts between 2004 and 2014 for grain and annual crops production. In Karatay district, the rate of increase was even higher than 28 peripheral districts. For grain production the increase continued between 2014 and 2021. Interestingly, the share of the core districts in grain and annual production increased from 17.3% to 19% from 2014 to 2021 and Karatay district on the eastern perimeter of the city over the Konya basin took the lion's share among core districts (TURKSTAT, 2022).

In 2014, Karatay core district was providing 11.3% of all crop production in the province while 28 peripheral districts were providing 82.7% of all production. It was 85.4% back in 2004. In 2021, the percentage of Karatay has increased to 13.1% while peripheral 28 districts' percentage decreased to 81%. Sugar beet, sunflower and potato are the main products being subject to a decrease in Karatay district. The reasons will be clear with the spatial analyses on land in core and peripheral districts yet, for this part, the change in trends between 2004-2014 period and 2014-2021 period are very interesting.

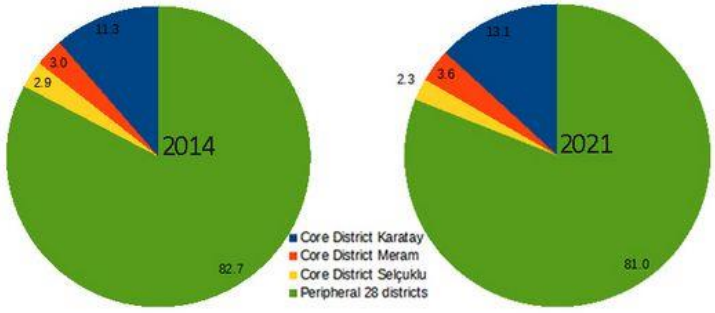

Figure 149 Production Percentages of Grains, Legumes, Potato, Sugar Beet, etc., in 3 Core Districts versus 28 Peripheral Districts in 2014 and 2021 in Konya

Meram district is among significant districts with relatively larger vegetable production due to well-developed irrigation infrastructure. The vegetable production in Meram and Karatay was decreasing between 2004 and 2014 while the production in Selcuklu was slightly increasing and in 28 peripheral districts, dramatically increasing. After 2014, up to 2021, interestingly the vegetable production in Meram and Karatay, 2 out of 3 core districts has been increased.

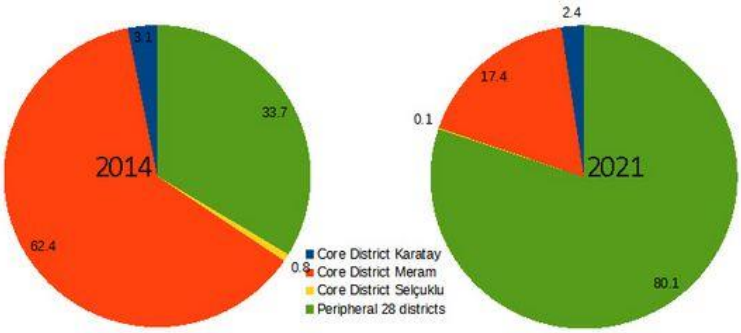

Figure 150 Production Percentages of Vegetables in 3 Core Districts versus 28 Peripheral Districts in 2014 and 2021 in Konya

Back in 2004, the 62.4% of all vegetable production in the Province was produced in the Meram district of Konya. The vegetable production in Meram district mainly takes place in

mountainous areas in the east of the city. The majority of irrigated land in Konya province are concentrated in three districts and these are Karatay, Cumra and Eregli. A question of causality arises here; does these districts grow due to the welfare brought by the irrigated agricultural production or the irrigation infrastructure investments follows capital and population flows and therefore usually is located around larger settlements? The exact locations of these irrigated land (see the water problem part) are just next to the city of Konya and city of Eregli. Meram also has a significant amount of irrigated land yet the irrigated part of the district is located on the fringe of the city of Konya. Vegetable production being heavily dependent on irrigation, also naturally take place in these areas. The share of Meram in vegetable production back in 2004 was dramatically high, while in 2021 it has fallen to 17.4% and the percentage of peripheral districts increased to 80.1%.

Although the total production of fruit in provincial scale is increasing in time, since 2004 the fruit production in 3 core districts were all decreasing between 2004-2014. 28 peripheral districts had increasing amounts of fruit production between 2004-2014. Especially in Meram, with plenty of irrigated land, fruit orchards and urban development pressure from upper and upper-middle classes (land speculation and rent pressures), the decrease was dramatic. Between 2014-2021, the change in 3 core districts continued the decrease trend while peripheral 28 districts' productions started plummeting as well.

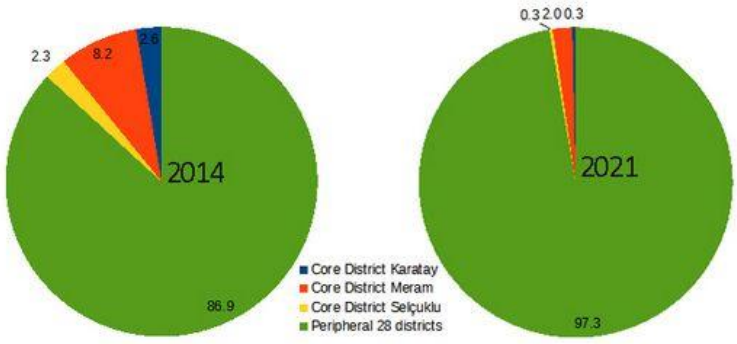

Figure 151 Production Percentages of Fruits in 3 Core Districts versus 28 Peripheral Districts in 2014 and 2021 in Konya

The 86.9% of fruit production were taking place in 28 peripheral districts in Konya in 2004 and in 2021 this percentage increased to 97.3%. Previously the production share of Meram was 8.2% and was significant for provincial production yet in 2021 it had decreased to 2% and the total share of three core districts was also decreased significantly. Since the technological developments and market conditions are same for both core and periphery district groups, and irrigation network is favoring core districts, especially Meram, this change is problematic and illustrative. The impact of production of urban space seems to be the problem for fruit production and regarding the overall decrease in the province in fruit

production, a question arises, is fruit production the most vulnerable form of agricultural production against urban development.

8.1.2 Changes in Livestock Production under MMS

Konya is in the first rank for bovine livestock and in bovine milk production in Turkey (MoAF Provincial Directory, 2017). The main four branches of livestock production in Konya are bovine, ovine, poultry and beekeeping. As an integral part of agricultural production, bovine and ovine farming create natural fertilizers for plant production. Beekeeping has also utmost importance since plant production is not possible without pollination and main pollination agents are bees in nature. The significance of beekeeping for plant production is still not yet comprehended by farmers in Turkey and in Konya. As the second largest beekeeper country following China, beekeeping is highly traditional for Turkey and Konya, therefore even though the significance is not yet comprehended, the act of beekeeping is luckily widespread. For these four groups, the change in time is illustrated in the graph below (TURKSTAT, 2022).

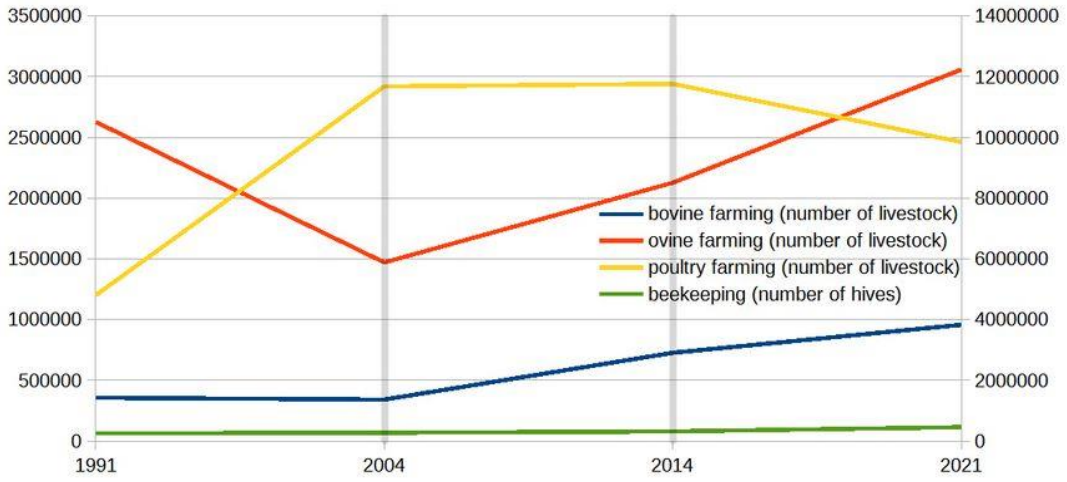

Figure 152 Changes in Livestock Between 1991-2021

Year 2004 seems to be the most significant break point among our break points. Bovine farming was relatively stable between 1991 and 2004 while after 2004 it started significantly increasing. Since the number of poultry is significantly and naturally higher than the rest, there are two scales in the graphic, left for ovine, bovine numbers and beehives while the right one is for the poultry. The number of poultry were rapidly increasing between 1991 and 2004 and after 2004 it became stable until 2014. The dramatic change in the trend stems from the major avian influenza epidemic in chicken taken place in 2004. between 2004 and 2014 the number of poultry was stable and after 2014 the number started decreasing again.

The trend in ovine farming is different from the other three. It was rapidly decreasing between 1991 and 2004 while between 2004 and 2014 it was increasing with nearly the same pace. After 2014, the increase fastened. This strange pattern seems to be related with rescaling in ovine production. Ovine production was a natural part of smallholder agriculture in the region and therefore mainly small in scale before 2000s. After 2000s with the policy change, with technological advances, with ownership transfers, with decreasing population and with decreasing area of pastures, decreasing amount of nomadic ovine farming the small scale ovine farming has become problematic and rescaling phenomenon has started ruling the process. The increase after 2004 is related with this rescaling; the ovine farming becoming larger in scale.

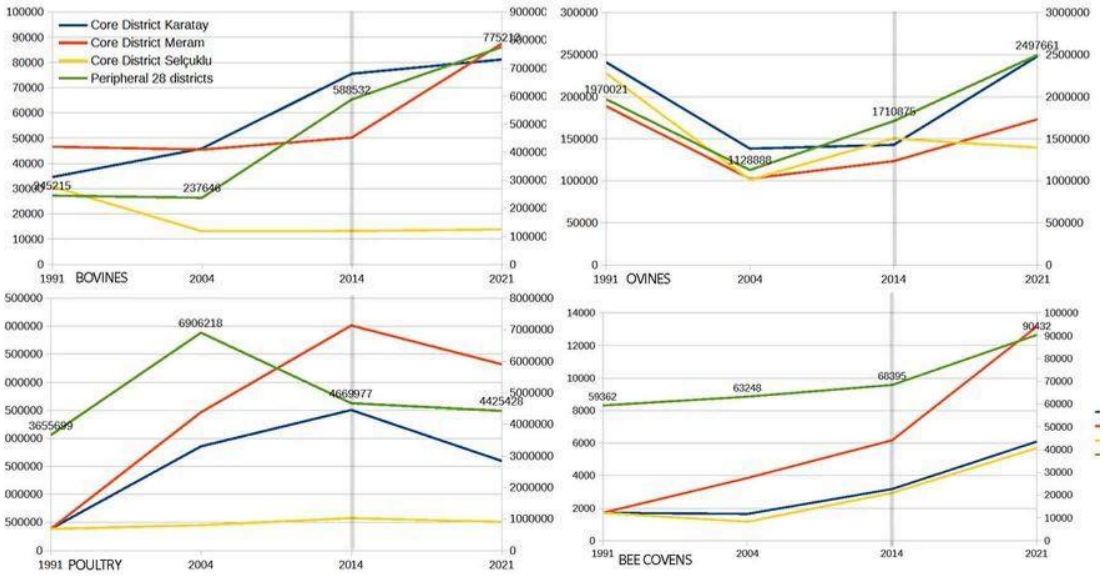

Figure 153 Bovines, Ovines, Poultry and Beehives from 1991 to 2021 in Core Vs. Peripheral Districts

To get a clearer picture of the impact of MMS over livestock production, we will be looking at the number of Livestock by types and by years in three core districts and 28 peripheral districts separately.

Since the total number of bovines in 28 peripheral districts is significantly higher than the three districts, there are two scales in the graph above, one for 3 core districts on the left and one for 28 peripheral districts' total on the right. The number of bovines in 28 peripheral districts between 1991 and 2004 was relatively stable. In 2004, the number of bovines started increasing rapidly and the same rate of increase is continued after 2014 as well. The changes in three core districts between 1991 and 2004 are significantly different from each other. The numbers were significantly increasing in Karatay while in Meram slightly decreasing and in Selcuklu decreasing. After 2004, the number continued to increase with higher pace and in Meram the trend also changed and turned into an increase. Selcuklu has relatively stable

number of bovines after 2004. The change in Meram after 2014 is interesting, the number rapidly started increasing. The recent increase in Karatay and Meram are supported with the plan decisions of the last two plans, Konya Environmental Plan for the year 2023 by the Ministry of Environment and Urbanization and 2043 Konya Environmental Plan by Konya Metropolitan Municipality proposing industrialized livestock farming zones in the southern fringe of the city of Konya. Industrialized livestock farming usually acts similarly to industry and prefers to be located near cities in order to access transportation, infrastructure and technological advances originating from cities. This seems to be the reason behind the different trends of livestock production from plant production. Industrialized and integrated livestock production does not require large and natural pasture areas since the livestock is caged in small areas. This is the basic reason behind the differentiation of the impact of MMS and the methodologically cityist perspective of urban policy over plant production and livestock production.

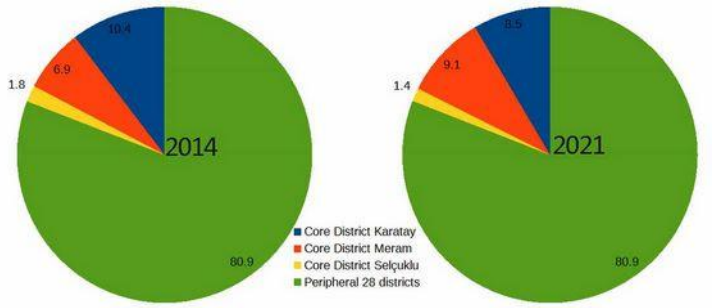

Figure 154 The Percentage of Bovines in 3 Core and 28 Peripheral Districts in Konya in 2014 and in 2021

In 2004, the 26.7% of Bovine farming activities was in Karatay and Meram, two of three core districts. The share of remaining 28 peripheral districts were 69.5%. Today it has risen to 80.9% while both in Meram and Karatay, the number of bovines is decreased. This trend is like the balance of plant production trends in core and peripheral districts. Combined with the previous graphic, even though the number of bovines is increasing in Meram and Karatay, the share of total production in these two districts are decreasing in provincial scale. The bovine production in peripheral districts is growing more rapidly than the two core districts. This might be a good sign for decreasing uneven development among central and peripheral geographies.

Unlike the generally increasing trends of bovine farming, ovine farming has a fluctuating trend in core and peripheral districts. The number of ovines in 28 peripheral districts are significantly higher, hence, they are illustrated separately with the scale on the right side. In

all settlements either core or periphery the number of ovines had decreased between 1991 and 2004. After 2004. Majority of ovine farming was in small scale rural settlements, namely villages, (MoAF, 2015) and the rural population dwelling in these villages decreased dramatically between 1990 and 2007 (see chapter 6 for the detailed picture of the changes in the settlement pattern). After 2004, in both core and peripheral districts the number of ovines started to increase and this rise seems to stem from rescaling in ovine production. Not in same ratios but this trend has taken place in all three core districts and 28 peripheral districts in total. Only in Selçuklu district, after 2014, the trend changed directions and started decreasing again. In Karatay and 28 peripheral districts, the increase fastened.

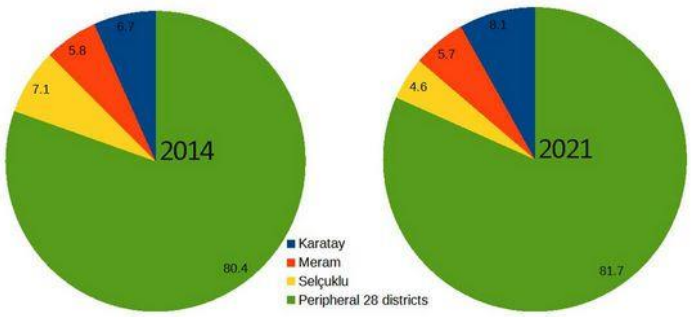

Figure 155 Number of Ovines in Konya between 1991 and 2021 in 3 Core vs. 28 Peripheral Districts

The share of three core districts is similar to each other while the ratio between the core and the periphery did not change that much from 2014 to 2021. Between 1991 and 2004 even though an overall decrease had taken place in numbers of ovines in core and peripheral districts, the share of peripheral district nearly remained stable (around 75%). In 2021, on the other hand the share of peripheral districts in number of ovines is increased to 81.7% of the province. For only three districts, around 20% is still a high percentage on the other hand. Therefore, it can be concluded that ovine production, similarly to bovine production, is concentrated around the city of Konya throughout our timeline of the MMS. Yet, since the need for pastures, large scale vacant and natural land, the rural commons of the villagers are decreasing due to industrialization in livestock production, it is hard to measure the impact of the consumption of land, pastures to be specific, on the changes in number of livestock. Yet, the decrease between 1991 and 2004 might be stemming from the decrease in pastures alongside the decrease in rural population. Recent legal changes enabling MMs to reallocate and re-purpose pastures that were transferred to them with the law no 6360, villages transforming into neighborhoods, likely to severely impact production patterns in livestock side of agricultural production.

Poultry farming is also widespread in the province both in core and peripheral districts. As explained previously, 2004 was a major break point for poultry farming in Turkey. The avian influenza epidemic in chicken of whole country as well as Konya ended with massive scale extermination of chicken. This was a structural shift for poultry production in Turkey. The graph illustrating poultry numbers in time in the case of Konya for core versus peripheral districts is among the most impressive graphs utilized in this study, since this is the graph of rescaling. The number of poultry in all 28 districts in total is very close to each of Karatay, Meram and Selcuklu numbers. Between 1991 and 2004 all four were increasing in similar trends and peripheral districts' total number was significantly higher even from the sum of three core districts. In 2004, right after the influenza epidemic, and because of the influenza epidemic, dramatic amounts of poultry in 28 peripheral districts were exterminated. The epidemic was the end of small-scale poultry production in Turkey and in Konya. The small-scale production was not industrialized; therefore, the usage of medicine and chemicals were minimal and more significantly, the chickens were free range, not caged. The dominant discourse claimed that the small-scale poultry was not resilient against epidemic, therefore the consumption of free-range poultry decreased dramatically in those years. Interestingly enough, in three core districts the increasing trend continued even after 2004 and around 2008 the poultry production of three core districts surpassed 28 peripheral districts production. The production taking place in three core districts were highly industrialized, the need for land is decreased and the chicken are caged. The industrial poultry replaced the traditional free-range poultry in that year. The rescaling impact of MMS is not legible in this sector, yet it must be supportive rather than antagonistic for the production surrounding the city of Konya. From the plans, we know that there are plenty of industrialized livestock areas surrounding the city of Konya, therefore, it can be said that Konya MM supports industrialized and large-scale poultry against small scale production.

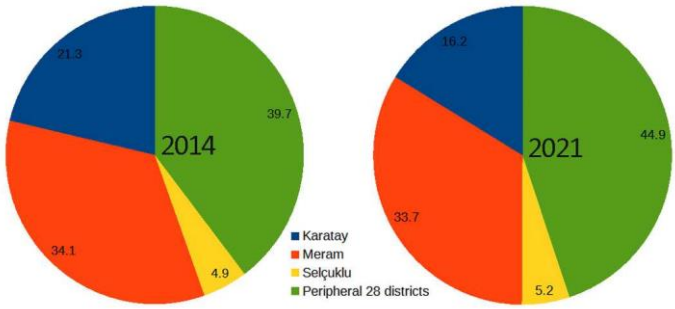

Figure 156 The Percentage of Number of Poultry in 3 Core and 28 Peripheral Districts in Konya in 2014 and 2021

The rescaling of poultry farming is more visible in these pie charts by years 2014 and 2021. Back in 1991, the share of peripheral poultry production was even higher than 2004

percentage with 76.1%. In 13 years, it decreased by 17% and between 2004 and 2014 by 20%. Even in just three years after 2014, it decreased by around 2%. The majority of increase had taken place in Meram and this makes poultry farming another contesting land use on agricultural land. Since the poultry farming is heavily re-scaled and industrialized, it can be categorized as an urban land use with factory like buildings and similar infrastructure need. It is a form of development of land with massive usage of water.

The last group and a distinct kind of livestock production is beekeeping. With 102810 hives / colonies, Konya is the 21st province for beekeeping. Around 89% of beekeeping in the province is migratory beekeeping (Karahan&Karaca, 2016) meaning seasonal – spatial movements of hives over the geography chasing spring. Since the migratory beekeeping dominates the field, the register of colonies usually depends on the address of the beekeeper. Hence, differently from other livestock statistics, beekeeping statistics illustrates the producers address and only a seasonal small portion of beekeeping activity that takes place within that district. The migratory beekeeping can even be in national scale and since around 21% of beekeepers in Konya are full-time beekeepers (Karahan&Karaca, 2016), at least these portions of beekeepers are likely to travel in national scale from Mediterranean and Aegean regions to Black Sea and East Anatolia Regions.

From 1991 to 2004 the number of bee colonies in Meram increased while in peripheral districts only a slight increase occurred. In Karatay and Selcuklu, number of colonies was decreased within the same time interval. Between 2004 and 2014, in all three core districts the number of colonies were increased significantly and after 2014 the trend continued. In Meram, the pace of increase is also increased after 2014. These statistics illustrates that Meram with a strong production in all agricultural sectors, will likely to experience more conflict between urban and agricultural land uses in the near future.

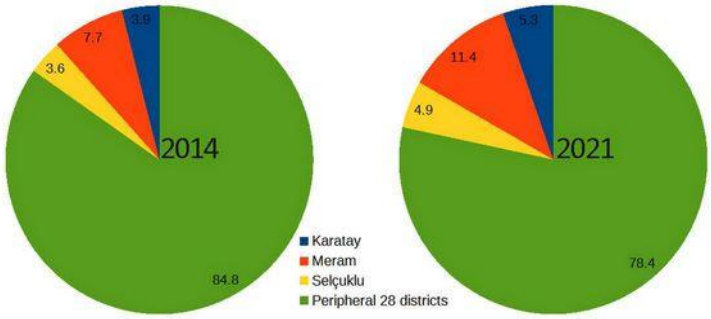

Figure 157 The Percentage of Number of Bee Covens in 3 Core and 28 Peripheral Districts in Konya in 2014 and 2021

Similarly, to previous change pattern in poultry farming, the share of bee colonies located (or the owners of the colonies are resident) in 3 core districts increased from 2014 to 2021.

Previously 84.85% of all bee colonies in the province was located at peripheral districts. Today, the percentage is 78.4%. This change can be interpreted in a variety of ways one of which is producers changing locations. Since majority of beekeeping is migratory forcing the producer to move in close or massive ranges, they do not have to continue to dwell in villages. Beekeeping can easily be urbanized with this form of production and the process has already started.

The production patterns, in its general framework changed as described above. We will dive deeper into the reasons beyond these changes and analyze impacts of MMS on three main factors of agricultural production: land, labor, and capital.

8.2 Land

Differently from any other spatial statistics, the change in agricultural land in time takes place in two directions. Agricultural land decreases with changes in land use, especially with invasion of urban land uses while at the same time, in other places on the geography, new agricultural land is added to existing stock. These areas can be both unused marginal, potentially agricultural land or naturally significant areas such as forests, wetlands, etc. In the first case, the land is improved with either machinery and tools or with agricultural infrastructure and new agricultural land is produced. In the second case, the naturally significant land is consumed for revenue. Hence, the change in the land is analyzed in these two directions.

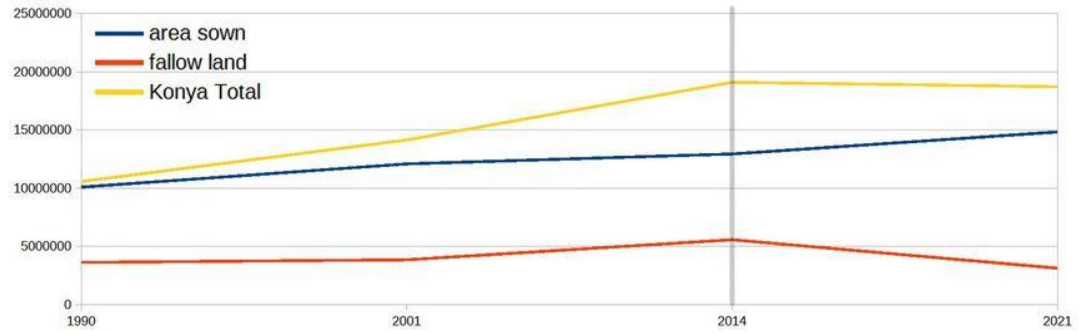

Figure 158 The Change in Total Agricultural Land, Sown Land and Fallow Land in Konya between 1991 and 2021

According to TURKSTAT data, the total amount of agricultural land in Konya province was increasing between 1990 and 2014. The amount of fallow land and sown land were also increasing. The rate of increase in total agricultural land was higher than the rate of increase in sown land. The act of opening up new agricultural land via either developing unused land or consuming naturally significant areas was widespread. The two-direction process of land change in agricultural production was favoring the increase of agricultural land. In other

words, the amount of newly opened agricultural land was higher than the consumption of agricultural land by urban land uses. After 2014, the trend significantly changed. Total amount of agricultural land in the province started decreasing while the amount of sown land continued increasing. This illustrates a more sufficient usage of existing agricultural land but at the same time new agricultural areas cannot keeping up with lost agricultural areas.

The fallow land (nadas) was increasing slightly before 2014 while after 2014 decreased rapidly. In 2014 the percentage of fallow land was 30.1% and in 2021 it decreased to 16.6% (TURKSTAT, 2022). To analyze the condition of agricultural land in Konya more clearly, from now on I will be using the Corine Land Use Cover data (for the years 1990, 2006, 2012 and 2018) based on satellite views of the province.

8.2.1 Agricultural Land Changes in Konya Province 1990-2021 and the 6360 Impact

Agricultural land includes the utilized land both for plant production and livestock production. The total change in agricultural land is tracked with reference to Corine Land Use Cover data for the years 1990, 2006, 2012 and 2018. The break points of this study, defined by the major break points in the Metropolitan Municipality were 1989, 2004 and 2014. These three years are not exactly overlapping but close enough for analytical purposes. 2018 is the most recent one therefore the main interval to illustrate the impact of the 6360 Law is the 2012-2018 time interval. The change in agricultural land has two directions on space. On one side, there are agricultural land consumed by urban or other non-agricultural land uses, namely decreasing agricultural land and on the other side the newly added agricultural land, namely increasing agricultural land. The difference between the amount of increasing and decreasing agricultural land defines the overall increase or the decrease in provincial scale. The one-dimensional data on statistical level is two dimensional on space.

From 1990 to 2012, the agricultural land in total has slightly increased (small blue pieces on the red map, on the right below) in Konya as Corine land use cover illustrates and this is consistent with TURKSTAT data shown in the previous subsection. Yet, there is also plenty of land use change on agricultural land from 1990 to 2006 as well (small red pieces on the blue map on the left below).

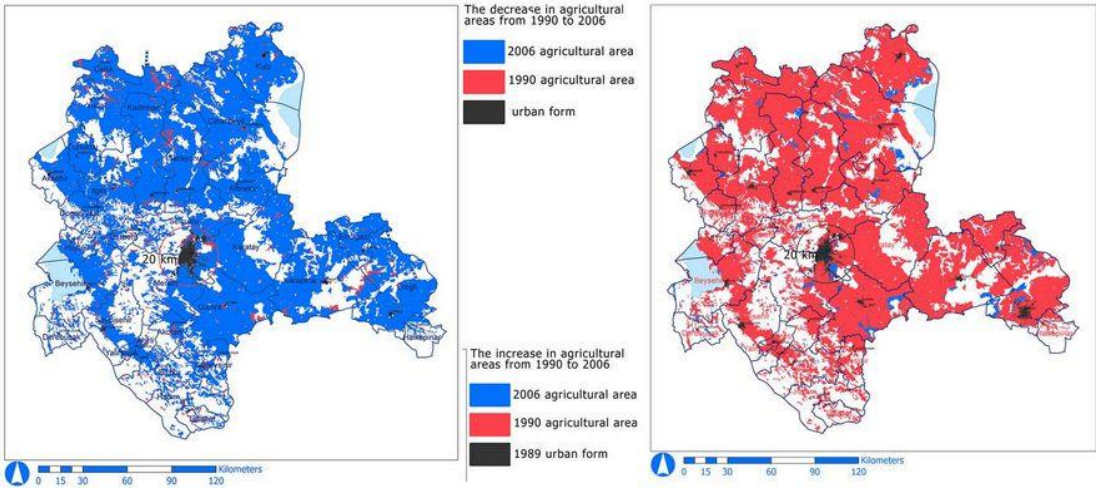

Figure 159 Corine Land Cover, Agricultural Areas in 1990 and 2006 with differences

A significant part of spatial decrease in agricultural land had taken place within the 20 km radius of city of Konya in 3 core districts with the expansion of urban form (red marks on the left blue map). Yet Yunak is the district with the most decrease among all and the majority of decrease in Yunak district had taken place on not around the urban core but on higher plateaus of the district. Following Yunak, there are similar changes in Cumra, Eregli, Karapinar, Sarayonu, Guneysinir and Kadinhani. The consumption of agricultural land for other purposes and agricultural land losing its productive features had taken place in all districts in this time interval.

Within the same time interval, the peripheral districts with the majority of the increase were Cihanbeyli, Kulu, Eregli, Emirgazi, Cumra, Altinekin, Karapinar and Kadinhani (blue marks on the red map on the right). In two of the core districts, Meram and Karatay there were significant increase in agricultural land as well. In the case of Meram, the newly added agricultural land is most likely to be irrigated. Same applies for Eregli district since it is the second largest zone of irrigation in the province. Some districts such as Eregli, Karapinar, Cumra, Kadinhani and Karatay have a relatively balanced increase and decrease in agricultural land. In some districts, such as Cihanbeyli, Altinekin, Emirgazi and Kulu there is increase but no significant decrease in agricultural land, therefore the change in these districts are positive and there are also districts with a significant decrease without a balancing increase such as Yunak, Selcuklu, Sarayonu and Guneysinir.

The total increase of agricultural land in provincial scale was slightly higher than the decrease in agricultural land in this period, hence, the agricultural land was increased slightly from 1990 to 2006.

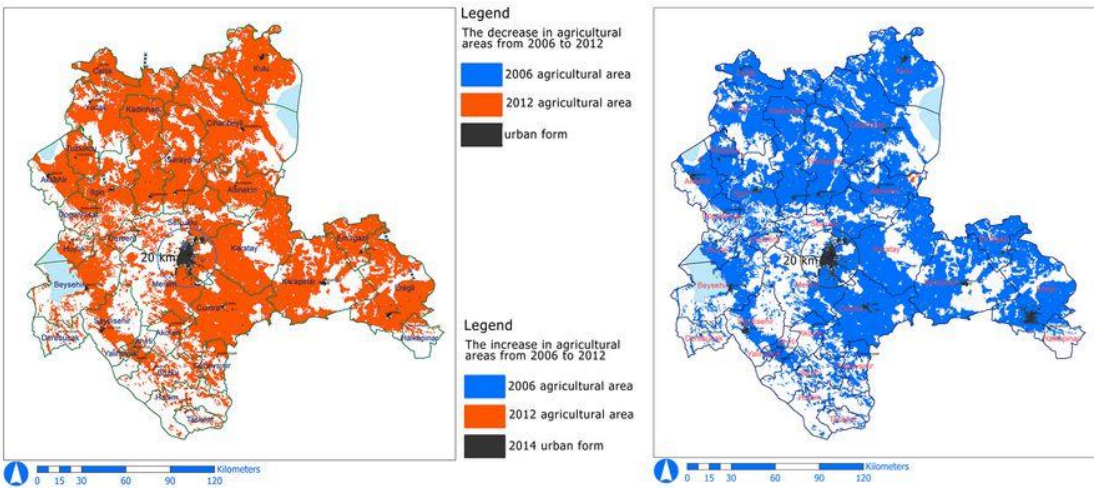

Figure 160 Corine Land Cover, Agricultural Areas in 2006 and 2012 with differences

From 2006 to 2012, nearly the only decrease that has taken place was in the 20 km radius of the city of Konya and in the peripheral 28 districts the decrease is insignificant. This mainly stems from the short time interval. The increase between 2006 and 2012 is also very subtle and invisible. In Altinekin and Aksehir there is a small increase while in Sarayonu, Selcuklu and Cihanbeyli a very minor increase. Between 2006-2012, agricultural land in Konya province did not change much, neither a decrease nor an increase in anywhere.

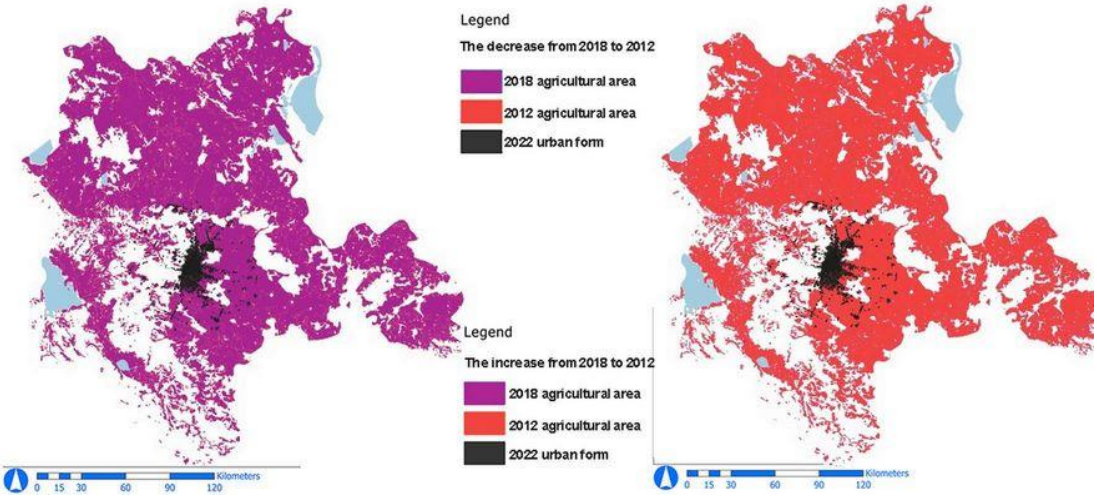

Figure 161 Corine Land Cover, Agricultural Areas in 2012 and 2018 with differences

In 2012, the enactment year of the 6360 Law, the agricultural areas in Konya were looking like the map on the right (red). There is rather an increase (decrease being less than the increase, therefore the change is positive) between 2012 and 2018 in agricultural land but the partitioned agricultural areas located on the west – mountainous zone of the city of Konya seem to expand (purple shades on the red map on the right above). Overall the agricultural

land is increasing according to corine land cover data which includes non-irrigated, permanently irrigated, groves, plantations, yards, complex cultivation patterns (urban – rural land use mixes), annual crops, permanent crops, pastures and natural-agricultural mixed land uses and agroforestry and the data is collected visually with satellite views and especially natural agricultural mixed areas and interestingly pastures (increase being higher than the decrease, therefore the change is positive) seem to be increasing. The the first one likely to indicate new agricultural fields that are opened in natural zones and the second one likely to indicate areas not sown becoming grazes. The changes in pasture areas deserve a closer look with the increase and the decrease over the geography. The pasture definition here is purely geographical covering grazes and different from the ownership patterns and defined pastures as commons of the villages. Another aspect of this data is urban green areas, regional parks, active and passive green areas are considered as permanently irrigated areas which are also increasing. In addition to that, the most significant part is the images getting higher in resolution and the algorithms developing resulted with better classifications in non-urban areas which increased the amount of detected land.

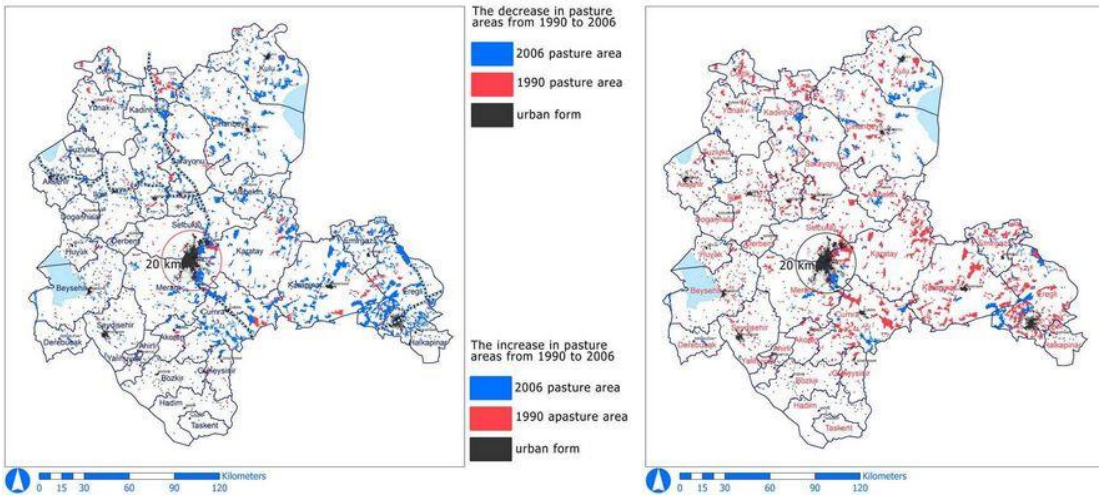

Figure 162 The increase and decrease in Pastures over the Geography of Konya between 1990-2006

The decrease is illustrated with reds in the left map and the increase is illustrated with blues on the map on the right. The total amount of pasture areas was increasing between 1990 and 2006 and the rate of increase was high, yet there were plenty of pasture areas transformed into other land uses between 1990 and 2006. The map illustrating the increase in pasture areas might also mean an increase in abandoned previously agricultural land transforming into grazes. The change was positive overall, yet this does not change the fact that there were lost pasture areas in Konya. Majority of losses had taken place in Karatay core district, Yunak, Karapinar, Cumra, Eregli, Kadinhani and Akoren districts. Interestingly, majority of pasture

land loss had taken place not around core urban settlements in these districts but rather in far off rural geographies of these districts. There are losses to urban land uses in districts like Karatay, but this pattern is not dominant. Hence, the reasons for the loss of these areas between 1990 and 2006 are not mainly the invasion of urban land uses. The new pasture areas seem to coincide with villages that are losing population (see the figure in 6.5.2 sub-section) and this supports the explanation of abandoned dry agriculture areas transforming into grazes. Location in agricultural production (accessibility, population in close reach to sow the land and water) matters severely.

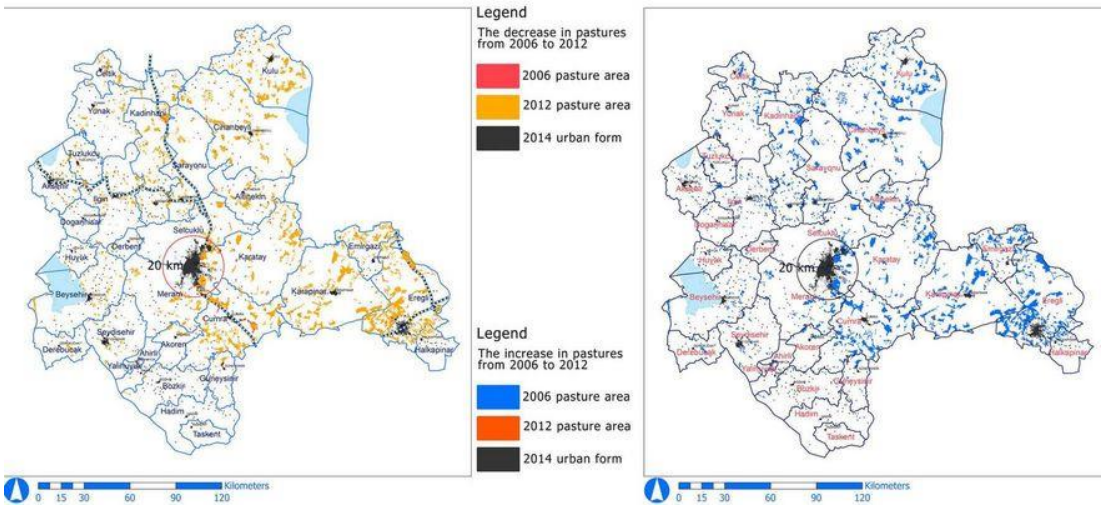

Figure 163 The increase and decrease in Pastures over the Geography of Konya between 2006-2012

Between 2006 and 2012 the losses in pasture areas decreased. The short time interval is one reason for this. Yet, although the change is relatively small, interestingly enough, it had taken place in Karatay, Meram, Cumra and Eregli, in relatively larger districts. Urban sprawl is the major cause of change in these districts between these years. The pasture areas close to the railway network seems to be the most affected ones from the losses. Hence, unlike previous time interval, the major cause is now highly urban land use related.

From 1990 to 2006 and from 1990 to 2012 the total amount of pasture areas was increased. The blue areas are the new pasture lands and there were plenty of them. The majority of new pasture areas are located in Eregli, Kulu, Kadinhani, Karatay, Cumra, Altinekin, Karapinar and Meram. In Eregli, Cumra, Karatay and Meram the losses illustrated above are mostly compensated with new pasture areas. Especially in Karatay, right next to the settlement area of the city of Konya, a major pasture area was added. This area, in the last two environmental plans of Konya was allocated for organized livestock farming. The plan decisions and the land use change are positively highly consistent for this area.

There were only insignificantly small additions to pasture areas between 2006 and 2012. The new but micro additions to pasture areas are in Eregli, Kulu, Cihanbeyli, Aksehir and Karapinar but the scales are very insignificant. Within this period the total amount of pasture areas was also started decreasing.

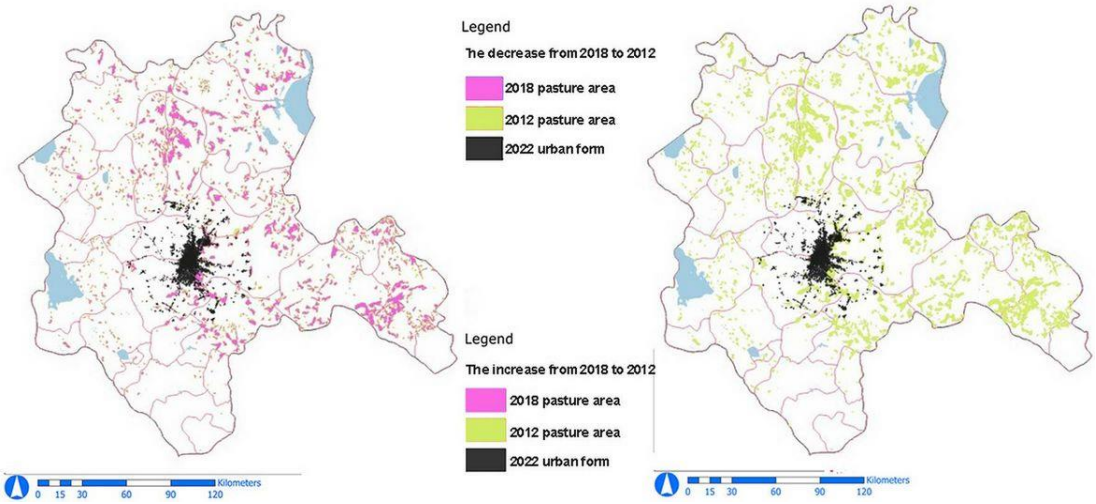

Figure 164 The increase and decrease in Pastures over the Geography of Konya between 2012-2018

The left map illustrates the decrease between 2012 and 2018 (green areas in the map) and the change is significant yet majority of this change stems from the advancement in the visual algorithm getting better at illustrating differences. At this point it is crucial to remind that the pasture categorization covers all grazes without a reference to registered pastures of the villages.

Pastures as rural commons of villages are now under the authority of MMs and DMs; villages still hold the right to use yet the decisions over the areas are now under control of MMs and DMs. With the rescaling process going on in livestock production, the production becoming less dependent to pastures and more dependent on urban infrastructure like factories, and with dominant discourse in national and local scale supporting accepting this shift as development, the future of pastures is unclear. With the recent changes in settlement patterns, the rural and small scale settlements (around where pastures are usually located and traditional livestock production was taking place) becoming deserted with migration (see settlement patterns subsection) and the 2043 Environmental Plan proposing plenty of developed land in the province was also analyzed. With these in mind, the trend of decreasing pastureland will likely to continue.

8.2.2 Overall Change in Agricultural Land Use in 3 Core vs. 28 Peripheral Districts

The agricultural land uses are categorized as irrigated agricultural land, non-irrigated agricultural land, vineyards, orchards and groves, complex cultivation patterns (usually referring to a mixture of urban and agricultural land uses on the fringe areas), mainly agricultural but also natural areas and pastures in Corine Land Cover. Non-irrigated but arable agricultural land is the largest among all for the case of Konya.

From 1990 to 2006, the amount of non-irrigated land increased by 43868 hectares in the province. This change is the most drastic change among all. Irrigated agricultural land and total amount of pastures had also increased slightly in this time interval. Agricultural areas mixed with naturally significant areas and complex cultivation patterns sometimes referring to mixed urban and agricultural land uses were decreased from 1990 to 2006. between 2006 and 2012 the change among all classes are subtle. Non-irrigated land is still growing, while the rest seems to be close to stable.

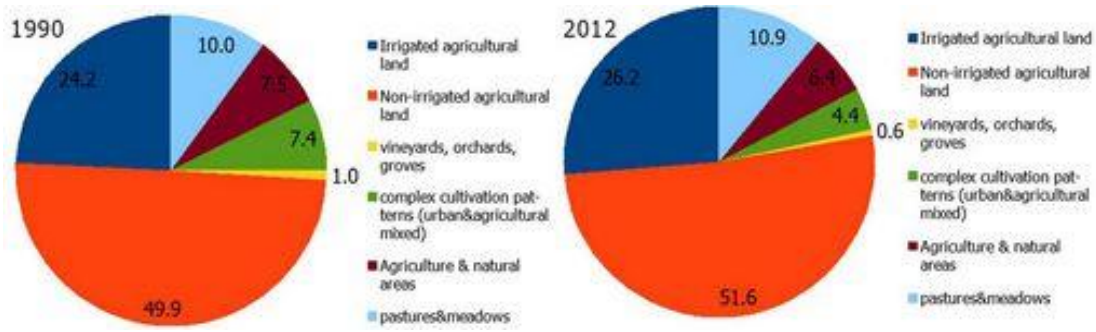

Figure 165 The Percentages of Agricultural Land Uses in Konya in 1990 and 2012

The percentages of non-irrigated and irrigated land within agricultural land increased between these two years while complex agricultural patterns (urban and agricultural land uses) and naturally significant agricultural areas alongside vineyards and orchards decreased in return. Around ¼ of all agricultural land in Konya is irrigated while half of the area is non-irrigated. Combined with water shortage in the closed basin, dry land agriculture is and have to be dominant in the province. The native ecosystem also mainly consists of dry lands therefore dry land agriculture is also in more harmony with the dry ecosystem of the region.

One of the core districts, Karatay has significant amount of irrigated land on the periphery of the city of Konya. The amount of irrigated land had also increased between 1990 and 2006 in the district. On the other hand, as expected the total amount of irrigated land in 28 peripheral

districts are higher than the ones surrounding core districts and it had also increased between 1990 and 2006. After 2006 the increase seems to stop.

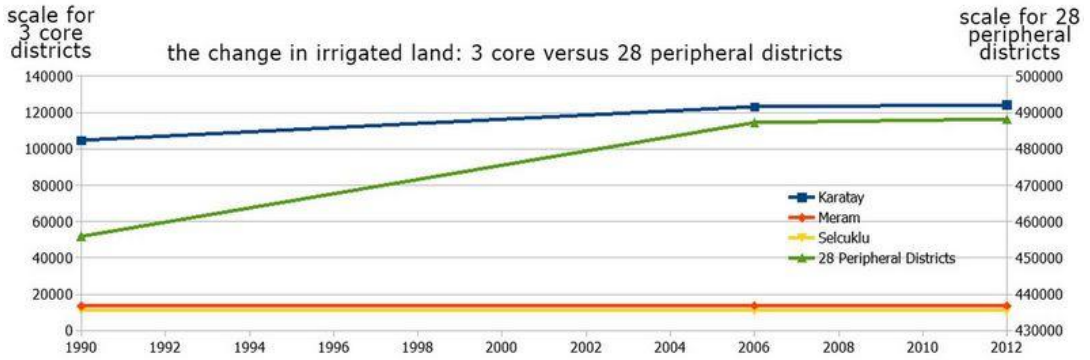

Figure 166 The Change in Irrigated Agricultural Land between 1990 and 2012 in 3 Core and 28 Peripheral Districts (hectares)

The percentage of irrigated land located in 28 peripheral districts was 77.9% back in 1990 and in 2012 it decreased to 76.6%. Karatay's percentage of irrigated land on the other hand had risen to 19.5% (from 17.9%). Combined with the previous graph, the amount and the percentage of irrigated land had increased in Karatay. From this we can deduce that the capital investment for agricultural infrastructure also flows to central locations. Even after 1990, where the urban form is rapidly expanding, a core district gets the majority of irrigation infrastructure provision. This reinforces our assumption that close vicinity of urban agglomerations is highly significant for agricultural production. This creates a conundrum: if the peripheral land gets the lions share from capital flow, then excess urban development on that land becomes more problematic. We are making the land surrounding cities more valuable for agriculture and at the same time, we lack conservative measures on this land and moreover as urban policy makers, MMs usually considers these areas as reserve development areas.

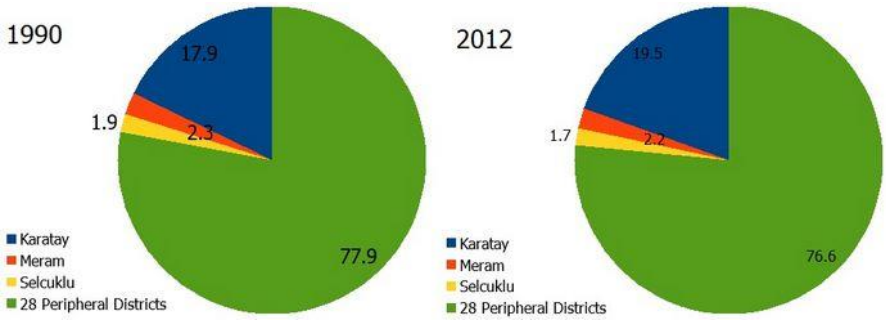

Figure 167 The Percentages of Irrigated Agricultural Land in Konya in 1990 and 2012: 3 Core versus 28 Peripheral Districts

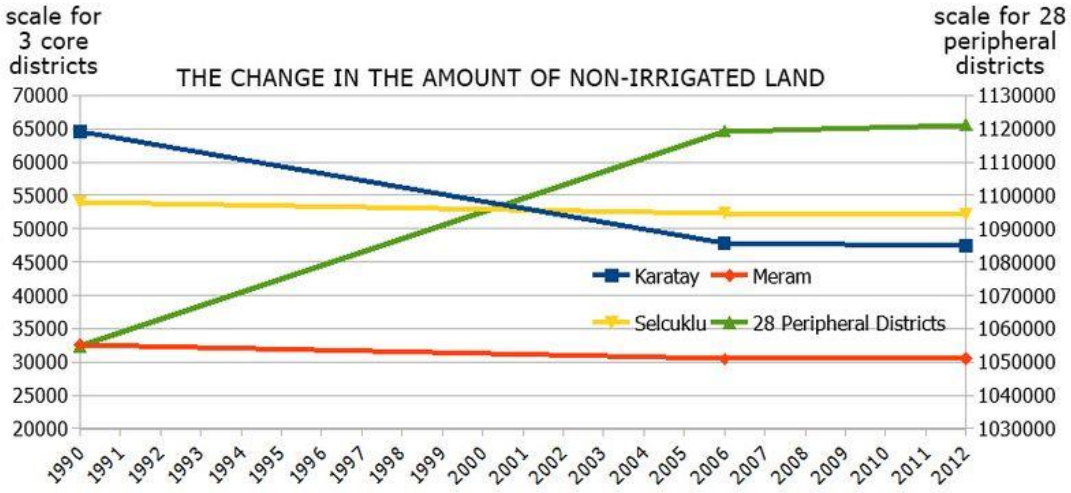

Figure 169 The Change in Non-Irrigated Agricultural Land between 1990 and 2012 in 3 Core and 28 Peripheral Districts (hectares)

The amount of non-irrigated land decreased in all three core districts while in 28 peripheral districts it increased drastically between 1990 and 2006. After 2006, the change is relatively stable and only 28 peripheral districts' total increased slightly. Meram district has the least of non-irrigated agricultural land among three core districts while Karatay had the largest in 1990. Between 1990 and 2006 the amount in Karatay had decreased significantly most probably due to the increase in irrigated land.

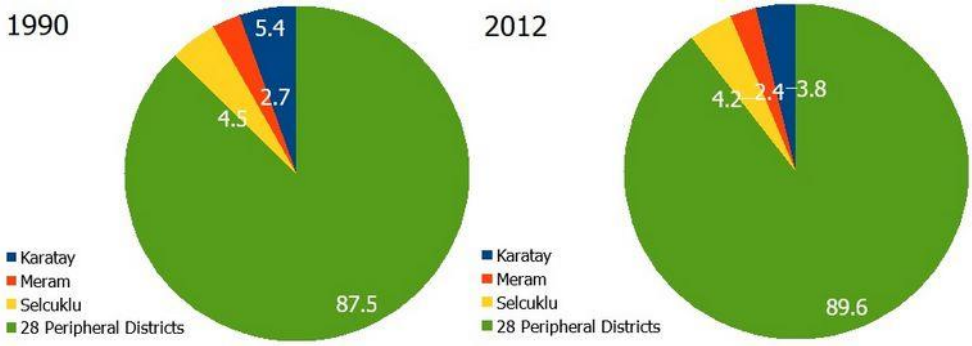

Figure 168 The Percentages of Non-Irrigated Agricultural Land in Konya in 1990 and 2012: 3 Core versus 28 Peripheral Districts

The share of core districts in non-irrigated land of the province is lower than the share in irrigated land. In addition to that, the percentage is decreased between 1990 and 2012. This supports our previous argument on capital flow. In 1990 87.5% of all non-irrigated land in the province was in 28 peripheral districts, and in 2012 the percentage increased to 89.6%.

Between 1990 and 2006 the most drastic change had taken place in Meram district. Following this trend, the total amount of land in 28 peripheral districts was also decreased in

this time interval. After 2006 the trend changed in all three core districts and the 28 peripheral districts.

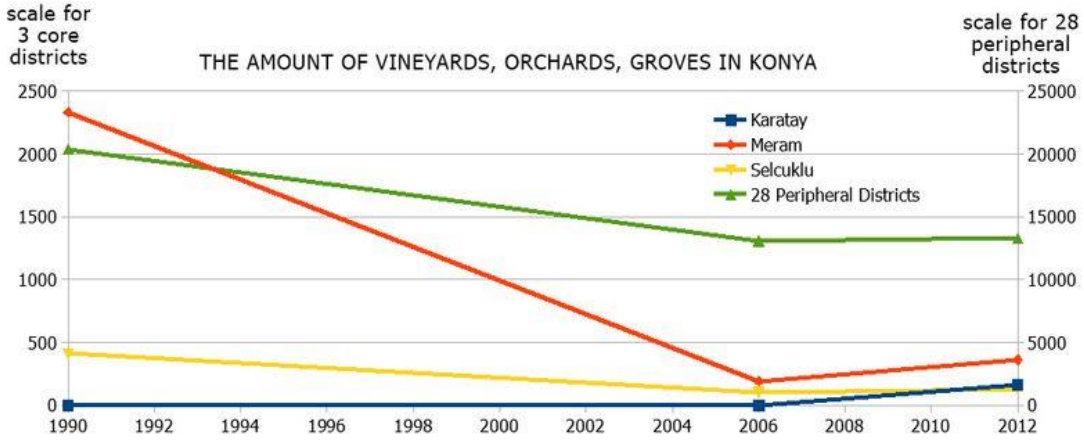

Figure 170 The Change in Vineyard, Orchard and Grove Lands between 1990 and 2012 in 3 Core and 28 Peripheral Districts (hectares)

The share of Meram district has fallen from 10.1% to 2.6% between 1990 and 2012 and the percentage of 28 peripheral districts in this category has increased from 88.1% to 95.3%. This increase in the share does not stem from a real increase in total amount of land in peripheral districts but rather the significant decrease in Meram district. The percentage of Selcuklu has also decreased while the share of Karatay in total land has increased within this time interval.

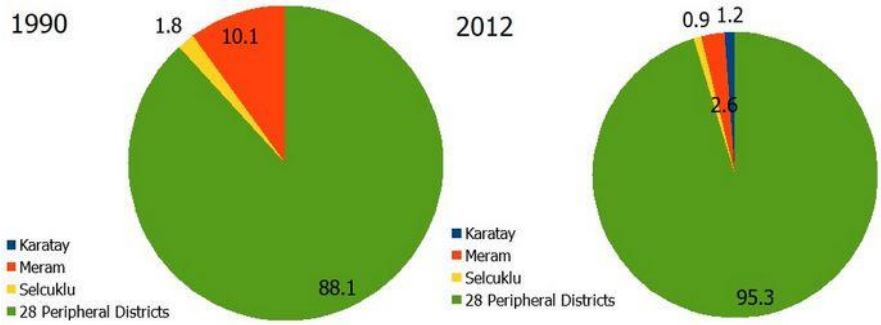

Figure 171 The Percentages of Vineyard, Orchard and Grove Lands in Konya in 1990 and Core versus 28 Peripheral Districts

Pasture areas are rural commons shared and used by villagers. With the change of status in villages these rural commons are transferred to district municipalities (DMs) and metropolitan municipalities (MMs) after 2014. Combined with the legal change in 4342 Pastures Law, the pasture areas are under risk of consumption for the sake of urban development. The time interval that we are spatially and statistically analyzing here due to limitations is 1990 and 2012, the previous era of pastures. Hence, the change, the decrease

especially in pastures will likely increase in near future. Similar to the spatial change in agricultural land amount, the pastures also change in two directions, there are new pasture areas added as well as existing pasture areas transformed into different land uses.

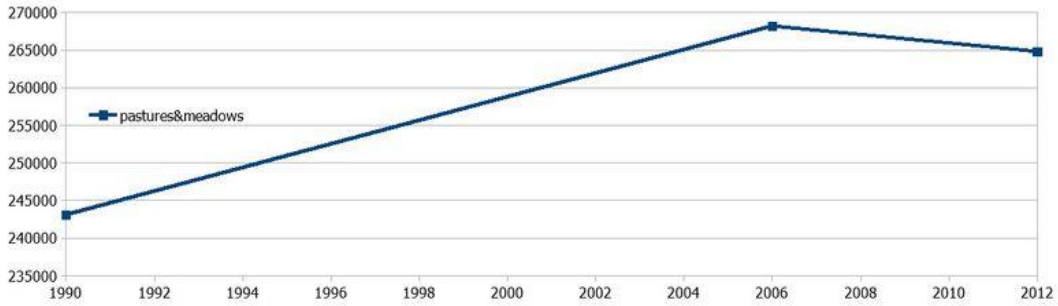

Figure 173 The Pasture Areas between 1990 and 2012 in Konya (hectares)

Between 1990 and 2006 pasture areas were increasing and after 2006 the trend has changed into a decrease. There is a major legislature change in the status and permissions of pastures back in 2004, and this legal change seems to be the catalyst behind this change. This change in 4342 Pastures Law enabled development on pasture areas.

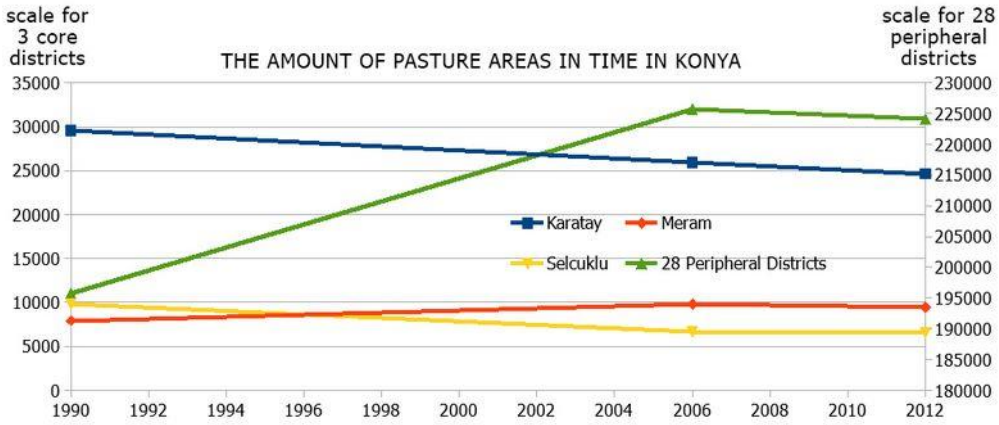

Figure 172 The Change in Pastures between 1990 and 2012 in 3 Core and 28 Peripheral Districts (hectares)

From 1990 to 2006, the amount of pasture areas in Karatay abd Selcuklu districts had decreased while within the same time interval in Meram it had increased. The amount of pastures in 28 peripheral districts was increased dramatically. After 2006 apart from Selcuklu, the amount of land has decreased in two core and 28 peripheral districts. The livestock production in Meram was also increasing in time therefore this increase between 1990 and 2006 is consistent.

The overall amount of pastures increased between 1990 and 2012 yet the trend shifted to negative after 2006. Even though livestock production is generally increasing in core districts, the amount of pastureland is decreasing. This illustrates the paradigm shift and the rescaling of livestock production.

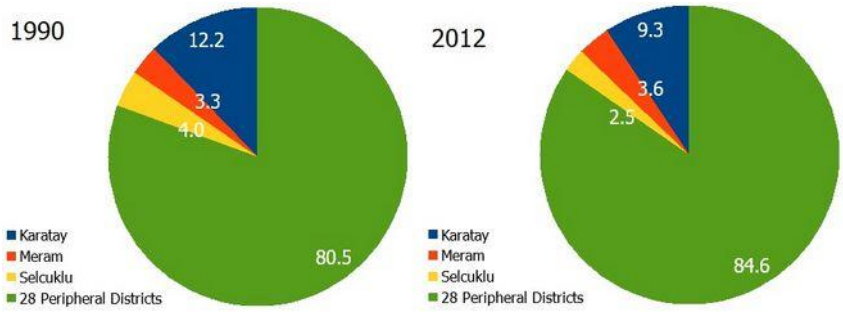

Figure 174 The Percentages of Pastures in Konya in 1990 and 2012: 3 Core versus 28 Peripheral Districts

The algorithm changed between 2012 and 2018 therefore the data for 2018 is hard to compare with the one in 2012 yet the distribution between agricultural land, pastures, irrigated areas and the distribution between the core and the periphery.

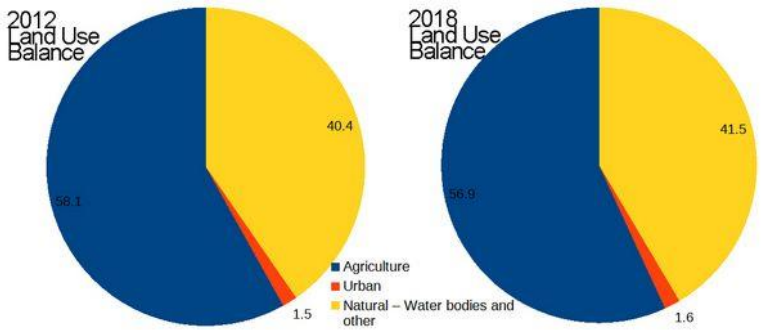

Figure 175 Land Use Change 2012-2018 Corine Land Cover

The agricultural areas decreased from 58.1% to 56.9% while urban areas increased from 1.5% to 1.6% while the rest including natural areas, dunes, water bodies, etc. increased from 40.4% to 41.5%. The key point of this graph is the urban land uses only covers 1.5%-1.6% of the whole province and the invasion succession between natural and other areas with agriculture is much larger in scale. This does not mean that the land use change from agriculture to urban land uses matter, but it is not the size of the land, it is rather the location, quality class and existence of irrigation for the land that matters. The public investment to improve agricultural land alongside fertile irrigated accessible land that is lost, not a statistic. Both 2012 and 2018 land use balance illustrate the significance of agriculture in the province.

The core 3 districts where the city of Konya is located are also significant in the agricultural production of the province as seen in the graph below.

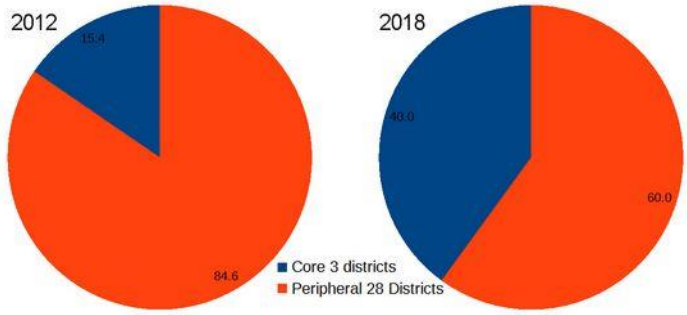

Figure 176 Total Agricultural Land Distribution Percentage Change Between 2012-2018 Corine Land Cover

The significance of three core districts increases in the agricultural production of Konya regarding the increasing share in land sizes. Karatay is the district with the largest share among core districts with larger coverage area. The share of peripheral districts in agricultural land has decreased from 84.6% to 60%. This might be caused by several reasons but one result that can be derived from this change is core districts becoming more significant while they are also where the city of Konya is located, and agricultural production seems to be centralized as well. Irrigation Component of agriculture is also key, especially in rescaling of agriculture, and the change of percentage between core and periphery districts from 2012 to 2018 is visible below.

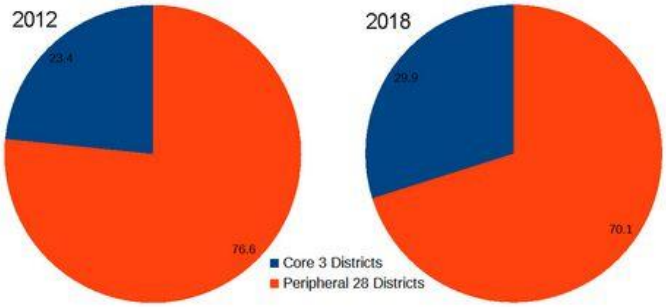

Figure 177 Irrigated Agricultural Land Distribution Percentage Change Between 2012-2018 Corine Land Cover

The percentage of core districts in irrigated agricultural land increased from23.4% to 29.9% meaning a concentration of irrigated agriculture in the core of the province. The peripheral districts' share decreased from 76.6% to 70.1% meaning the public investment for developing irrigation infrastructure is concentrated in the core of the province. Irrigation in agriculture is a significant element in rescaling in agricultural production.

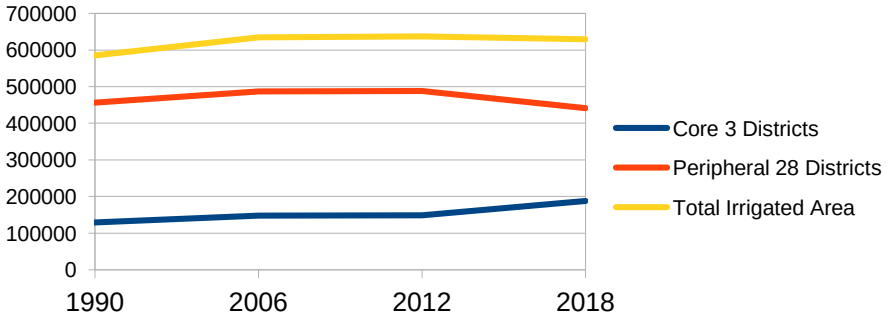

Figure 178 The Change in Irrigated Agriculture in 3 Core vs. 28 Peripheral Districts 2012-2018

Not only the percentage but also the amount of the irrigated land is decreasing in 28 peripheral districts according to corine land cover data. The overall amount of irrigated land is also decreasing in provincial scale between 2012 and 2018. the amount of irrigated land significantly increased in the core 3 districts between 2012 and 2018.

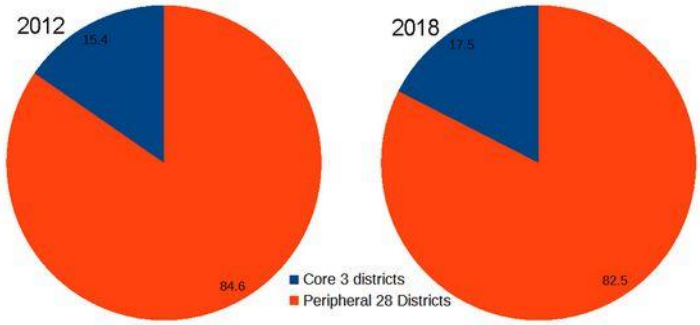

Figure 179 Pastures Distribution Percentage Change Between 2012-2018 Corine Land Cover

The same trend is observed in pastures as well, yet the pasture categorization of the land cover is much more broader than the pastures as defined commons for villages in Turkey. Grazing in general is considered as pastures. This is an obstacle to read the data for pastures in general.

8.2.3 The Land Use Change around the City of Konya and 6360 Impact

The change in agricultural land is analyzed in provincial scale, yet, the MMS focus of the study requires us to take a closer look to the periphery and surroundings of the city of Konya.

In Karatay district on the southern part of the urban fringe, a massive amount of land is

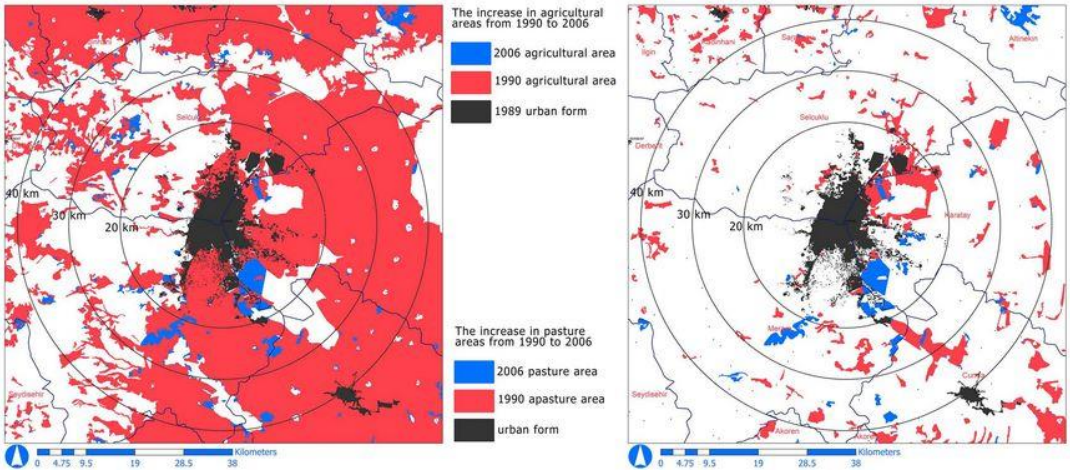

Figure 180 The Change in Agricultural Land and Pasture Areas Between 1990-2006 in the City of Konya

added to pasture areas. Between 20 and 30 km radiuses the majority of new agricultural land is in Meram district. Interestingly, the scale of added land increases while getting closer to the urban form. This map illustrates that the change in land use is not only in one direction from agricultural or rural to urban. As shown in the map above, almost all increase in agricultural land occurred in pasture areas. The livestock statistics also shows a parallel change, a concentration of livestock production in core districts. While the lost land is usually for plant production, the added land is usually for livestock production.

The increase within the 40 km radius between 2006 and 2012 is minor and there are small scale additions in agricultural land on the northern part of the urban fringe. The amount of irrigated land increased in the first 40 km had increased between 1990 and 2006 and non-irrigated land decreased around same amount which enables us to deduce that the non-irrigated land is transformed into irrigated land. The rest of the agricultural land uses remained stable.

The major and nearly only change in agricultural land use was the urban consumption of land for development within the 20 km radius on the northern periphery of the city, where in the previous map illustrated as agricultural land transformed into grasslands and moors, in other words the area with withdrawing farmers. Apart from urban transformation of agricultural land on the periphery of the city, there were no significant changes between 2006 and 2012. More importantly, not all the land with withdrawing farmers has transformed into

urban land. Only a minority of that land closer to the city has become urban and the rest remained deserted not used in agricultural production or urbanization.

The change of agricultural land use in 20 km radius of the city between 1990 and 2012

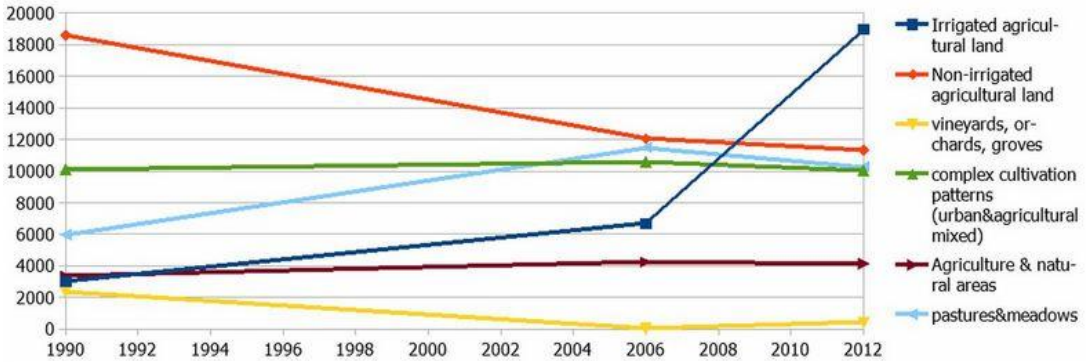

Figure 181 The Agricultural Land Change in 20 km radius between 1990 and 2012

within the municipal border of Konya MM after 2004 is not what is expected to be. The amount of irrigated land within 20 km radius circle has increased drastically between 2006 and 2012. Non-irrigated agricultural land is decreased but less than the increase in irrigated land. The land consumed by urban land uses within the municipal borders are compensated with new irrigated land.

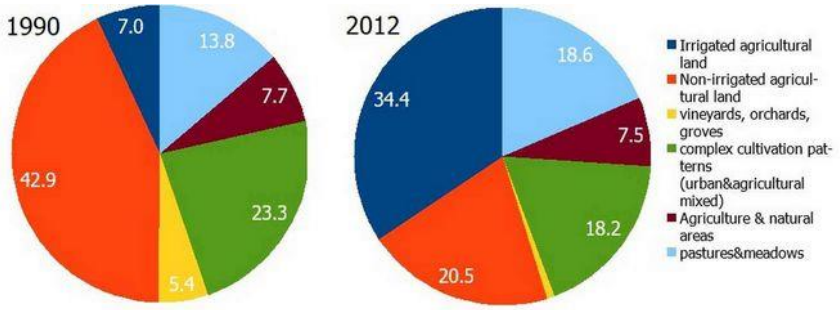

Figure 182 The Percentages of Agricultural Land Uses Within 20 km radius circle in 1990 and 2012.

The problem here is not only the consumption of agricultural production land but also, even more than that, the consumption of most valuable land, closest to the city (market), on major transport routes, close to cold storage facilities, and most significantly irrigated. The irrigation investment continues to flow into 20 km radius and areas surrounding the city.

The percentage of irrigated land in agricultural lands within 20 km radius circle was 34.4% in 2012. The increase in the percentage is dramatically high. Hence, while consuming agricultural land, about a 34.4% probability, the consumed land will be irrigated. To solve this problem, MMs either have to direct the irrigation investment outside of the fringes of cities or develop measures to conserve these improved lands.

Within the 20 and 40 km radiuses there are large, irrigated zones. These areas are under risk of urban growth and some parts are already consumed by the city of Konya. As it can be seen from the map above, the south-eastern part of the city, in Meram district the area was previously irrigated, and now urban form covers this area. There are also irrigated lands on the southern periphery of the city and the sprawled urban form poses a thread for these areas as well. In a province with a severe water shortage problem the consumption of irrigated land is highly problematic. On the other hand, urban consumption of water is significantly lower than the agricultural usage of water and this land use change might end positively for water consumption.

Between 2012 and 2018 the major change in the land use within the 20 km and 40 km radiuses is the urban sprawl taking place in the semi-periphery of the city of Konya. The problem is analyzed in Chapter 7 in depth and in this partthe agricultural areas swallowed by Konya city urban form is drawn below with reference to 2012 agricultural areas and 2018 agricultural areas illustrated in the corine land cover.

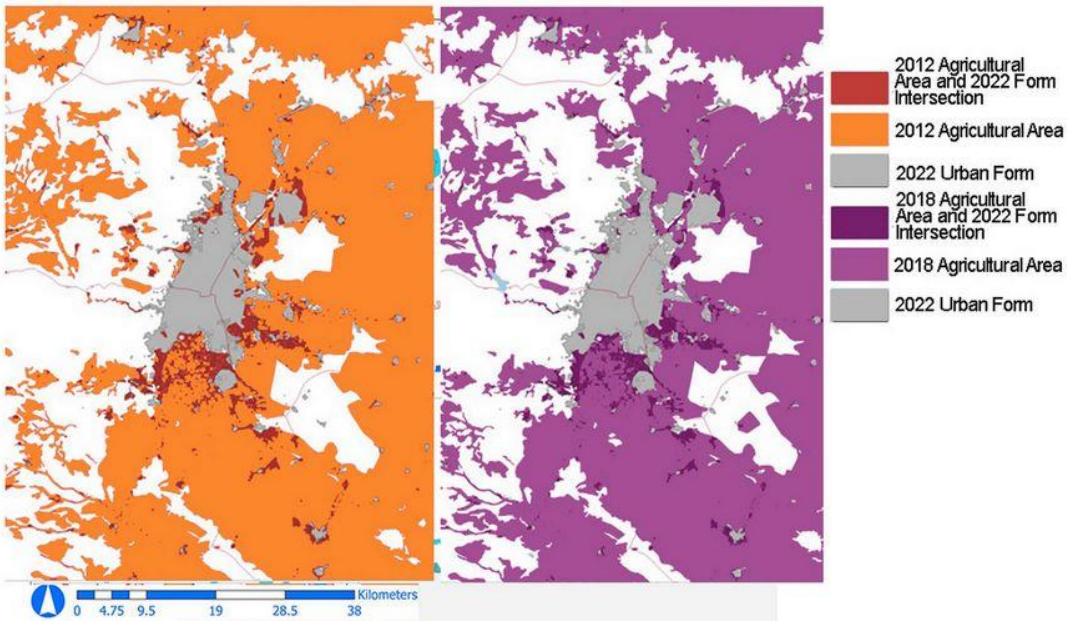

Figure 183 Urban Form and 2012-2018 Agricultural Areas

The area Konya expanded into is nearly all agricultural area apart from the western mountainous area limiting the city and plenty of agricultural area is consumed within the close perimeter of the city. On the southern part the urban sprawl is low density, dispersed and disrupting agriculture with leapfrog pattern while on the eastern parts urban fragments sprawling over agricultural areas are larger and less sprawled.

8.2.4 The Water Problem

Konya closed basin is the most arid region of Turkey. The rainfall is low, the basin is endorheic, the water resources are limited, and the water consumption is high. The only desert ecosystem in Turkey is located in Karapinar district of Konya. The annual reserve of surface water is 5.949 billion cubic meters and ground water is 2.404 billion cubic meters, in total 4.447 billion cubic meters is the annual reserve limit of Konya province (State Water Works, 2017). The annual water consumption in the basin is around 6.5 billion cubic meters and the 90% of this water consumption is used for agricultural production (WWF-Turkiye, 2014). The shortage is majorly met with groundwater usage via unregulated wells. The level of groundwater decreases year by year in alarming rates and the water problem is the most significant environmental problem of the region.

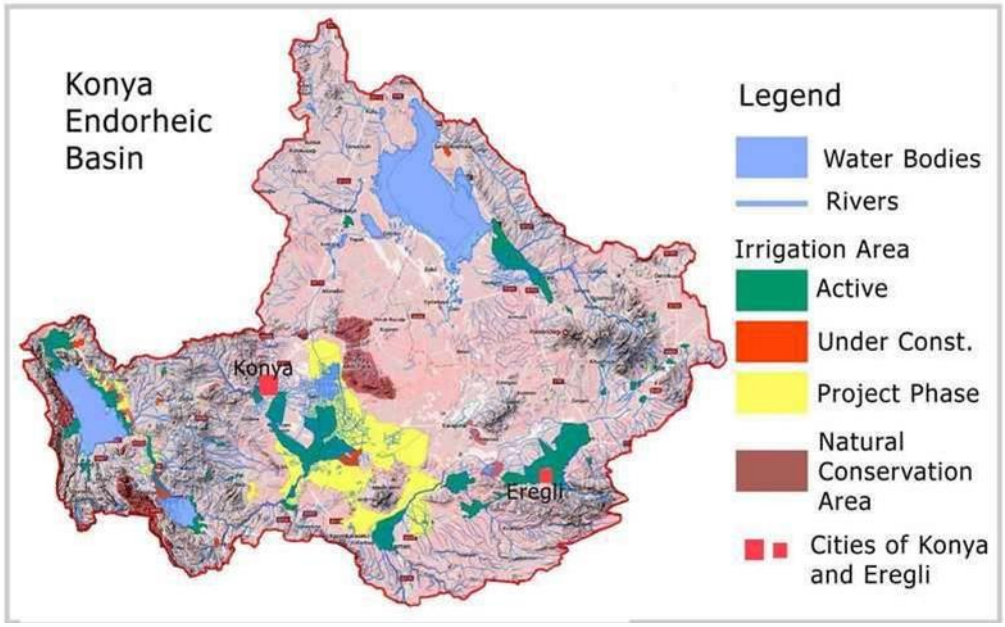

Figure 184 Water Resources and Irrigation Areas of Konya Endorheic Basin

The geographical distribution of surface waters and irrigation system (existing and proposed) can be seen above. The central part of the province is rather dry in terms of surface waters. Since the ground water level, which is the prime source of water for these areas is also falling, the area will likely suffer drought in near future. The most significant element of this map is the existing irrigated land. All of the land that is irrigated is around the largest urban settlements. On the south and west of city of Konya, right adjacent to urban form, where also massive urban sprawl takes place, lies the irrigated land. Other irrigated lands in Konya endorheic basin are located adjacent to Eregli in Konya province and around the city of Karaman and the city of Aksaray in other provinces in the basin. Hence, the cities are growing

on the irrigated land. Irrigated land means two things for agriculture, one these areas are not marginal land but rather prime farmland and second, there is capital embedded on this land in the form of infrastructure. This supports our claim that the agricultural areas surrounding cities are usually prime farmland with most productivity. The areas that irrigation infrastructure is under construction and the proposed areas to be irrigated are mostly adjacent to existing irrigated areas, hence, urban agglomerations. A form of terre-capital (Marx, 1999), irrigation infrastructure increases the productivity, therefore increases the land-capital without actually expanding the land (Marx, 1996). Ricardo's analysis on agricultural land rent arguing that the amount of (differential) land rent is produced with reference to the marginal land, the production costs of the least productive and the most distant land. Following this, Marx constructs a four pillar agricultural land rent theory in Capital volume III. Among these four types of rent, the first one, the differential rent 1(DR1), which is similar to Ricardo's theory of rent also states that depends on two factors which are first fertility and second location (Marx, 1996). With a working irrigation network, these areas' fertility are definitely more than the non-irrigated dry agriculture fields. The 'location' in determining DR1 here is the location with reference to urban agglomerations where the agricultural products are consumed, the industrial facilities where agricultural-based commodities are produced and major transportation hubs where the agricultural products are transported. Hence, by being adjacent to urban agglomerations, these irrigated fields have the highest level of DR1. Yet, this closure comes with a price. These areas are under constant risk of urban sprawl, land speculation demotivating farmers to quit agricultural production and consumption of agricultural land for urban land uses. The case of Konya province, specifically the cases of the city of Konya and city of Eregli, which are two largest settlements in the province and also surrounded by irrigated agricultural land are also experiencing the same risks. The relationship between urbanization, urban population growth and agricultural production is long forgotten yet have to be remembered at this specific point. It is not a problem of which comes first, urbanization-urban growth or agricultural production. It is a problem of how these two contesting sides affect each other in the geographies that they directly encounter each other geographically. Most fertile land and most accessible land at the same time, is not located in a distant edge of the province, but right next to urban form, it is under risk of invasion, and this does not seem to be a new issue if the history of agricultural production with reference to urbanization is studied.

Opening up new irrigated land based on the groundwater usage is considered as a problem in the case of United States as well: "Newly irrigated lands in the western states generally depend upon ground water. Falling water tables in many areas and the rising cost of electrical power needed to pump water out of the ground suggest that this may be a short-term

adjustment" (Platt, 1981: 114). Hence, opening up new irrigated agricultural land while losing prime agricultural and irrigated land around the city of Konya, in Meram, Karatay, Selçuklu, Ereğli and Çumra, will double the negative effects over the groundwater problem of the province of Konya.

According to the State Water Works survey conducted in 2012, the number of wells are over 100.000 in basin and with unauthorized wells added the number increases to more than 130.000 (WWF-Turkiye, 2014). One other problem also emerged from the uncontrolled usage of groundwater is sinkholes. Konya is the only region in Turkey with a problem of sinkholes and the number of sinkholes especially on agriculturally productive land are increasing rapidly. Karapinar, Cumra and Cihanbeyli are the three districts with major sinkhole problem, in 2017 the number of sinkholes reached to 300 (Chamber of Geological Engineers Konya Branch, 2017). For the year 2012 the 26.2% of all agricultural land is irrigated in Konya and majority of these irrigated land is located in Karatay, Cumra and Karapinar (Corine Land Cover, 2012). Karatay and Cumra also have sinkhole problems in their agricultural areas (sinkholes are getting closer to also settlement areas, especially villages) due to excess usage of groundwater with unregulated wells.

Within this context, the amount of land irrigated was increased between 1990 and 2012. The production patterns neglecting water problem (sugar beet, sunflower, etc.). There are implemented and planned projects on bringing water from surrounding basins to the basin and this is the major reason of the establishment of Konya Basin Project Administration (KOP), yet the impacts of excess consumption of water in the region and the excess consumption of other basins' water usually are not taken into account. The production pattern must change for the basin to survive. The plants in need of higher amounts of water, the foreign livestock species with a need for more water have to be replaced with local seeds and species which are already adapted to the arid ecosystem in the region.

In contemporary Turkey, one of the most significant contesting usages for water is Hydroelectric Power Plants (HES). There are 5 HES enterprises working in the province and 1 under construction (State Water Works, 2018). HES uses the surface water and highly problematic for agricultural production due to changes in humidity of soil and air, consumption of water and harming the natural life in surface waters. The number of HES projects and enterprises in other provinces of Turkey is much higher than Konya and this stems from the aridity of the region, yet even this number of HES plants are problematic for the region.

Excessive irrigation in some parts of the province results with a decrease in the all province and a problem of aridity arises somewhere else. Even in the near vicinity of and on the irrigated land in Cumra district there are fields dried. There are also fields previously (1990) agricultural and now transformed into inland marshes. These fields are mainly located in and around

irrigated land and therefore might imply excessive irrigation. There are also fields – blue - that were transformed into natural grasslands, moors and shrubs, these areas are more likely to be the fallow land and the land of farmers withdrawing agriculture. Nearly all of these transformations had taken place on non-irrigated land. This is the other face of the problem; it is hard to survive in non-irrigated agriculture especially for smallholder agriculture. The majority of farmers retreating from agriculture are smallholder farmers and it can be easily deduced that majority of their land is non-irrigated. A specific policy for the smallholder dry land agriculture has to be designed for Konya for the sake of society and environment.

The irrigation areas in the land cover data have drastically increased between 2012

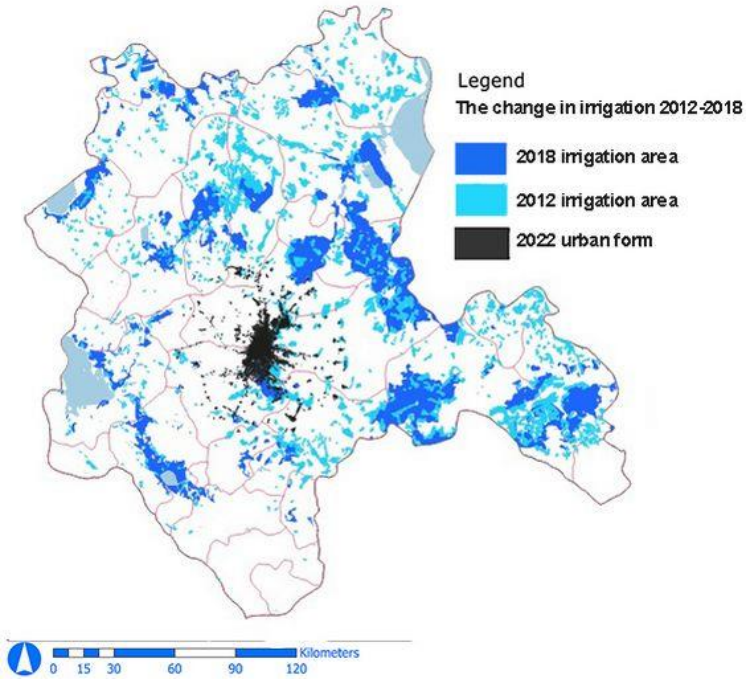

Figure 185 The Change in Irrigated Areas between 2012-2018 in Konya Province Corine Land Cover

and 2018 while the water problem of Konya is also getting deeper in relation with increasing amount of irrigation. 87% of all water budget of Konya is used for irrigation. There are transfers of water from neighbor basins with massive scale projects while also massive investments have been made for irrigation in the province. The dark blue areas on the map above are the newly added irrigation areas between 2012 and 2018 according to land cover. Karatay district (on the eastern part of the core and the province), one of the 3 core districts has a very large coverage area and within the borders of this district, massive amount of new irrigation areas are created with public investment.

A significant part of irrigated agriculture located on the core districts is also visible in irrigation machinery, equipment and assets in core and peripheral districts and between 2014

and 2021, the amount is decreasing in peripheral districts while it increases in the core districts (TURKSTAT, 2022).

City of Konya is surrounded with irrigated agricultural areas. The major sprawl zones of the city, the northern, eastern, and southern perimeters all have irrigated areas. Some of them have been lost and majority of them are disrupted. The most problematic zone is the southern fringe of the Konya city in Meram district. The sprawl taking place there is most severe and the land consumed by residential land uses is irrigated land. Vegetables and fruits require permanent irrigation while annual crops as a group have varying degrees of water dependency and Vegetables were dominant in Meram district in pre 6360 Era. In recent years Meram lost its first rank in vegetable production with the growth of the city. The irrigational infrastructure is still there and now an asset of the KMM to take care of while agricultural production is decreasing and being disrupted with the production of space.

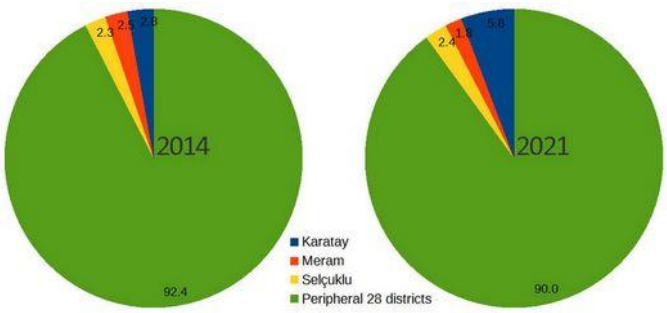

Figure 186 Irrigation machinery percentage in 2014 and 2021

Another facade of the water problem is the dams constructed to provide water to specific areas. A mukhtar that an indepth interview was conducted back in September 2018 listed the lack of water as the prime problem for their neighborhood while at the same time the most fertile lands (which were highly limited) were being flooded by dams constructed for irrigation (Hadim Dam). The neighborhood was Afşar in Taşkent (Indepth Interview, 2018). Dedemli-Hadim is also facing the same issue with flooding land and this time even the settlement area was under risk of flooding and in both cases, this Dam issues resulted with severe population decrease either due to flooded land or the restrictions for the Dam area, the hopeless situation that since soon the land will be flooded it is hard to do agriculture, open new fields or produce urban space. These two issues resulted with population decrease (Indepth Interviews, September 2018). An old case of this problem was Ahırlı - Akkise and with the Dam completed in the early 2000s and the population decreased severely since the water of the village was cut by the Dam (Indepth Interview with the Mukhtar, September 2018). Reallocation and redistribution of water changes the economic geography of the region.

8.3 Labor

Labor statistics are the most problematic ones to obtain and collect in the case of Turkey. The number of agricultural workers, number of farmers, farmers withdrawing agricultural production, aging farmers and seasonal migration data are all hard to collect. It lacks consistency, the scale is at best and usually the province, and it is not usually possible to obtain district scale data. The labor force working in agricultural production is highly informal and around the half of the labor force is seasonal workers (Simsek, 2011). This obscures the labor statistics in agricultural production and illustrates the work insecurity and the fragility of the labor.

8.3.1 Agricultural Workers and Rural Population

The changes in rural population in time and the distribution of the population in the geography of the Konya province was analyzed in settlement patterns subsection of this chapter. The small and medium scale settlements are getting smaller, and the number of small settlements is increasing. The settlement pattern becomes more concentrated in urban agglomerations, primate cities and more dispersed in rural geographies, and the gap between largest and smallest settlements becomes larger in time. Village as a significant unit of agricultural production enabling cooperation among smallholder farmers is changing in time.

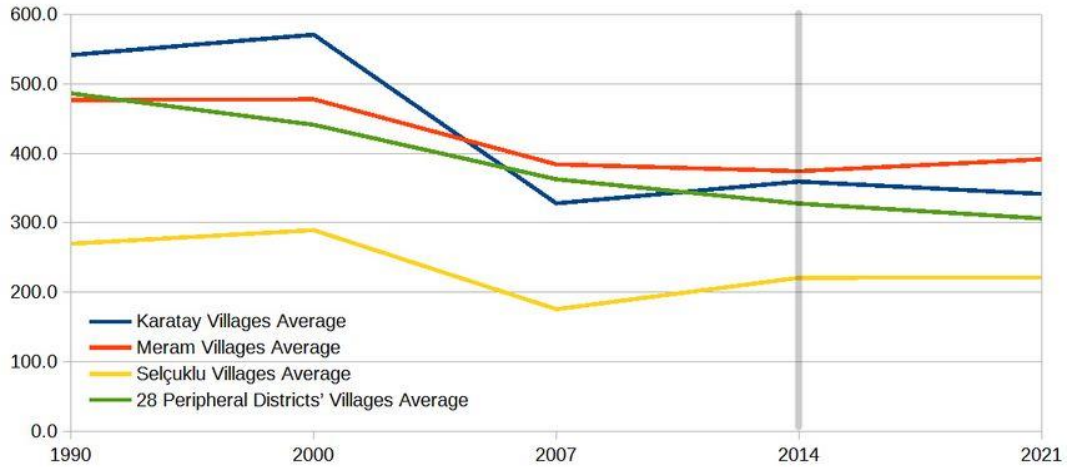

Figure 187 The Average Village Populations by Years from 1990 to 2021: 3 Core Districts versus 28 Peripheral Districts (TURKSTAT, 2022)

According to mukhtars of the former villages (now rural neighborhoods) with decreasing population, after the 6360 Law the rate decrease of the population increased since all the young population moves to the urban areas to seek for employment (Indepth Interviews with

Mukhtars, Avşar-Çumra Neighborhood, September 2018). For this specific case of Avşar, it was a former municipality (belde) and closed down with 6360 Law.

The average sizes of villages vary between 180 to 580 and fluctuates between years. Between 1990 and 2000, it was increasing in core districts and decreasing in peripheral districts. Between 2000-2007 averages in both core and peripheral districts decreasing and Karatay average plummeted. After 2007 interestingly In Selçuklu and Karatay it started increasing with the irrigated villages in Karatay and closer villages in Selçuklu to the city of Konya. After 2014, post 6360, the decrease in peripheral districts continued while Karatay also joined. The average population of villages in Meram started increasing while Selçuklu remained same.

The farmers dwelling in villages are also usually the smallholder farmers and machinery, tools and labor is cooperatively used among villagers. A decrease in the scale of villages negatively affects agricultural production. The trend was changing before 2000 and the decrease was minor and there are districts with increasing averages like Karatay. After 2000, the population corroded and averages decreased severely. Within this context, the labor structure for agricultural production is also changing. Before 1990, 28 peripheral districts average was higher than Meram and Karatay averages. In the early 1990s both districts averages surpassed the other districts and the trend continued in time. Yet, the difference is not that significant and there is also the case of Selcuklu. The average population of Selcuklu villages are much lower than the rest. This mainly stems from the mountainous geography of the district. The distribution of agricultural labor, in other words village populations are affected similarly from the changes.

Back 1990 the percentage of agricultural employment in total employment was 63.3% in Konya (TURKSTAT) and not so long ago, in 2000 it was 62.4%. In just 13 years it had fallen to 32.7% in 2013. The number of people employed in agricultural sector was 512.451 in 2000 and in 2013 it has become 248.000. Both in terms of percentage and in terms of people the change is dramatic. There are layers of reasons for this shift and the change is complex. A part of this change happened because of increasing productivity in agricultural production, the rescaling in the production process working against smallholder farmers, migration from rural settlements to urban settlements so on and so forth. Whatever the reason is, the change happened too rapidly for public players to take precautions and to increase resilience.

8.3.2 Farmers Withdrawing Agricultural Production

The agricultural employment group consists of farmers, workers and seasonal workers. Smallholder farmers are also workers in their own land. According to Farmer Registration System (Ministry of Agriculture and Forestry) the number of farmers in Turkey is 2,172,987 in 2022 while it was 2.267.176 in 2017 and the number is decreasing. In Konya the number of registered farmers was 98405 back in 2017 and in 2022 it is 88612. Konya is the province with the largest amount of farmers and the 4% of all farmers are based in Konya while the percentage was 4.4% in 2017.

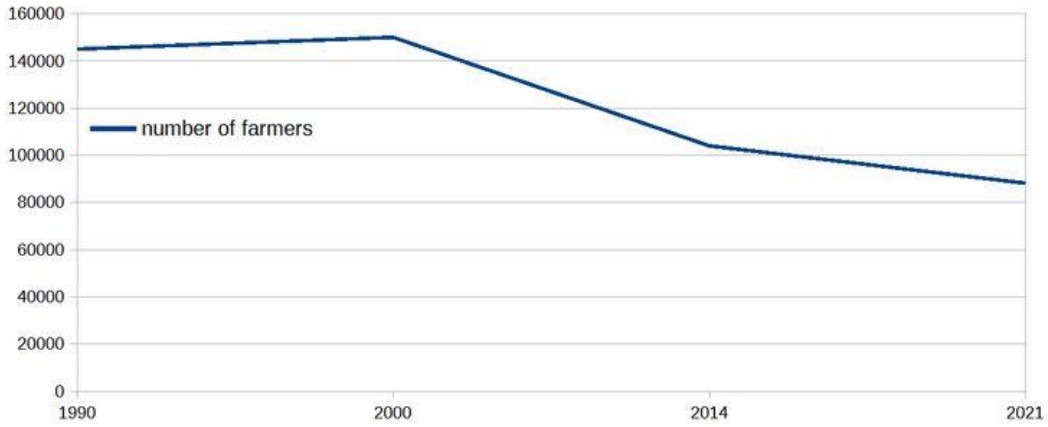

Figure 188 The Number of Farmers in Konya Between 1990 and 2021

The first two values in the chart (1990 and 2000) are the number of agricultural households registered as agricultural enterprises. The last two values (2013, 2017) are the number of registered farmers to the system. They are not exactly the same data, and might not be consistent, yet still illustrative. The number of agricultural household enterprises were slightly increasing before 2000 and after 2000 the number of farmers is decreasing. Within the same period, after 2000, agricultural production values are increasing, Konya Province's plant production and livestock production are growing. This is another direct reference to rescaling of agricultural production in the province (and similarly in Turkey).

8.3.3 Aging Population in Rural Settlements

Another feature of labor as a factor of agricultural production is the aging population. Rural and small-scale settlements have decreasing population and the remaining population tends to be older in age. In 2014, the 6360 breakoint the percentage of 65+ aged population was 8%, above the national average of 7.5% and is expected to be more than 10.2% in 2023 (MEVKA, 2014). According to a study, the majority of this aging population is concentrated in rural and small-scale settlements and in highly agricultural peripheral districts (MEVKA,

2016). In 3 core districts, Karatay, Meram and Selcuklu and also in Altinekin, Karapinar and Emirgazi the average age was below 31.3 (MEVKA, 2016). In Cumra, Cihanbeyli, Eregli, Kadinhani, Sarayonu and Kulu the average was between 31.4 and 33.4. the third group with an average age between 33.4 and 35.6 includes Celtik, Yunak, Ilgin, Beysehir, Seydisehir, Akoren and Guneysinir. The fourth group is Aksehir, Derbent, Bozkir, Hadim, Taskent and Halkapinar with 35.6 – 38.8 average ages. In the oldest group Tuzlukcu, Doganhisar, Huyuk, Derebucak, Yalihuyuk and Ahirli is included, and the average age is between 38.8 and 43.6 in these districts. It has to be kept in mind that the relatively younger populations of districts are concentrated in district cities while older parts of the population are dispersed to rural settlements.

In 2021, after seven years post 6360 the aging in the population continued. The average age in Konya 2021 is 33.7 (TURKSTAT, 2022). For the three core districts the average age for the year 2021 is 31.6% while for the 28 peripheral districts, the average age is much higher: 36.9%.

Today, this aging population mainly making a living with smallholder agriculture and smallholder livestock farming are under responsibility of MMs and DMs. The future of villages and smallholder farming are on the old shoulders of these farmers and if the MMs and DMs do not develop specific policies, that future cannot be long.

8.3.4 Seasonal Workers

The labor power in agricultural production is mainly provided by seasonal workers. The seasonal workers are the temporary migrants coming from Adiyaman and Sanliurfa (also MM) provinces (Simsek, 2011) nationwide and from Afghanistan and Turkmenistan internationally (MoAF Provincial Branch, 2015; merhabahaber.com, 2016). seasonal agricultural work does not require work permit, but rather a document easier to obtain, and it is possible for foreigners to work at most 90 days as seasonal workers (Ministry of Labor and Social Security Regulations). There are also Syrian seasonal workers in the province, they have migrated to Konya for long term and the number is increasing as well. The number of seasonal workers is hard to track down. Seasonal workers are usually employed in sugar beet, sunflower production and livestock production. A significant percentage of these workers are women and children and both are paid much less than their men counterparts (TURKSTAT, 2018; Development Workshop, 2011;2014). According to a study conducted on seasonal workers in Turkey migrating from Adiyaman and Sanliurfa, 21,2% percent of all children and 15% of young women are not registered as citizens (Simsek, 2011). They lack basic and fundamental rights.

According to Şanlıurfa Seasonal Agricultural Workers Association (Şanlıurfa Mevsimlik Tarım İşçileri Derneği) majority of seasonal workers originate from Şanlıurfa province while Konya is the major destination for these seasonally migrating working population (2022) . All 31 districts, including 28 peripheral and 3 core districts are destinations for seasonal workers in harvest season and they dwell in tent camps (Şanlıurfa Seasonal Agricultural Workers Association, 2022) . The season starts with April and ends with October and more than half the year and the children cannot get educational services, all seasonal worker population lack health services and fundamental urban services. Seasonal workers work by daily rate and women are paid significantly lower than their male counterparts (TURKSTAT, 2022) .

The dispersed rural settlements lack the needed social and technical infrastructure provided as municipal services, seasonal workers temporarily dwelling in the region lack even more. They lack housing, infrastructure, social services (especially health and education), social security, and basic citizen rights. MMs are now responsible from this seasonal population as well. Agricultural production stands on the shoulders of seasonal workers and they are one of the most exploited sections of labor force. The exact number of agricultural workers is hard to find, yet according to TURKSTAT (2014) the number of seasonal workers with an age above 15 was 485.000 and around 20000 of them are coming to Konya for seasonal agricultural work (Akgun, F. Deputy Governor, 2014). These numbers do not include international seasonal migration and refugees. The percentage of informal workers in Konya was 52.9% back in 2004, it decreased to 39,7% in 2014 (Konya and Karaman combined), and in 2017 increased again to 42,4% (Social Security Institution and MEVKA) and the majority of this informal employment is seasonal agricultural workers. Therefore, the real number of seasonal workers must be much higher in the case of Konya. The increase from 2014 to 2017 is also interesting. It most likely is related with the number of Syrian Refugees increasing in the city.

Figure 189 A Temporary Seasonal Worker Settlement in Meram – Cariklarfatih Village (Neighborhood – 6360), Google Earth June 2017

In all three core districts (Karatay, Meram and Selcuklu) and in peripheral districts of Guneysinir, Altinekin, Cumra, Karapinar, Huyuk, Sarayonu and Seydisehir, seasonal workers are concentrated (Development Workshop, 2013). The settlement problems of seasonal workers are "solved" with tents and limited number of containers located on the peripheral parts of districts and villages isolated from the settlements and without infrastructure. These highly temporary settlements are also in the responsibility areas of the MMs and DMs as the rest of the geography. The service provision for both technical and social needs of this population have to be designed specifically in order to solve the problem. On one side, rural settlements are getting smaller in terms of population (see settlement pattern analysis subsection of this study) and this population deficiency is substituted by seasonal workers. These are the two dependent sides of the same coin. Agricultural production still is highly labor intensive, but this need for labor is now subcontracted with seasonal workers. Seasonal workers do not only come from other provinces and other countries but also underdeveloped (usually mountainous and arid) villages of Konya. For instance, for the year 1991 (TURKSTAT, 1992), the number of settlements with outgoing seasonal migration in Konya was 255 while 301 settlements had incoming seasonal migration. Seasonal workers are almost invisible in statistics, in urban policy and in planning while they become visible in media with accidents taking lives.

8.4 Capital

Capital is the third factor of agricultural production and the starter of the production circuit. Scale of production, rescaling process, ownership patterns and land consolidation (changing the scale of production and public investment on land), the problem of land and

newly emerging contesting sectors for agricultural production, especially Solar Power Plants in the case of Konya will be analyzed in this subsection.

8.4.1 Scale of Agricultural Production and Rescaling

There are plenty of signs of rescaling in agricultural production. We have already mentioned some above in land and labor related subsections, therefore we will be focusing on the rescaling of agricultural tools and machinery. The agricultural tools and machinery listed by TURKSTAT is divided into four groups (see Appendix M for the detailed list): large scale plant production machinery and tools, smallholder agriculture machinery and tools, large scale livestock machinery and tools and smallholder livestock machinery and tools. The large-scale ones are more productive, in need of less amount of labor power, while the smallholder ones are more labor intensive.

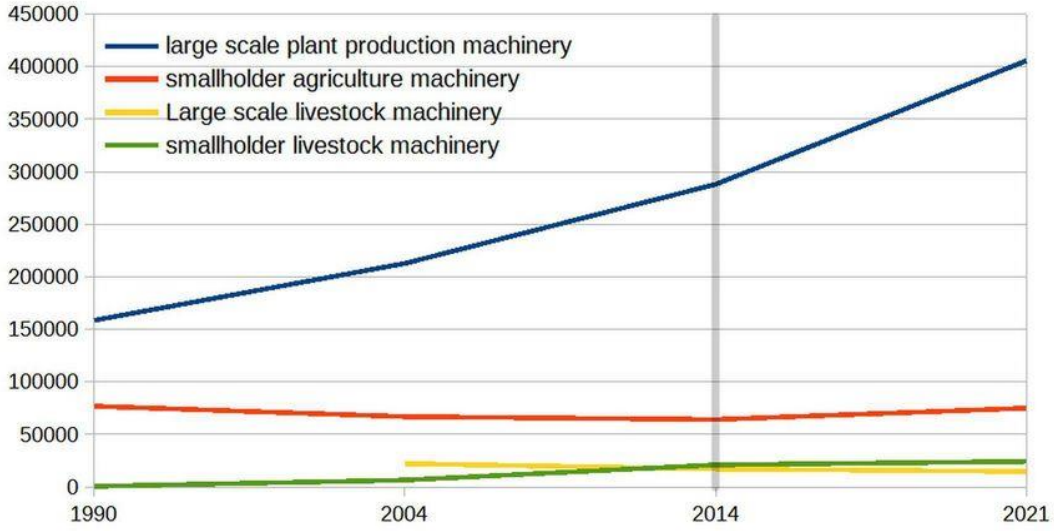

Figure 190 The Rescaling in Agricultural Tools and Machinery between 1990 and 2021 in Konya

Smallholder agricultural tools and machinery as expected are decreasing in number between 1990 and 2014. The trend changed after 2014 interestingly and there is a slight increase between 2014 and 2021. Large scale plant production machinery is increasing with an increasing pace in each interval. Especially after 2004 the process is fastened. Large scale livestock machinery is relatively new in the province, and 2004 was the peak while after 2004 it started decreasing slightly. Smallholder livestock machinery and tools on the other hand are slowly increasing since 1990 and after 2004 the pace of increase increased. After 2014 the pace slowed down. The scale of the machinery utilized in agricultural production, especially in plant production depends on the scale of the land and the ownership pattern alongside

production patterns directly determine the scale of machinery. The increasing trend in large scale plant production machinery will likely affect ownership patterns in return.

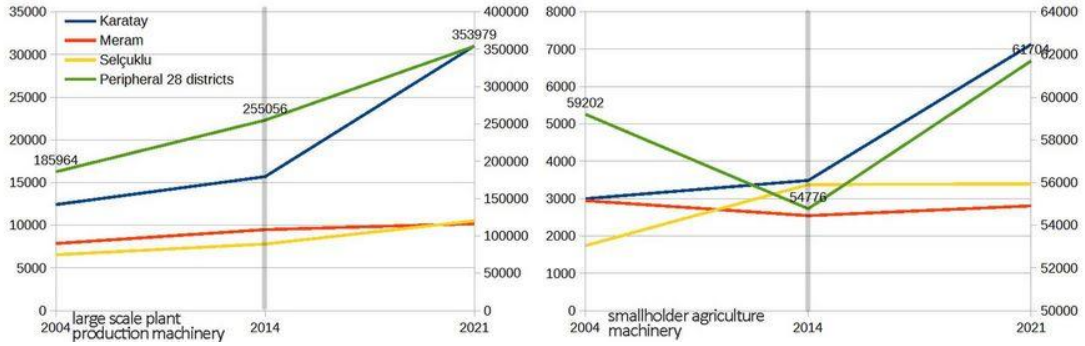

Figure 191 The Rescaling in Agricultural Tools and Machinery for Plant Production between 1990-2021 in Core vs. Peripheral Districts

The change in the scale of agricultural machinery for plant production in core and peripheral districts drawn above (TURKSTAT, 2022). Apart from Meram largescale plant production machinery increased in 2 core and 28 peripheral districts. The rate of increase in Karatay is the highest among all, and this rescaling is also visible in the massive increas in the irrigated areas in Karatay. The machinery for smallholder agriculture were decreasing in 28 peripheral districts and Meram between 2004 and 2014 while after 2014 it started increasing rapidly in the peripheral districts. Karatay also shows a similar trend. 2014 is definitely a breakpoint but the reasons of this change are hard to read. Karatay is relatively more rural and more tied to overall characteristics of the Province since majority of the district area is Konya basin. Not only large-scale machinery but also smallholder agriculture machinery is increasing in peripheral districts and this is consistent with the increase in sown area in peripheral districts and in the province general. The overall volume of agricultural production is increasing in the province.

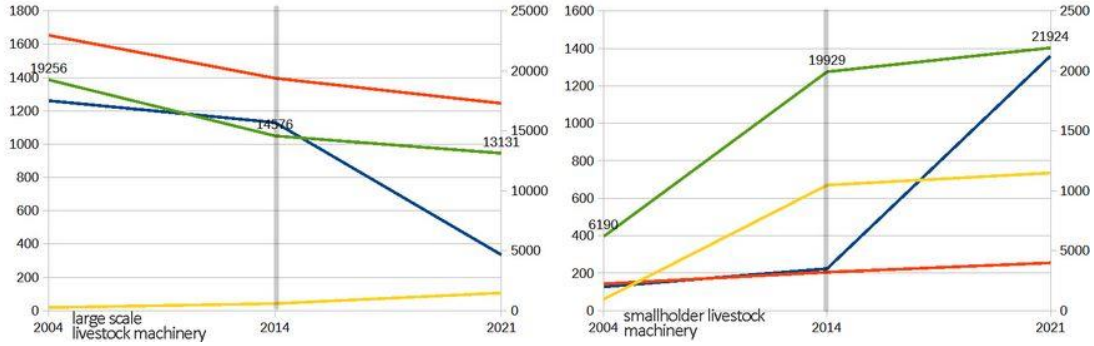

Figure 192 The Rescaling in Agricultural Tools and Machinery for Livestock Production between 1990-2021 in Core vs. Peripheral Districts

The changes in livestock machinery is severely different from each other in large scale and smallholder production. Between 2004 and 2014, the large-scale ones were decreasing in Meram, Karatay and 28 Peripheral districts while in Selçuklu it was increasing slightly. After 2014 the numbers plummeted in Karatay while the decrease in Meram and 28 peripheral districts continued. Selçuklu continued with the increase.

For smallhoder livestock machinery, between 2004 and 2014 the 28 peripheral districts had a drastic increase while Selçuklu also had a similar rate of increase. Meram and Karatay were slightly increasing within this time interval while after 2014 the rate of increase in Karatay fastened significantly. In terms of plant production Karatay seems to rescale into a larger production scale while in terms of livestock, district seems to rescale into a smaller production scale.

8.4.2 Ownership Patterns and Land Consolidation

The scale of agricultural enterprise is determined by the ownership scale and this scale determines the survival of the smallholder agriculture. For dry land agriculture, 100 hectares is usually accepted as the lower limit for survival for smallholder agriculture (Engindeniz, 2012). In the case of Konya, the most recent known average size of an agricultural enterprise is 20.6 hectares in 2001 (Arisoy&Oguz, 2005). In 1991 (Agricultural Census, TURKSTAT) the average was 12.3 hectares. In ten years, the average size had increased. With the massive scale of land consolidation projects going on in the area, the scale likely to increase.

Land consolidation projects are operated by Konya Basin Project Administration (KOP), Ministry of Food, Agriculture and Livestock Provincial branches were authorized in land consolidation yet today, with a legal change State Water Works is the main responsible and Metropolitan Municipality is in the process as well. The first land consolidation project conducted in Turkey was in Konya, Cumra district - Karkin village in 1961 (Engindeniz, 2012) and the amount of land consolidated in Turkey between 1961 and 2001 was 450.000 hectares (Ministry of Food, Agriculture and Livestock, 2018). After 2001 the process is fastened and in 12 years, solely between 2003 and 2015 4.632.785 hectares of agricultural land is consolidated in national scale. The amount of consolidated land in KOP region including Konya is 1.192.792 hectares, 25.7% of all land consolidation projects.

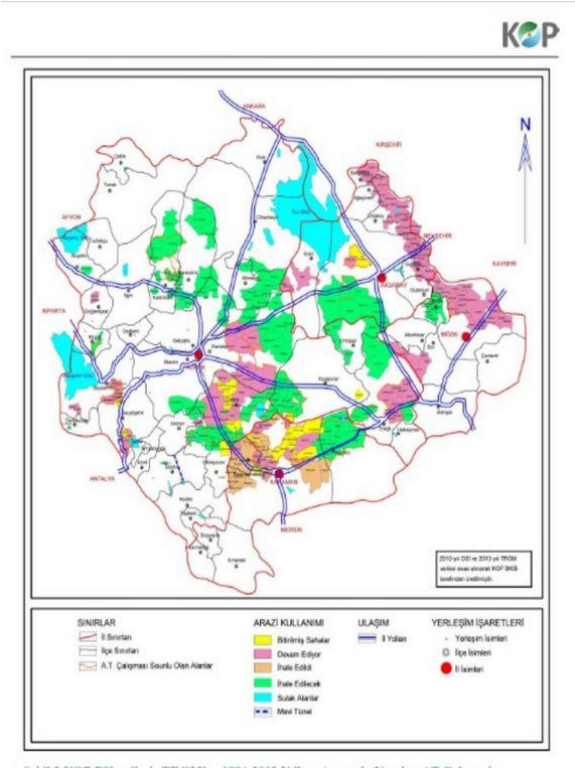

Figure 193 Land Consolidation Projects Implemented, Started and Designed in KOP region

The amount of land planned to be consolidated will likely to dominate the agricultural production of the province. The land consolidation projects are also concentrated in the surroundings of the city of Konya and plenty of public capital is invested in the improvement of these areas. Hence, the conservative measures protecting these areas must be improved.

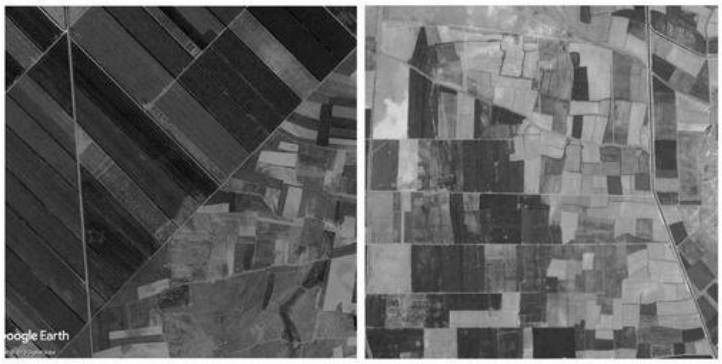

Figure 194 Two Cases of Consolidated Land Near the City of Konya

The small-scale irregular fields are consolidated into regular and larger fields. This change also eases the process of agricultural infrastructure provision alongside increasing the scale of production.

8.4.3 The Rent Problem: The Speculation and Development of Land

According to MM of Konya and local public players, the land market in Konya is powerful over the local economy. There is a group of people called profiteers active in the market, and according to locals, they collect the revenue of rent via buying and selling land in short term with high profit. The land speculation and rent pressure over the agricultural land is one of the major problems originating from urban settlements. To get a picture of the situation in Konya, 2710 land sale ads from the largest online real estate market platform of Turkey, Sahibinden.com online in mid-April 2018 and 4165 land sale ads from August 2022 was analyzed. Three core districts, Karatay, Meram and Selcuklu are the locations of majority of land available in the market. For these three core districts 3821 ads were analyzed and the results are plotted below.

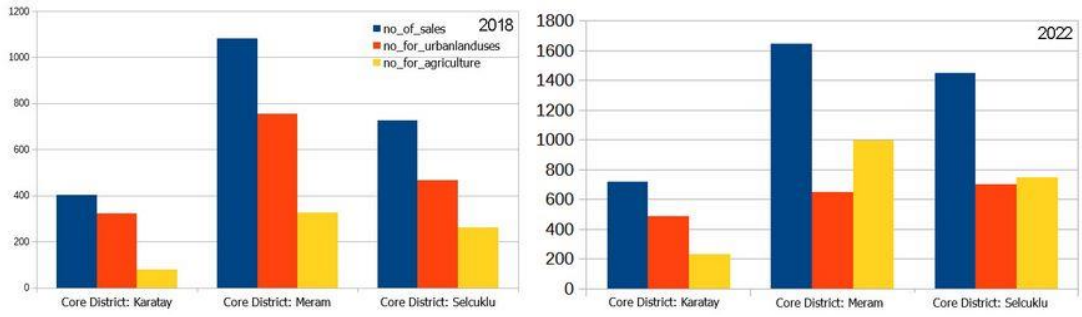

Figure 195 The Distribution of Land Sale Ads in Sahibinden.com in May 2018 and August 2022 for Three Core Districts

Meram dominates the market with over than 1000 ads nearly equal to the total amount of Karatay and Selcuklu in 2018 and over 1600 in 2022. The majority of land available in the market in these three districts are zoned for urban land uses with a percentage of 69.8% in 2018 but in 2022 agricultural land uses exceeded urban land uses in sale ads with 51.9%. The land market is dominated by land with urban land uses in 2018 but in 2022 the situation reversed slightly. Most of the agricultural land that is now in the market are located in Meram district. Together with urban sprawl observed in this district over the irrigated areas, this data becomes more meaningful. The agricultural land that is likely to transform into urban and used for production of space seems to be predominantly located in Meram. Alongside three core districts, the ads from three districts with increasing, decreasing and stable populations and nine villages with decreasing, increasing and stable populations were analyzed. The time interval for the decrease, increase and stable population changes was 2012-2018.

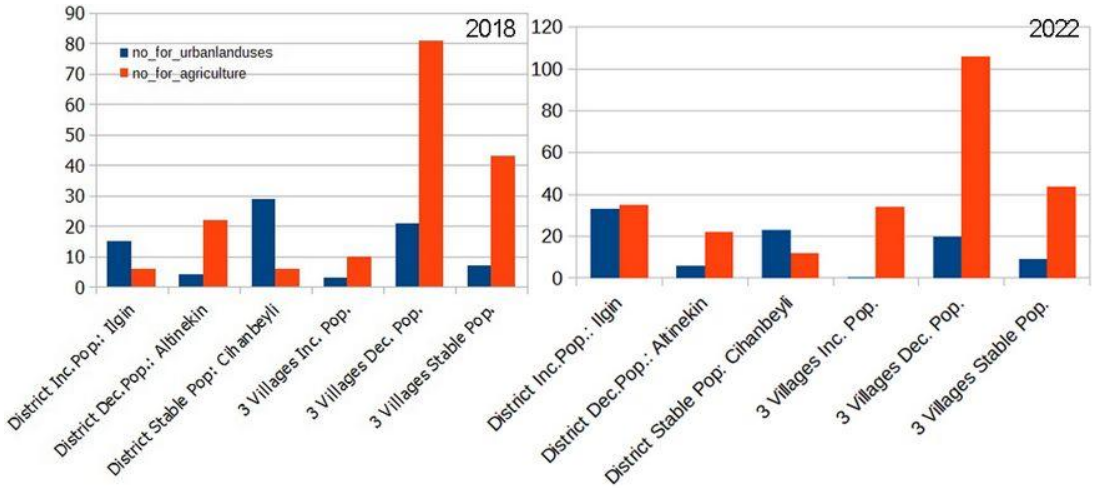

Figure 196 The Distribution of Land Sale Ads in Sahibinden.com in May 2018 and August 2022 for Three Districts and Nine Villages

The number of sales is predominantly for land with agricultural land uses. In all three villages, as expected, the land in the market is agricultural, the amount of sale is highest in the 3 villages with decreasing population. This trend continued in 2022 as well. The largest group of land ads are agricultural and located in villages with decreasing populations. In districts with increasing and stable population the land in the market is predominantly urban in land use and the same trend is observed in 2022 as well. While in Altinekin district with decreasing population, agricultural land sale is much more dominant. Decreasing population lowers the urban growth pressure over the land and also a sign of retreating farmers as well. In 2018, number of urban land uses in land sales was significantly higher than agricultural land uses while in 2022 the agricultural ones exceeded the urban ones in Ilgın. Only in Cihanbeyli number of ads with urban land uses is higher than the agricultural ones.

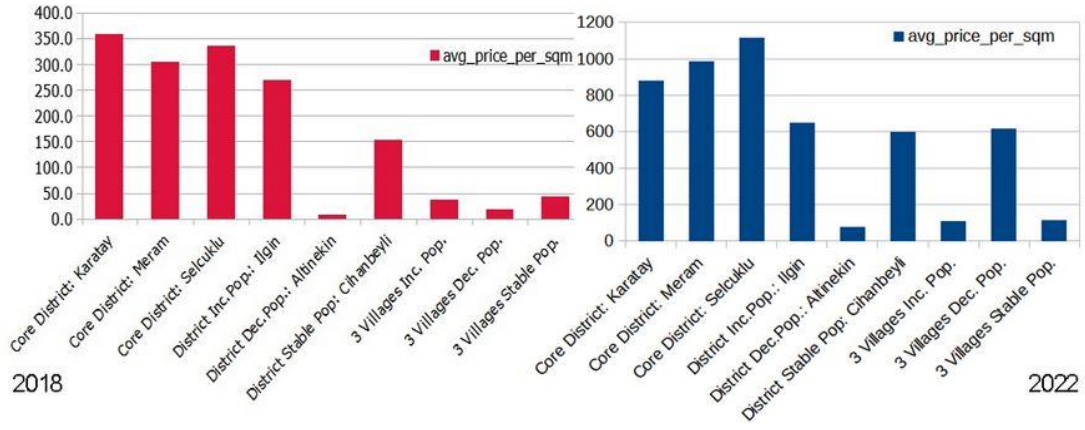

Figure 197 The Average Prices per square meters in Land Sale Ads in Sahibinden.com in May 2018 and August 2022 for Three Core Districts, Selected Three Districts and Nine Villages

The average price in Altinekin, the district with the decreasing population is even lower than the land prices in villages and the trend continued in 2022 as well. The district with increasing population, Ilgin has land prices closer to 3 core districts and as expected 3 core districts have the highest prices. Yet in 3 villages with decreasing populations the average price increased nearly the levels of Ilgın and even exceeded Cihanbeyli. The cities with higher land prices create more pressure on agricultural land.

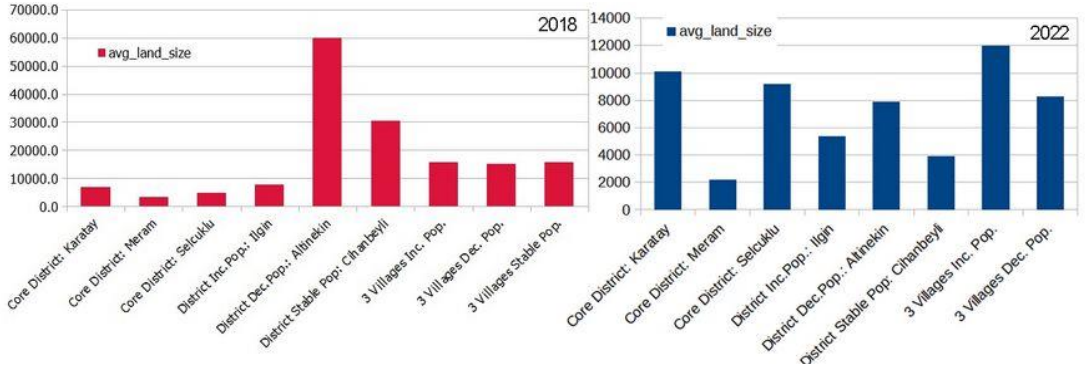

Figure 198 The Average Land Sizes (square meters) in Land Sale Ads in Sahibinden.com in May 2018 and in August 2022 for Three Core Districts, Selected Three Districts and Nine Villages

The average land sizes available on the market in the three core districts are significantly lower than the rest. This is expected since the land use zoning was predominantly urban. The same trend is existent in Ilgin as well. The by far largest average is in Altinekin district with decreasing population. It is followed by the district with the stable population, Cihanbeyli. The average land sizes in 9 villages, combined with the knowledge that the land available in the market is agricultural, tells us the smallholder farmers retreating from agriculture. In 2022, Meram still has the lowest plot size while the villages with increasing

population have the highest average. Interestingly Karatay and Selçuklu follows these villages in scale and the average land size in Karatay and Selçuklu is unexpectedly massive. Larger the land means more agricultural the land use and Karatay and Selçuklu are the second and third highest even higher than the villages with decreasing populations and Altınekin.

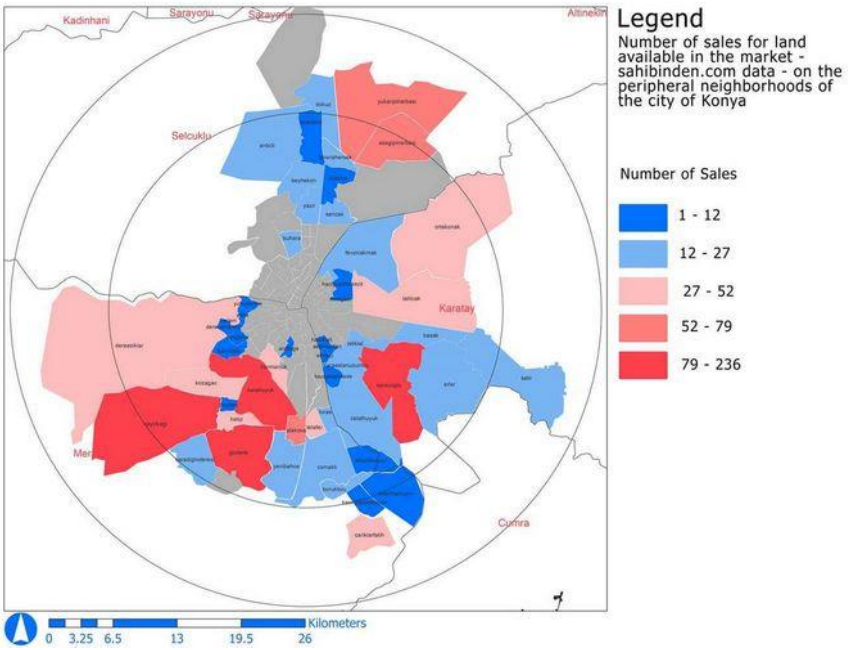

Figure 199 The Distribution of Land Sale Ads in Sahibinden.com over Konya City Peripheral Neighborhoods in May 2018

The red ones are with more ads and the blue ones with less. 3 neighborhoods in Meram on the south-west fringe of the city have plenty of ads concentrated. These areas are also partially irrigated agricultural land and the most humid part of the city. Another neighborhood is in Karatay on the south-east part of the city. The rest is either not popular in the market or they already had taken their share from land speculation and the market is satiated.

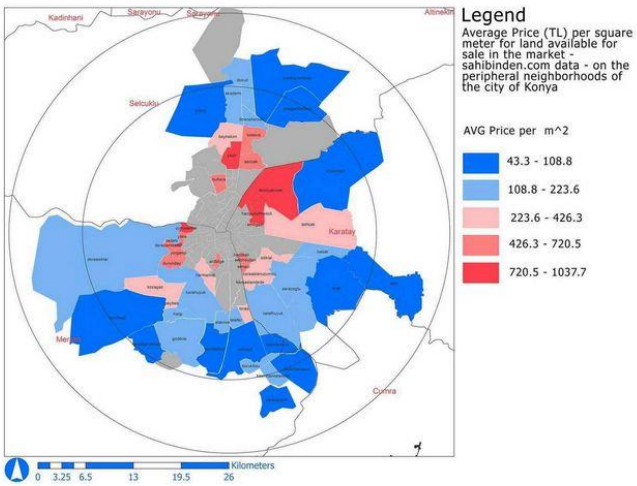

Figure 201 The Average Price of Land in Sahibinden.com over Konya City Peripheral Neighborhoods in May 2018

The average land prices tell a different story. The hot spots are on the northern part of the city around the airport, the university and the industry. The pressure over these areas are highest among all. The spectrum of prices starts from 43.3 TL per sqm and reaches up to 1037.7 per sqm. The closer the neighborhood gets to the core, the higher the price as expected.

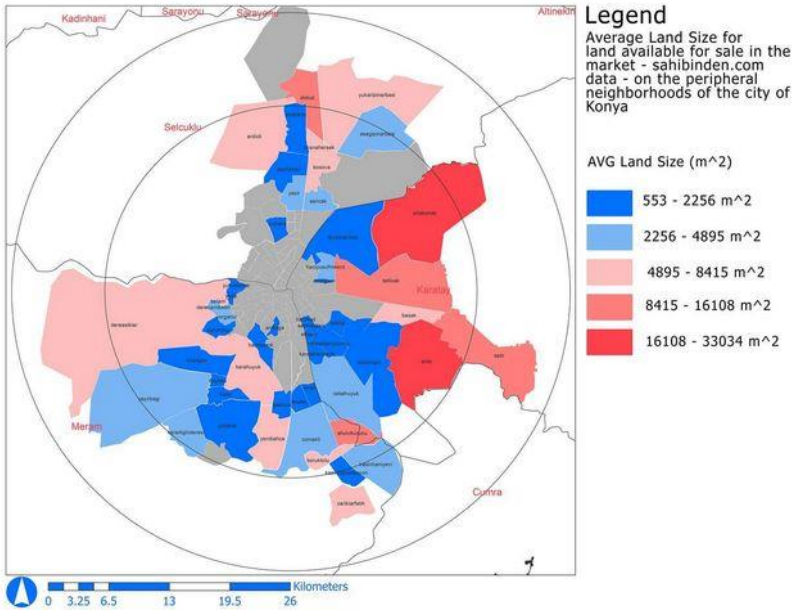

Figure 200 The Average Size of Land (square meters) in Sahibinden.com over Konya City Peripheral Neighborhoods in May 2018

The average land size is largest on the east part of the city and these neighborhoods are mostly vacant (see urban form subsection). There are also irrigated lands within these

neighborhoods and agricultural production continues in these areas. Therefore, whatever the land use zone for the field is, the activity on the land is predominantly agricultural.

8.5 Conclusions: 6360 Law on the Agricultural Production of Konya

The Agricultural production in the case of Konya was examined with reference to land, labor and capital. The scale of production and production patterns are also analyzed in both 3 core and 28 peripheral districts. Major findings are as follows:

- In plant production, the change in production patterns differs for each product. Wheat production plummeted after 2014 while corn and sunflower are increasing. Fruit production which requires perennial grooves also plummeted. For core districts apart from grains and annual crop production in Karatay district, the percentage of production decreased from 2014 to 2021 and peripheral districts become more dominant in all types of plant production.
- In livestock farming, both 2004 and 2014 are major breakpoints. Between 1990-2004 the number of poultry was increasing drastically in the province while number of ovines were dramatically decreasing. Between 2004-2014 poultry increase stopped while ovine farming started increasing with a fast pace and after 2014 the increase became faster. Number of poultry started decreasing after 2014. Number of Bovines and Beehives were steadily increasing from 1990 to 2021. Apart from Selçuklu (core district) bovine production is increasing both in two other core districts and 28 peripheral districts and apart from Selçuklu poultry numbers are decreasing after 2014. Ovine farming also follows the same trend and apart from Şelçuklu, it is increasing rapidly after 2014 in 2 other core districts and 28 peripheral districts. In ovine and bovine farming, the peripheral 28 districts preserve their dominancy while in poultry the core districts are by far dominant, and the dominancy continues. In beekeeping, the dominancy of core districts is increasing. In other words, poultry farming and bee keeping are getting urbanized while bovine and ovine farming remains more rural.
- Total amount of agricultural land is decreasing while sown land is increasing and fallow land is decreasing. Land use change is a double-sided process and for all time intervals there are agricultural land losses as well as lands transforming into agricultural land. The total amount of agricultural land increasing or decreasing only signifies the imbalance between the land losses and new agricultural lands. Agricultural land change in time can best be understood spatially including the locations of land losses and new agricultural areas.

- Land use in general can be grouped into three categories: urban, agricultural and natural (including water bodies) and this simplification brings forward a massive fact. In Konya province urban land uses only covers 1.6% of the province in 2021 while agriculture takes up the 56.9% of all the geography. Natural areas and water bodies covers 41.5% in 2021 and the invasion succession predominantly takes place in these two non-urban land uses if the scale is considered. Moreover, this is a zero-sum game between these three land uses and a consumed agricultural land here on the semi periphery of a city means a new agricultural land developed on the agricultural semi-peripheries invading natural areas.
- The coverage of urban areas was 1.5% in 2014 and there is only a 0.1% increase in provincial scale (including all settlements). Urban sprawl problem is only a small part of the land conversion problem, and it is more a problem from the focus of the urban lens. Yet the urban policy now is handling this massive invasion succession between agricultural and natural land uses thanks to 6360 Law and the question is will urban policy and local governments become more agricultural and natural land uses oriented? 6360 Expanded borders of municipalities and the environmental plans covering and determining the future of these areas means the urban settlement which only covers less than 1.6% of the geography rules over the 98.4% of the province which is nearly half agricultural and half natural. Environmental plan means more of a rural policy than an urban one considering the massive scale of the agricultural and natural areas.
- According to the visual classification of the land cover data the agricultural land was increased slightly from 1990 to 2006. Between 2006-2012, agricultural land in Konya province did not change much, neither a decrease nor an increase in anywhere. After 2012 to 2018 the amount of agricultural land increased. This visual increase is parallel to the increase in sown land in provincial scale.
- Both in agricultural land and irrigated agricultural land, core districts, especially Karatay district are becoming more dominant in the agricultural landscape of the province from 2014 to 2021. The scale of agricultural production is getting larger with irrigation and concentrated to the core districts as well. In other words, not only rescaling but also a concentration in agricultural production is taking place after the 6360 Law. Core is getting stronger in agricultural production.
- Irrigation is a vicious circle in Konya. The closed basin lacks needed water while the 87% is used for irrigation and new irrigation areas are constructed each year. The lacked water is being transferred from other regions or accumulated with dams while these very dams decrease the amount of fertile land by flooding them or reallocating

water in some places. Moreover, a significant amount of irrigated areas are located on the semi-periphery of the city of Konya and larger-growing districts of Konya and the lack of coordination between DSİ and MM resulted with irrigated areas used for production of urban space. Urban sprawl is massive and evasive over these semi-peripheral irrigated areas. All the public investment to bring and distribute water to agricultural fields are now in vain and urban sprawl took over. In sum, it is not the scale of the agricultural land that is converted into urban is the problem but rather the location, quality and the existence of water as the solidification of public investments on the land to improve agricultural production.

CHAPTER 9

CONCLUSIONS: FINDINGS, HYPOTHESIS RESULTS, PROPOSALS AND FURTHER QUESTIONS

In the literature of the urban question and spatial planning, the most dominant understanding of space formed based on a fundamental dichotomy between what is urban and what is rural. Majority of the terms coined to understand and represent space are based on this dichotomy and the mutually exclusive understanding of what is urban and what is rural. This dichotomy excludes dialectic approach and the fundamental continuum between these two land uses. This creates a problem especially in understanding the land conversions in the semi-periphery where these two land uses collide in the form of a spectrum. With a reductionist approach these two forms of produced space can be stripped down to two categories of land use complemented by natural land uses. They even share the quality "being produced", urban and rural land uses that is. The faultline between the natural land uses and urban and rural land uses is the quality that being produced as space. Therefore, the production of space is not limited to urban space but also covers human-made fields, irrigation infrastructure, villages, rural neighborhoods as well.

On another level, these urban and rural spaces produced are intertwined with each other in terms of capital flow, population flow, material flow, commodity flow, energy flow, water flow or public policies for both. To overcome the problem of exclusionary understanding between the terms urban and rural, after analyzing all the terms used to define all forms of spaces within the urban-rural spectrum, with a reference to the dependency school, the terms core and periphery are selected. The core and periphery are used not only for urban and rural areas but also provincial geographies as well. Yet, only using these two is not enough to spatialize this study and represent the dialectic stance. A middle and transitive category, semi-periphery is proposed for this reason to represent the spaces residing on the collision of urban and rural land uses, urban and rural and urban-rural relations and urban-rural flows in varying degrees. I used this theoretical framework out of need to cope with the urban policy questions that the Law 6360 brought on urban, rural and urban-rural collision land uses.

It is a matter of scale and with 6360 Law the scale of local governments has expanded massively from municipal-urban-core to massive provincial scale. Defying the subsidiarity principle in local governments and public administration theory, this expansion resulted with

urban policy and local governments covering not only previously municipal urban cores (and semi-peripheries that these cores sprawl into) but also vast rural and natural geographies with rural and natural land uses and rural and urban settlements. This expansion was the motive behind this thesis, the reason to bring production of space and agricultural production onto same theoretical debate plane. The first step to bring these together were to understand how these areas are categorized and understood in the literature in different geographies and different time intervals.

The second step towards bringing the urban and rural together on the same plane is inspired from the urban rural collision on the semi-periphery: the question of land conversion between urban and rural land uses and the hierarchy of land uses over each other in terms of rent creating pressure for land conversion. Similar to the core periphery and semi-periphery understanding of provincial geographies described above, this is also a question that is underlined and mainstreamed by the enactment of the Law no 6360. One of the problematized points after the expansion of municipal borders is the development of agricultural land into urban areas predominantly in the form of urban sprawl. The core element of this transformation process is land rent.

The problem of land conversion from rural to urban land uses was also the departure point of this study, which later on transformed into a more extended framework including not only production of urban space on the agricultural production spaces on the semi-periphery with the vast rescaling of the 6360 Law extending over the massive provincial geography covered with more than 95% natural and rural land uses where urban land uses only cover less than 5% in most of the cases. Rent is the catalyzer of change and therefore naturally brings the urban and rural debates together. Within the theoretical framework part of this thesis, three drives of rent are defined based on the hierarchy of pressure among different land uses in terms of rent. These were the expansion drive of rent like urban sprawl, the utilization drive of rent like extracting resources and energy from far off places for urban land uses, and the dual drive which is a mix of these two where different land uses are juxtaposed or like in the case of using water resources while developing the land surrounding them.

Enactment of the 6360 Law induced this study with all the urban and rural questions it has brought and at first it was a matter of land. The land conversion from the agricultural to residential, or urban in general, the production of space. This point of departure soon became unsatisfactory in understanding the essence of the problem in its original scale. Looking deeper, I have observed that, first the urban land uses are small with reference to vast agricultural and natural areas, therefore the expansion of municipal borders with 6360 means much more than land conversion from agricultural to urban land uses. Second there is a hierarchy between land uses in terms of rent pressure and water as a limited resource is among

core components in increasing or decreasing pressure. It is not only this changing rent pressure that water matters but also it is the resource that is fundamental both for urban and agricultural land uses, and it is severely limited in some geographies including the case study, Konya, located in an endorheic basin. In sum, I have started with land as a limited resource and ended with the existence of and accessibility to water in land as a main feature (dual drive of rent). The problem first scaled then reshaped with these developments in my understanding while digging deeper.

The chapter on the comparison of four countries including Turkey exists predominantly because of to understand our context in comparison with others (and give other countries to understand the case of Turkey on the same comparative plane) but the hidden agenda for this chapter was to decipher their planning, urban and land use policies to learn from. What they did and what they got in agricultural production, urban form and in settlement patterns, the lessons learnt in sum was the focus. All three cases suffer from urban sprawl yet The Netherlands, historically is the most controlled and relatively compact one. All three are agriculturally developed countries while China is the most agricultural in terms of population. USA and China are massive in scale and have both concentrated and dispersed settlement patterns while the Netherlands, with its dense population is like a constellation, interconnected and high density.

What China has taught me in this study was, one-size-fits-all approach in local governments, urban policy and land use policy does not work. The second lesson learnt from the case of China was the supremacy of the development approach of state overcoming the collective ownership patterns, the ownership of land in the case of China is twofold where urban land is owned by State and rural land is owned by villages collectively, yet the municipalities have right to develop this land for the sake of economic development, industrialization and urbanization. The hierarchy of land uses in terms of rent pressure is also similar in China as well, the urban and industrial land uses tend to expand over agricultural and natural land uses. The development rights are also partially seperated in China, in a similar form to transfer of development rights yet this method is criticized to enable the marketization of land.

The case of the United States of America was explanatory in understanding two major spatial planning tools, zoning and tax. Land use zoning and spatially varying levels of taxing are two major processes in land conservation. Urban sprawl, in the case of USA, is not a side effect of insufficient land use controls but rather a natural result of the form of low density car dependent urban growth and urban planning. The grid patterned urban fabric does not help in curing sprawl either with lacking concentration. Two major mechanisms are significant in agricultural land preservation within the private ownership context of the USA; these are

Transfer of Development Rights (TDR) and Purchase of Development Rights (PDR). The first one is the sale of development right divorced from its spatial location from the owner to another owner and the right is used in somewhere else (predominantly in core and semi-perihery of urban settlements). The PDR on the other hand is the purchase of development rights from owners by public bodies for the sake of public interest, in other words, expropriation of not the land but the development right given to that land to preserve the existing land use.

The planning doctrine in the case of the Netherlands were the concentrated deconcentration and with the limited land and massive water problem due to elevation / delta geography, the control over the land use is absolute in the whole country. The cities and villages are relatively young in the Netherlands and even younger in the United States while China and Turkey have plenty of ancient cities and villages. The case of the Netherlands underlines the significance of water but this time not the scarcity but the abundance defines the strict framework of the land use and urban policy. The pressure of the agricultural land uses over the natural land uses is most visible in the case of the Netherlands with highly limited land. The national scale zoning including planning the production patterns understanding and the "green heart" where agricultural and natural land uses are concentrated are the two major lessons learned from the case of the Netherlands. The matter of scale is most visible in the case of the Netherlands.

In the case of Turkey, the land use policy and urban planning are formed around five tension points which are; localization-centralization, compactness-urban sprawl, developmentalism-clientelism, conservation of land-consumption of land and favoring small scale-favoring large scale. For the case of Turkey, the protective measures against the land conversion was (and to some degree still is) existent in the legal framework yet the implementation is what is lacking. The partial interventions of all scale in the planning process creates more irregularities in land conversion.

9.1 Limitations to the Study

The enactment of 6360 Law, the starting point of this study was back in 2012, and it has undergone full effect in 2014 with the local elections. We are in 2022 now and only 8 years have passed from the expansion of the municipal borders to provincial borders among other changes in local government understanding of Turkish Public Administration System. The time limitation is one of the major limitations of this study. I have started with an interest to measure the impacts of the MMS enhanced by 6360 Law, yet it has only been 8 years. This limitation would easily be a reason to give up the analysis on this subject yet this massive scale change in the public administration and local government structure brought by 6360 Law is

what we are experiencing in 30 out of 81 provinces, which are also the largest provinces in terms of population and the most developed. This is the problem that metropolitan municipalities are facing, this is the issue that urban planners have to cope with, this is the subject that policy makers and public bodies of all scales have to deal with. The scale of the change made it impossible to give up on the analysis. Furthermore, to add to the problem, this raw form of MMS, without thinking thoroughly, planned to be implemented to all provinces in Turkey. We need to understand the impacts of this rescaling and act accordingly as soon as possible to have healthier policies for settlement patterns, urban forms and agricultural production. Public interest overcame this limitation.

Another dimension to the time limitation is the conjuncture of Turkey. Construction sector and housing market being the most dominant element of the recent Turkish economy, the pace of production of space has been fastened. 8 years in another context might yield with less change, but with this pace, the change observed was higher than expected. This study is a snapshot in the flowing time and changing impacts and a longer time interval for this analysis might yield with different even conflicting results. The only constant will likely be the understanding of 6360 Law and the MMS as a tool which can be used to obtain different results. This is how it was used for the last 8 years in the case of Konya. With time and space the results might and will change.

This brings us to the other limitation of this study: the space limitation. The space with all the relations embedded on it changes the results. The province and the city of Konya are the epitome of the national government. It is like a pilot city for all the policies supported by the central government. There is nearly no tension or conflict between the Metropolitan Municipality of Konya and the Central Government.

The case of Konya, apart from the statistical studies pointing out the strength of encounter between the production of space and agricultural production, is selected not despite this limitation but rather specifically because of this limitation. If there are any positive results acquired by enacting the 6360 Law and this form of the MMS, this will be its pinnacle. The case of Konya might even be “the best use” of 6360 Law possible. This means that, first the results obtained in this study might likely to differ from cases that have political tension with the central government or that are different in scale, or both. It is a trade-off. I have renounced representation for national scale impacts or worst cases to measure the worst impacts in exchange of observing almost full implementation of the law without any tensions or disadvantages. This way, I have ruled out the political tension parameter that will likely change almost all the results. This is as the best as it gets with the 6360 Law and the results most likely cannot be better in any other case. Yet, even with these advantages, the structural problems brought by the expansion of the MMS defying subsidiarity are still there.

Ruling out one parameter, the tension with the national government did not bring us the clear causality that we need in the study. This is the last and the most significant limitation of this study. As in all social science studies, it is impossible to rule out all the independent variables and single out one independent variable to measure its effects. Solidified in this case, 6360 Law is the independent variable of this study, yet it is impossible to say that all the results observed in this study in all fields, in settlement patterns, in urban forms and in agricultural production are the results of solely 6360 Law. Assuming this would be oversimplification, false correlation and a severe reduction. This limitation is nearly impossible to overcome yet at the same time it is not overcoming this limitation that matters but rather using it on purpose to converge to the sophisticated and multi-layered relations on space in time. This limitation is the reason why this study covers so many different elements of production of space and agricultural production in relation with urban and land use policy. In order to put the results as structural and comprehensive as possible to both show the intricate relations and to overcome this limitation of causality, the components of analysis has been kept as varied as possible.

While reading the results summarized below and presented in detail in every chapter of this thesis, please always keep these limitations in mind, that was what the author did.

9.2 Major Findings

On the foundation constructed in literature review, international comparison and contextual analysis in the national scale, the case of Konya is analyzed. The 6360 Law acted as a motive while the production of space and agricultural production with reference to settlement patterns, urban forms, players, planning, land use policy and urban policy. This multilayered structure, with a dialectical approach, enabled me to put forward a complete picture of the before and after of the Law 6360 over the production of space and agricultural production. Majority of findings are based on quantitative and spatial data while qualitative data with in-depth interviews was also combined to obtain these results.

The most significant result of the 6360 Law is the expansion of the municipal borders into provincial borders defying the subsidiarity principle. The monolithic structure suggested for the local governments created several direct and indirect problems and even though the time passed is significantly short, the results are studied in many different studies by several researchers. The aim of this thesis was to put forward a complete picture of the impacts with a specific focus on space. Production of space and agricultural production are two forms and cycles of production with complex and interrelated structures and to measure any external parameter's impact on these requires analytical vigor. To keep up with this ambitious target, a large variety of data were collected.

Starting with the facts, the service area of the KMM has increased 19.5 times. The number of districts served has increased from 3 to 31. The number of neighborhoods served has increased from 170 to 1154 including severe number of dispersed, deeply rural villages. The population served has increased from 1.2 million to 2.1 million (2014 populations) today it is around 2.3 million people (2021). 1.3 million is concentrated in the core while around 350.000 is dispersed in small scale and rural settlements and the rest is semi-concentrated in district centers.

As expected, the service area has massively increased as well as the responsibilities of the KMM. Yet, the budget, the number of personnel as a means of service provision and partially revenues (such as water and wastewater tariffs) were also increased. The utilization of these resources for core, semi-periphery and periphery is another issue. The public capital flow through service provision remained concentrated in the core. Even though the in-depth interviews with the former villages' (now rural neighborhoods') mukhtars are positive overall suggesting the KMM enhanced the service provision, service provision problems for large geographies by local governments experienced in urban service provision continues.

The major positive result of the Law No 6360 is the master plans prepared by metropolitan municipalities becoming more comprehensive in provincial scale. Ministry of Environment, Urbanization and Climate Change and Konya Metropolitan Municipality are the two bodies that have produced these province scale master plans. The planning process is highly centralized (both in national and local scale) and this has resulted with both negative and positive results for the future of the city. The positive aspects of this are the possibility to plan urban, agricultural and natural land uses in a continuum and to keep development rights given in peripheral districts in more reasonable levels and the opportunity to tie the development rights to population projections, economic development and visions for future. Rural, natural and agricultural areas are planned in relation with each other nearly for the first time in a spatial planning form. The planning of these areas was a divided and sectoral process, yet this time, they can be seen on the same plain of the same plan Yet, this comprehensiveness and the positive aspects that works in favor of planning is damaged by centralization in a new form. The hyperlocal and local presidential decrees, the plan changes and revisions by MoEUCC alongside plan changes and revisions by metropolitan municipalities and district municipalities intervenes with the planning process and results with a deregulation of space. The major advantage of the 6360, may even be the sole advantage, is dissipated with these interventions.

The concentration of planning power into a methodological cityist body, the local government yielded with an increasing focus in core cities and the development rights given in the semi-periphery of the core city of Konya has severely been increased while the

development rights given in peripheral districts were decreasing. The urban gaze is also visible in service provision choices of the KMM as well. The services provided for peripheral districts remained more on the rural side of the service spectrum and this ensures the disparities between the urban core and small scale and / or rural periphery will remain as it is. Moreover, the transfer of the ownership of the rural commons, the meadows/ pastures are also problematic for rural economies, rural settlements and agricultural production. The province of Konya is massive in size, therefore the villages / rural neighborhoods dispersed over the vast geography illustrates different qualities and affected from the allocation of meadows. In the rural neighborhoods within the close vicinity of the city of Konya and district cities, the expansion drive of rent is at work. In far off rural neighborhoods, this time the problem will be grazing fees, which can be considered as the utilization drive of rent. Not only the control of the massive amount of land but also the control over the water within this geography is also transferred to the metropolitan municipalities.

Public transport, solid waste, water and wastewater services are among the strengths of local governments and in all three, improvements have been observed in the peripheral geographies of Konya at least in terms of services listed in activity reports. These services are provided with additions to existing service networks while for new investments, the KMM budget got tighter and even though the borrowings are increased, this is rather a national trend with especially EU and WB financed projects, but the expansion of the service area increased the financial limitations of KMM and made borrowings inevitable.

Since the beginning, the most problematic part of the 6360 Law was seen as the taxes, fees and tariffs that will be set based on the urban service standards in rural geographies and rural settlements. The villager point of view was dominant predominantly for populist reasons. This is also the only part where the full enactment of the decision delayed for almost 10 years, and where a step back has been observed. The decision on categorizing former village neighborhoods as rural neighborhoods in 2021 to give local governments the chance to differentiate the taxes, fees and tariffs for those rural neighborhoods and this is the only step back from the 6360 Law enhanced metropolitan municipality system. This, in some cases created advantage. In some rural neighborhoods with urban amenities provided, within the perimeter of core and semi-periphery of core cities or with tourism potential, they are benefitting from the advantages of being a rural neighborhood with lower taxes, tariffs and fees while taking advantage of urban services provided.

Yet, statistically speaking, these are very low in number if all villages/rural neighborhoods in a province is considered. For the case of Konya there are 576 rural neighborhoods, and these are dispersed over a 38873m^2 area while the core city of Konya only covers 1.6% of this area. Therefore, the number of rural neighborhoods closer to urban core or with tourism or

hobby gardening potential will not be that high. 9 former village neighborhoods have already lost the chance to become rural neighborhoods even though they were former villages and the reason was the closure to the urban core. Another aspect of these rural neighborhoods is that it can be a tool of economic punishment of politically opposing settlements or dissidents. The cost of life will be severely affected from the taxes, fees and tariffs determined by central and local governments if a former village neighborhood is not determined as a rural neighborhood by the metropolitan municipality council. This is not observed in the case of Konya but is within the possibilities in other cases.

Abolishment of the Protection of Farmer Assets Directorate and the fine for the development exemption notice for the restructuring of rural neighborhoods with reference to urban development principles are the two results of the 6360 Law that are criticized and problematized by the mukhtars. These two changes are illustrating the transformation from the rural characteristics to urban characteristics in the governance of these rural settlements.

There is an ongoing rescaling in settlement patterns and settlement populations and this rescaling favors the larger scale. The 6360 Law, seems to support this trend. At least did not help with the small-scale settlements. In the case of Konya, the cities with a population over 25000 back in 1990 have mostly gained population while the ones below tend to decrease. This trend became more visible in the case of Konya after the enactment of the 6360 Law. In addition to that, the main divide for the settlement pattern, the mountain-basin divide, acknowledged by local players in several spatial and strategic plans, is highly significant for the population change in time. The monolithic structure of the 6360 enhanced MMS defying the subsidiarity principle did not help with this faultline either. Agricultural and rural services predominantly focused on irrigation and agricultural production on the Konya plain zones rather than mountain ranges. Therefore, it is safe to say that after 6360 Law, with the methodologically cityist approach of the Konya MM favoring larger scale settlements and larger scale irrigated agricultural production, the decrease of population in these geographies have been increased.

Konya is a sprawled city with a fringed continuous settlement and massive number of fragmented urban fabric on the semi-periphery and this trend is an ongoing one especially after 2004. As expected, the increase of the total coverage area of the Konya city settlement is parallel to the increase in the population yet the density is decreasing in settlement scale, indicating increasing production of space per person. Between 2014 and 2022, in 8 years, the rate of increase of the area of the urban form is 145%. It has increased from 26600 hectares to 34801 hectares while the rate of increase in population within same time interval is 112.8%.

The sprawl problem in the urban form of Konya has been analyzed with 7 quantitative measures in time with reference to the breakpoints relevant for the metropolitan municipality

system and in 5 of the indicators the situation is worsened in terms of urban sprawl. In 2 of them there are positive results indicating Konya is getting better in these elements of urban form. Rescaling in the urban form, in the 6360 impact on urban form has taken place in two aspects. First, the scale of sprawl increasing in time and second the scale of urban fragments getting larger while getting further from the continuous part of the urban form. The plan proposed settlement area boundaries for the city of Konya is larger in KMM 2016 Environmental Plan which is a direct result of 6360 Law from the 2013 Environmental Development Plan by MoEUCC in the pre 6360 era. The development rights given is extended over the geography which likely to yield with more sprawl with the undeveloped land with development rights given and lying in the middle of leapfrog development induced by the development rights. The population of Konya is increasing but not as much as expected in the plan population projections.

The productivity of land and labor increases in time and the rate of increase in productivity usually increases while getting closer to the urban agglomerations. In other words, rent theories suggest that the land closer to metropolitan cities more likely to have a more well-developed irrigation and transportation infrastructure, the industrialization of agriculture also starts from this direction and the land market has more circulations (sometimes enabling sometimes disabling land consolidation) and technologies including agricultural technologies usually spread from the core. Therefore, the infrastructure and technological developments alongside ownership patterns and the productivity are favoring core districts producers most of the time. Yet, the changes in production amounts in core districts versus peripheral districts tell a different story. The investments, especially irrigation provision is still concentrated to the core districts while the land conversion in the semi-periphery also continues.

Irrigation is a vicious circle in Konya. The closed basin lacks needed water while the 87% is used for irrigation and new irrigation areas are constructed each year. The lacked water is being transferred from other regions or accumulated with dams while these very dams decrease the amount of fertile land by flooding them or reallocating water in some places. Moreover, a significant amount of irrigated areas are located on the semi-periphery of the city of Konya and larger-growing districts of Konya and the lack of coordination between DSİ and MM resulted with irrigated areas used for production of urban space. Urban sprawl is massive and evasive over these semi-peripheral irrigated areas. All the public investment to bring and distribute water to agricultural fields are now in vain and urban sprawl took over. In sum, it is not the scale of the agricultural land that is converted into urban is the problem but rather the location, quality and the existence of water as the solidification of public investments on the land to improve agricultural production.

Land use in general can be grouped into three categories: urban, agricultural and natural (including water bodies) and this simplification brings forward a massive fact. In Konya province urban land uses only covers 1.6% of the province in 2021 while agriculture takes up the 56.9% of all the geography. Natural areas and water bodies covers 41.5% in 2021 and the invasion succession predominantly takes place in these two non-urban land uses if the scale is considered. Moreover, this is a zero-sum game between these three land uses and a consumed agricultural land here on the semi-periphery of a city means a new agricultural land developed on the agricultural semi-peripheries invading natural areas.

9.3 Hypotheses and Answers

The first hypothesis: Metropolitan Municipality System empowering metropolitan municipalities in provincial scale urban policy making with its heavily urban perspective favoring urban growth, will likely increase the consumption of fertile and productive agricultural land via encouraging a sprawled urban form in larger cities of the provinces.

The Answer: On the Northern and Eastern perimeters of the Konya city this hypothesis is valid since the urban sprawl taking place is a direct result of development rights given by the 2016 KMM Environmental Plan which is produced based on the Law no 6360. On the Southern perimeters of the city, in Meram, this hypothesis is not valid since the urban sprawl on this direction is related more with plan revisions and plan changes rather than rights given by master plans. The hypothesis is also not valid for 28 peripheral districts since the KMM 2016 Environmental Plan as a direct product of 6360 Law decreased the unneeded development rights given by development plans produced locally by district municipalities. The rescaled monolithic local government structure proposed by 6360 Law may create more urban sprawl but the problem of urban sprawl over land is also under effect of several other factors. The comprehensive approach of 6360 is positive for urban planning and preventing urban sprawl while methodological cityism and concentrating on the core results with more urban development pressure in the core districts, namely city of Konya.

This hypothesis leaded me to two other aspects of urban sprawl. The first one is the increasing deregulation in planning with partial interventions and hyperlocal decisions made on space in national scale (plan revisions by MoEUCC and parcel based presidential decrees). This deregulation counteracts with the comprehensiveness opportunity provided by the 6360 Law. The advantage has been lost. The population influx to the city of Konya increased the rent pressure over the semi-periphery and this resulted with several number of plan revisions, changes and partial interventions.

second one is the matter of scale. Urban land uses only covers the 1.6% of the province which is highly insignificant against the massive percentage of agricultural areas and natural

areas which are in total covering 98.4% of the province. The consumption of agricultural land for production of urban space, if the whole province is considered, is not that significant statistically. The significance arises with and over the geography. It is not a matter of scale but a matter of quality. The location of the agricultural land, the amenities, the existence of irrigation, high levels of accessibility are the qualities that have to be considered when analyzing agricultural to urban land conversion. The amount of land is not much considered to the province scale, yet the location, water, accessibility and amenities are what makes the land conversion problematic. In addition to that, land use conversion is a zero-sum game, an agricultural land, fertile, irrigated and accessible, consumed here by urban land uses means more land consumed by agricultural land uses on the agricultural production fringes into the natural areas. For every consumed agricultural land, there likely to be a consumption of natural land for agricultural purposes. The significance of urban sprawl consuming agricultural land on the semi-periphery of the city lies at this point.

The second hypothesis: Metropolitan Municipality System, via focusing on larger settlements in the province in policy making and parallel to rescaling of the local state, rescaling in space and in production, will likely change settlement patterns of provinces in favor of concentration in core-settlements, while deserting dispersed, rural and small-scale settlements.

The Answer: The hypothesis is valid for the case of Konya. The impact of 6360 Law was hard to read on the settlement patterns since population movements on the geography are much more complex than local government decisions, yet it is safe to say that 6360 did not help small scale and rural settlements in gaining/not losing population. Between 2000-2014, Konya city is the focus of population flow while after 2014, the districts also become destinations for populations leaving villages/rural neighborhoods. The impact of 6360 Law on the population geography of Konya province seems to be a more balanced migration and this time unexpectedly not only the core city of Konya but also district cities are attracting population. The changes in settlement pattern may or may not be direct result of the law 6360 but the context producing 6360, concentrating local government authority into the core of the provinces also produced same type of concentration in settlement patterns. The population loss is increased in settlements with a population under 10000. The average size of rural neighborhoods, former villages is decreasing while number of villages with a population below 500 is increasing making service provision much harder and creating a vicious circle of shrinking. The planning approach of the metropolitan municipalities is cityist and urban development oriented. Konya Metropolitan Municipality is no exception. The problem at hand of the urban policy with the expanded borders of 6360 is becoming more rural, less in scale, more dispersed, shrinking, and unmanageable. The policies required to handle these areas are

not defined enough by KMM, the player at the heart of urban policy in provincial scale due to 6360 Law. The population influx to urban areas and deserted rural areas have a strong impact on agricultural production both in terms of land use change and labor needed for production.

The third hypothesis: Metropolitan Municipality System, via encouraging economic rescaling in production, will encourage rescaling in agricultural production from smallholder agriculture to large-scale and/or industrialized agriculture.

The Answer: The hypothesis is valid for the case of Konya and while a rescaling into larger scales has taken place in agricultural production, also there is a concentration observed. The agricultural production and irrigation are more concentrated in the 3 core districts after the enactment of the 6360 Law. The core element in rescaling in agricultural production is the provision of irrigation and irrigation investments are also predominantly concentrated in the core and larger districts. With irrigation, plant production is observed to transform into larger scales while livestock seems to be urbanized and industrialized. Poultry farming, beekeeping and even ovine farming are concentrating more in the core districts in time and after 6360 the process fastened.

With the villages/rural neighborhoods shrinking in size (especially the ones with dry agriculture) the concentration of agricultural production in the core with rescaling is expected and observed. Irrigation is the main intervention changing the geography of the province affecting both settlement patterns, production patterns and urban growth, all three hypotheses. Reallocated water resulted with diminishing water for some villages while some others prosperity and settlement pattern has a strong correlation with the existence of water. Rescaling and concentrating in agricultural production patterns are also highly tied with the irrigation investments. The production pattern change in Konya is a direct result of irrigation opportunities increasing over the geography. Yet, irrigation is a vicious circle for Konya. The closed basin lacks the needed water resources and transfers water from neighbor basins while new irrigation areas are opened every year. The problem here a significant amount of irrigated areas are located on the semi-periphery of the city of Konya and growing – larger district cities. On one side irrigation investments have been made, on the other, KMM, district municipalities, MoEUCC and other public bodies with planning authorities are giving development rights on these irrigated areas. The comprehensive approach of 6360 Law did not overcome this issue and lacks comprehensiveness in this subject. The concentration of irrigation and agricultural production increases the threat.

9.4 Policy Proposals

6360 induced monolithic local government and rescaled planning can only be comprehensive if it integrates urban and rural components with each other. It is not possible

to be comprehensive solely with demolishing administrative differences between urban and rural areas and settlements. Partial interventions are also work against the comprehensiveness and should be evaded. The policy proposals extracted from the findings of this study are categorized and listed below. The categories are land use policy, urban policy, water policy and planning education.

Policy Proposals for Land Use

- The scale of agricultural and natural land uses against the tiny urban land uses should be comprehended by metropolitan municipalities providing services and urban planners planning these massive areas with environmental plans. In terms of land use, the urban lens is too myopic if this massive scale is considered. Not only the balance between urban and agricultural or urban and natural land uses, but also the balance between agricultural and natural land uses also must be considered while planning. The comprehensiveness advantage of 6360 Law can be used to increase coordination between different players controlling urban, agricultural and natural land uses. Land use policy should be balanced among these land uses.
- The urban, agricultural and natural land uses are in a continuum over the geography and urban land uses are only a tiny percentage of this continuum yet is the most dominant and have power to shape both agricultural and natural geographies. Urban land uses, in the form of urban settlements, utilizes agricultural and natural areas for both utilization drive of rent and expansion drive of rent. This power asymmetry should be kept in mind while planning these vast geographies. Urban settlements are fed with agricultural land uses, consumes water from natural land uses, pollutes both, extracts resources and energy from natural and agricultural land uses to build and operate cities. This intertwined and utilitarian relationship is the reason for many scholars to defend the theories like planetary urbanization. The agricultural production patterns effect water consumption, amount of water effects scale of agriculture and the economic resilience of small-scale settlements, the scale of settlements impact production patterns and urban economies, population flow if rent is not controlled, creates severe pressure over semi-periphery in most cases ending with urban sprawl. Urban sprawl and rent pressure messes with agricultural production on the most accessible, fertile and prime lands and the circuit is closed. This is the reason why land use policy is more serious business than policy makers and planners think. The balance and the continuum not only on space but in economic and social relations and flows must be considered while making decisions on the land use of any province given.

Policy Proposals for Urban Policy

- The new urban policy should specifically redesign how we planners approach small scale settlements and the settlements that have a decreasing or dramatically decreasing populations. This fact is severely observed in the case of Konya and the need will likely increase in the future with smaller scale settlements losing population and the increase in the number of smaller scale settlements. The population in rural geographies seems to be decreasing while the distribution of population becomes more sparsely distributed. This invisible population should become more visible in decision making over the geography.
- New tools must be developed, legalized and implemented to protect disadvantaged land uses such as agricultural production against production of urban space or natural areas against agricultural production. Transfer of Development Rights and Purchase of Development Rights are among such tools that can be utilized to conserve agricultural and natural areas by divorcing the development rights from the location of the land. Urban growth boundaries, green belts, agricultural belts are some tools for control urban sprawl and control urban growth and these policies must be supported with policies similar transfer of development rights.
- The administration of small scale and/or rural settlements are uncharted territories for metropolitan municipalities and the accumulated experience and knowledge of SPAs melted into air with the abolishment. Public Administration Institute for Turkey and the Middle East (TODAİE) would be a source of knowledge transfer for how to govern the small scale and the dispersed, yet it is also abolished. The best urban policy suggestion, in order to develop the capacity of metropolitan municipalities will be to revitalize TODAİE.

Policy Proposals for Water Policy

- The 6360 Law and the metropolitan municipality system gives the chance the metropolitan municipalities to handle the province comprehensively and this advantage should be used in the water management of the province. Urban and rural areas are now on the same administrative plain and water balance within the urban and rural areas should be first understood then planned. Flood management in urban and rural areas, stormwater collection systems, urban water provision, water and wastewater services, groundwater levels and pollution and irrigation are all part of a larger water cycle and this should be managed accordingly.
- Instead of massive scale mega projects to transfer water from neighbor basins which might as well experience water stress a localized understanding of water resource provision and protection should be preferred. Large scale projects transferring water

from long distances are severely energy consuming (which in return negatively affect both water resources and climate crisis, therefore increases the need for irrigation in a vicious circle), have higher risk of failure, higher maintenance costs and higher levels of water loss in the process. Localized, nature-based solutions should be seeked with a basin management approach to solve agricultural irrigation village by village (rural neighborhood by rural neighborhood). With a holistic and integrated approach, flood management systems, storm water systems and treated wastewater agricultural reuse systems have to be designed in relation with each other and using/re-using the water for agricultural irrigation in mind.

- Not only localization of irrigation provision but also increasing efficiency and decreasing losses should be aimed for irrigation on the peripheral parts of the provinces. Modernization of existing irrigation systems should be prioritized over new irrigation areas. For new irrigation areas localized and nature-based solutions should be prioritized.
- Locational choices of irrigation areas are conducted by DSİ. DSİ prioritizes the irrigation investments based on existence of water resources, the geographical compatibility for irrigation and inexistence of prior irrigation projects while metropolitan municipalities and Ministry of Environment, Urbanization and Climate Change uses threshold analysis to determine the land that can be developed and opens majority if not all, of the area that can be developed. Even though irrigated agriculture means prime farmland, this usually does not stop the planners to give development rights over these areas. These two sides of the coin collide into each other on the semi-periphery of the cities and the areas where DSİ invested in for irrigation provision are now places of urban growth. Via coordination within these public bodies, this should be avoided.
- In metropolitan scale urban policy, the land use policy in relation with water policy must be regarded in relation with each other. Irrigation policy is an essential part of agricultural production while urban policy severely impacts irrigation policy with allocation of water, pollution of water due to land use policy and urban development consuming irrigated lands.

<u>Policy Proposals for Planning Education</u>

- City and Regional Planning already includes the region in its name, yet the regional planning referred here is more of a semi-spatial developmental planning of regions which covers areas usually larger than provinces. What we are experiencing with the 6360 Law is the explosion of the MMS to a provincial scale, which is defined based on administrative purposes unlike the economic region understanding of regional

planning. The urban / spatial planning experience in our country predominantly focused on urban cores and a little bit of semi-peripheries. Even the largest master plans before the 6360 only covered the urban settlements with its fringes. Environmental Plans produced by the MoEUCC are the ones that are close to this scale while they were produced in NUTS regions scale. The plans produced are detailed, not structural, yet covering a massive geography while the agricultural areas, natural areas are seen as black boxes not to mess with. This approach repeats itself in planning education as well. Urban planners are trained to design and plan urban land uses while with the expansion of the MMS it is now less than 2% of the areas that they are responsible of planning. This black box understanding will create deeper and deeper problems in vast geographies if the trend continues. This is the problem in front of the planning schools in Turkey. The expansion forces us planners and planning educators to leave our urban gaze behind while planning these geographies and stop being myopic about urban expansion. This can be overcome with developing more insight and understanding on agricultural land uses and natural land uses with the economic and social layers included. With all its complexity.

- The proposals listed under the land use policy applies to planning education suggestions as well. The comprehensive and continuous understanding of land use is a must to plan this vast scale.

9.5 Further Questions: From Here to Where?

My quest started with the expansion of the municipal borders to provincial borders. At first, as an urban planner, I placed my gaze in the core and looked towards the semi-periphery. After reading the impacts of the MMS, interviewing people, collecting massive amounts of quantitative, qualitative and spatial data, I found my urban gaze limiting and severely myopic. At that point, I have already realized that the scale that 6360 Law suggests, the scale that local governments single-handedly must serve and the scale that we urban planners must plan is massive, beyond our spatial comprehension. The development of agricultural land as an urban plot was the point of departure but the expansion brought much more on the table. The problem of scale is the most visible one. The second one is the overall land use balance, urban, agricultural, and natural categories of land affecting each other.

The scale of agricultural land consumed by urban sprawl on the semi-periphery was only a tiny percentage of the overall agricultural land uses, yet the consumption of these areas remained problematic due to not because their size but because their qualities which can be understood through rent theories. The locational advantage, the capital invested to develop, the irrigation infrastructure and the water provisioned are what is lost when an agricultural

land is developed on the semi-periphery. The spatial and social impacts of the Law 6360 and this form of MMS goes far beyond consumption of the agricultural land on the semi-periphery by urban sprawl. The population distribution over the geography, settlement patterns in sum, is on one side, all agricultural production (which is in most of the provinces massive in scale) is on the other. How we use space is a result of historical and contemporary policies, flows of people and of capital. 6360 Law and the expansion of the municipal borders into provincial borders is a breakpoint in this flow of history and geography, and it might be a more significant one than we think.

In this long study which took very long time to finish, I have looked at the production of space and agricultural production using the MMS expansion in the form of 6360 Law as a means. This study and the answers I have obtained resulted in more questions than I have answered. The first that comes to mind is the rescaling in the settlement patterns Is there a threshold for settlements to sustain their population or gain population? The rest of the questions are listed below, waiting for us to answer.

- Can the findings on this subject in the case of Konya be generalized? Is there a relation between urban growth patterns and former agricultural ownership patterns?
- Are there ways to think on agricultural production and production of urban space freed from ownership?
- What is the rule of thumb for controlling the land speculation and rent pressure over the semi-periphery via limiting development rights given?
- What are the typologies of urban growth for metropolitan cities in Turkey?
- The problem of water, how it should be handled for both urban and agricultural land uses and more significantly natural land uses?
- The gravitational power of the existence of water over agricultural land uses is visible, can we map this attraction for the urban land uses? How to decipher the bonding role of water among all sorts of land uses?
- The rescaling and concentration in agricultural production and its relation with urban agglomerations with reference to core-periphery debate and on space and developing a more spatial understanding of agricultural policy is also an intriguing question.
- What are the impacts of mountainous-plain geographies divide in our settlement patterns, economic relations, ownership patterns, cities, agricultural production patterns with a historic-geographical materialist view avoiding a spatial-determinist approach?
- What is the extend of the impact of the central scale but hyperlocal interventions to space, plans and planning on the production of space and conservation of natural land uses?

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APPENDICES

A. DEFINITIONS OF THE TERMS USED TO DESCRIBE EXTENDED AREAS OF URBAN SETTLEMENTS

Metropolis, the first one on the list is the oldest among all being an ancient word. It has plenty of meanings; the capital city of a country or region, the city-state, a central city for a specific activity, and "a large important city" (merriam-webster). The utilization of the term in academic literature according to google books has several peaks in the history: 1883, 1931, 1952 and 1970[179]. The term is gaining popularity again in recent years since the term is attributed to the contemporary mega cities in core and peripheral countries:

> "The 21st-century metropolis is a chameleon. It shifts shape and size; margins become centres; centres become frontiers; regions become cities. Baudrillard (1986) writes of this process: 'They have not destroyed space; they have simply rendered it infinite by the destruction of its centre' (p. 99). The 21stcentury metropolis makes a fool of census jurisdictions, of the mappings of city and suburbs, and confounds the easy narratives of regional change, including those that emphasize agglomeration and innovation." (Roy, 2009: 827).

Metropolitan area, **metropolitan region** and **metropolitan city** are three terms metropolitan is utilized. Metropolitan is defined as "the primate of an ecclesiastical province" and as an adjective it is used as a space bearing the metropolis characteristics (merriam-webster). 1970s were the peak years of the terms with metropolitan according to google books[180]. Metropolitan term is tied with legal framework, urban policy making and public administration terminology in the cases of Turkey and South Africa.

Postmetropolis is another term that is connected to metropolis. Postmetropolis is defined as: "The contemporary American metropolis. It refers to how the present postmodern epoch has transformed the dynamics of contemporary urbanization. In essence, the term is

[179] https://books.google.com/ngrams/graph?content=%22metropolis%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20metropolis%20%22%3B%2Cc0#t1%3B%2C%22%20metropolis%20%22%3B%2Cc0 September 2019.

[180] https://books.google.com/ngrams/graph?content=%22metropolitan%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20metropolitan%20%22%3B%2Cc0#t1%3B%2C%22%20metropolitan%20%22%3B%2Cc0 September 2019.

simply a contraction of the term postmodern metropolis." (Latham, 2009: 227). It is a package of several post-prefixed terms which are postmodern, postindustrial, post-Fordist, post-Keynesian, poststructuralist, and postcolonial (Soja, 1997). The term is relatively new and not very widespread.

Metroplex is another term using the "metro" core-word. Metroplex is interestingly more widespread but predominantly utilized in engineering field. The peak year of the term was 1996 according to google books statistics[181] and after 2003 the frequency of the usage of the term started increasing again. According to Merriam-Webster the term is defined as "a large metropolitan area usually made up of two or more cities along with neighboring heavily populated areas" and with this constellation like settlement pattern, is similar to the term conurbation. The term is derived from the metropolitan complex (Strange – Kenneth and Mangum Jr., 1980). Data management, aviation (air and land controls for multiple number of airports within one single interrelated metroplex) are some fields that the term is utilized (e.g. Atkins, 2008). As the "multimodal metropolis", metroplex signifies the paradigm shift from the monocentric urban settlements to multicentered metropolitan areas (Waddell and Shukla, 1993).

Urban agglomeration term usage was peaked back in 1976 and then the usage frequency decreased[182]. The word agglomeration refers to the agglomeration of capital, people and functions in general and by itself also bears the meaning of urban areas: "a large, densely and contiguously populated area consisting of a city and its suburbs" (Merriam-Webster). Urban agglomeration term refers both to urban settlement as an element of settlement pattern and the multi-centered constellation-like urban form of metropolitan areas.

Conurbation, coined by Patrick Geddes in 1915 (Blumenfeld, 1949) is defined as "an aggregation or continuous network of urban communities" (Merriam-Webster). 1950s and 1960s were the peak years where the term was relatively popular, then its usage started declining according to google books statistics[183]. The term is popularly used to define the urban

[181] https://books.google.com/ngrams/graph?content=%22metroplex%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20metroplex%20%22%3B%2Cc0#t1%3B%2C%22%20metroplex%20%22%3B%2Cc0 September 2019.

[182] https://books.google.com/ngrams/graph?content=%22urban+agglomeration%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20urban%20agglomeration%20%22%3B%2Cc0#t1%3B%2C%22%20urban%20agglomeration%20%22%3B%2Cc0 September 2019.

[183] https://books.google.com/ngrams/graph?content=%22conurbation%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20conurbation%20%22%3B%2Cc0#t1%3B%2C%22%20conurbation%20%22%3B%2Cc0 September 2019.

agglomeration of Amsterdam – Rotterdam - Den Haag – Utrecht - Dordrecht – Hilversum – Harlem – Leiden[184] known as Randstad (ring city) conurbation.

City-region is another term that refers to the extended metropolitan areas with different urban nodes connected to each other. The usage of the term peaked in 1970 in academic books[185]. The term city-region is tied to the global cities and the world cities discourse and the theoretical positions defined by Sassen and Taylor (Roy, 2009: 824). The term first coined by Patrick Geddes, then used by Christaller in his famous central place theory and Lewis Mumford (Coombes, 2014; Watson, 2019[186]). "An extensive and functionally interconnected cluster of urban centres that is developing around the world's major cities" is one definition referring to the "world city" characteristic of the term (Pain, 2008: 25). The introduction of the term is parallel to the emergence of regional planning within a Keynesian public policy context (Watson, 2019).

Megalopolis is among oldest terms among these used to define the extended urban settlement areas. The frequency of the term in google books peaked in 1930s and late 1960s[187]. The term coined within Hellenistic literature and culture similar to metropolis. According to Merriam-Webster dictionary, it has two meanings: "a very large city" and "a thickly populated region centering in a metropolis or embracing several metropolises"[188]. With the evolution of the cities in 20th century, the second meaning (multi-nodal agglomerated metropolises) became dominant in the utilization of the term (Lang and Knox, 2009: 791). Lang and Hall (2008) categorized the urban realms within a megalopolis into four groups: urban core realms (city cores, CBDs, downtowns, historic centers), favored quarter realms (gated communities, upper income shopping malls and residential areas), maturing suburban realms (the peripheries of old core cities and previous generations of suburban areas now under impact of rapid infill development), emerging exurban realms (newly sprawling areas with leapfrog development and ribbon development) (Lang and Knox, 2009: 792).

[184] https://www.britannica.com/place/Randstad October, 2019.

[185] https://books.google.com/ngrams/graph?content=%22city-region%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20city%20-%20region%20%22%3B%2Cc0#t1%3B%2C%22%20city%20-%20region%20%22%3B%2Cc0 September 2019.

[186] https://www.futurelearn.com/courses/african-cities/0/steps/48347

[187] https://books.google.com/ngrams/graph?content=%22megalopolis%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20megalopolis%20%22%3B%2Cc0#t1%3B%2C%22%20megalopolis%20%22%3B%2Cc0

[188] https://www.merriam-webster.com/dictionary/megalopolis

Megacity is another version of megalopolis using the same "mega" prefix and defined as the first meaning of megalopolis "a very large city"[189]. The peak year of frequency of the word in google books was 1999 and then frequency started decreasing[190]. Megacities are a part of the discourse especially in peripheral, underdeveloped countries due to rapidly growing cities in this realm (Richardson, 1989; Brennan and Richardson, 1989). The usual signifier of a megacity is a large metropolitan urban population.

The last term is **primate city** which is among the least used terms for extended areas of large urban settlements, and the context of utilization for the primate city term is history of urban settlements and underdeveloped peripheral countries. Primate city refers to settlement hierarchies within national and regional contexts and city size-ranks with reference to the population of cities (Portes, 1989; Henderson, 2002). Primate cities are by far the largest cities in countries where a significant percentage of that country's population dwells in and a good example is Istanbul with its population consisting of one sixth of whole Turkey.

[189] https://www.merriam-webster.com/dictionary/megacity

[190] https://books.google.com/ngrams/graph?content=%22megacity%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20megacity%20%22%3B%2Cc0#t1%3B%2C%22%20megacity%20%22%3B%2Cc0

B. DEFINITIONS OF THE TERMS USED TO DESCRIBE PERIPHERAL ZONES OF THE URBAN SETTLEMENTS

Suburb/suburban is among the oldest and most widespread ones and according to google books, the word most frequently used in books published between 1970-1973. These dates interestingly and expectedly coincided with the automobile-dependent suburban boom between 1950 and 1970 in the US and the 1970s oil crisis marks the end of the suburban era and made the problem of captive riding visible in US urbanization. Suburb is defined as "an outlying part of a city or town" and "the residential area on the outskirts of a city or large town" (Merriam-Webster). One implied meaning of the sub- prefix is "less than" (e.g. subpar) referring inferiority, even though this is not the case in suburb and suburban (where sub- prefix refers to the surroundings, nearby and environs) (Merriam-Webster) it is still interesting. Suburban areas are usually less "urban", less concentrated and less accessible; less than urban in nearly all aspects that make city a city. This definition by Woodbury, C. (1955) is illustrative in terms of 'sub' characteristics of suburbs: "Suburbs […] are simply forms of land use and development, together with the concomitant political, economic and social forms and attitudes, that take place relatively near to but outside of sizable cities and that are influenced materially by the economy and ways of life of these central cities" (Woodbury, 1955: 2).

Peri-urban is the second term used to define peripheral areas of urban settlements. 1980s and early 2000s were the years when the term was popular among scholars[191]. Peri-urban is defined as "of or relating to an area immediately surrounding a city or town" (Merriam-Webster) and is predominantly utilized in African context. Sometimes used as peri-urban interface (also see urban-rural interface and rural-urban interface), the term is used to define areas "usually characterized by either the loss of "rural" aspects (loss of fertile soil, agricultural land, natural landscape, etc.) or the lack of "urban" attributes (low density, lack of accessibility, lack of services and infrastructure, etc.) […] [and] areas with mixed rural and urban features" (Allen, 2003: 136).

Urban Fringe (also rural-urban fringe and urban-rural fringe) is the third term used to define the same zone. The peak years of the usage of the term was 1960s and the 1970s

[191] https://books.google.com/ngrams/graph?content=%22peri-urban%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20peri%20-%20urban%20%22%3B%2Cc0#t1%3B%2C%22%20peri%20-%20urban%20%22%3B%2Cc0

and the popularity of the term in google books is decreasing[192]. Urban fringe refers to "rural territory pierced by finger-like projections of urbanized land uses" and these "finger-like projections" stem from either ribbon, oil-stain or leapfrog development (urban sprawl) (Wehrwein, 1942: 223). In other words, urban fringe not only refers to a zone within an urban settlement and urban geography, but also a specific form of urban development.

Urban periphery is another term used for the same area and defined as both the marginal areas of a whole and the zone beyond the limits (Merriam-Webster). Urban periphery is similar to peri-urban where peri itself comes from periphery. Some define urban periphery as "as the source of primary commodities and products from agriculture, forestry, recreation and mining" (Maki, 1994 as quoted in Raab and Lichty, 2002: 580). In other words, periphery here refers to the perimeter of an urban area surrounding it but not included in it and predominantly remaining non-urban in terms of land use. It is also among the terms utilized in this study within a dual structure and scale. In provincial scale, it is used as provincial periphery to refer to peripheral districts (with their urban and rural land uses and extended areas) on the peripheral parts of the provincial (administrative and massive) boundary while in urban scale, it is used as urban periphery and peri-urban to refer to the peripheral areas of the urban settlement of the city of Konya.

Urban shadow is another term used for these twilight transition zones. Early 1960s were the years where this term mostly used and it is nearly forgotten afterwards[193]. The term is re-purposed and today it is used as an element of post-colonial urban theory studying on the shadows cast by Euro-American centric urban theories over the peripheral/underdeveloped/southern countries' cities (Mcfarlane, 2008). Urban shadow term is used as an element of categorization for countryside and rural areas in some cases (e.g. Hedlund, 2016) yet the widespread usage refers to periurban/suburban areas (e.g. Sharma and Chandrasekhar, 2014).

Rurban is another keyword referring to more or less the same concept. The term dates back to 1915 and as the amalgam of urban and rural is defined as "of, relating to, or constituting an area which is chiefly residential but where some farming is carried on" (Merriam-Webster). "A rurban context is the connecting point between the centre (a city) and the periphery (a farm or a village)" with a juxtaposed mixture of urban and rural land use elements (Cattaneo and

[192]https://books.google.com/ngrams/graph?content=%22urban+fringe%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20urban%20fringe%20%22%3B%2Cc0#t1%3B%2C%22%20urban%20fringe%20%22%3B%2Cc0

[193]https://books.google.com/ngrams/graph?content=%22urban+shadow%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20urban%20shadow%20%22%3B%2Cc0#t1%3B%2C%22%20urban%20shadow%20%22%3B%2Cc0

Gavalda, 2010: 582). According to google books, 1946 was the year when the term most frequently used[194]. The term is used by European Union as well.

Rural-urban interface and/or **urban-rural interface** are the two terms used for the peripheral parts of urban settlements and the meaning of interface, "the place or area at which different things meet and communicate with or affect each other" refers to the urban-rural dichotomy and divide. These two are among the terms suggesting a strong separation and a duality between urban and rural while also solidifying them in a clear-cut fashion and for the juxtaposed transition zones among these two distinct categories of land uses, they suggest the term 'interface' to keep up with the rural-urban continuum. There are several definitions of rural-urban interface referring to the different characteristics of the zone; some of them are quoted below:"rural-urban interface is an interstitial zone that is dense in social, political, and economic relationships" (Lichter and Brown, 2011: 584), "The Rural-Urban-Interface (RUI) is a complex landscape that includes both rural and urban land uses and is socially and economically connected to an urban core" (Inwood, 2017: 2), "It is the development of acreages, commonly between 3 and 20 acres in size, located within commuting distance of an urban center, and characterized by a residence that is occupied on a permanent basis" (Moncrieff and Phillips, 1972: 80).

The rural-urban interface is more rural centered focusing on rural change while urban-rural interface is more urban centered focusing on sprawl dynamics. Rural-urban interface is predominantly utilized in social sciences while urban-rural interface is predominantly used in environmental sciences (see Appendix 3) and since the tendency to define is higher in social sciences there are plenty of definitions for rural-urban interface while there are significantly less for urban-rural interface since environmental sciences are not about defining the terms but rather empirically analyzing them.

Urban-rural transition and/or **rural-urban transition** are the dual terms used to name the same zones of urban settlements with similar references to urban-rural divide and urban-rural dichotomy. Transition and interface are complementary terms sharing similar epistemology and hence the texts utilizing them are overlapping to some degree. Transition in these terms, to a degree, also refers to rural-urban transformation with an emphasis on the process of transformation from rural to urban (McGee, 2008).

Edge city, the next term used for similar zones is a little different from the terms described above. All terms above were referring to different forms of urban sprawl

[194]https://books.google.com/ngrams/graph?content=%22rurban%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20rurban%20%22%3B%2Cc0#t1%3B%2C%22%20rurban%20%22%3B%2Cc0

surrounding the core cities. Edge city, on the other hand, refers to "a suburb that has developed its own political, economic, and commercial base independent of the central city" (Merriam-Webster) and hence even though the city is still decentralized, the development follows a centralized fashion with sub-centers. The usage of the term peaked in 1997-1999 according to google books, and decreased onward. The difference between edge city and the satellite town is the distance between the settlement and the metropolitan city. The distance between the edge city and the metropolitan city is so close that it is hard to define where one ends and the other one begins. "An edge city is a planned controlled entity with 'not only patterns and rules but limits to its growth'" (Garreau, 1991 as quoted in Henderson and Mitra, 1996: 614) and the term emphasizes different elements of suburbanization process such as segregation and the planned urban sprawl (Henderson and Mitra, 1996; Yaşar, 2010).

Leapfrog development,(Woodruff and Frink, 1980) differently from the keywords analyzed above, refers to a specific form of urban growth and urban sprawl while at the same time referring to the periurban zone of an urban settlement. "the development of lands in a manner requiring the extension of public facilities" is the legal definition of the term[195] while it is defined as the form of urban sprawl in rural-urban fringe (Hovinen, 1977: 199). Leapfrog development is also among three forms of urban development defined by Mills (1981) based on Von Thunen's monocentric city and urban sprawl. These three forms of sprawl are: leapfrog development, scattered development and mixed development and leapfrog development is defined as a developed area that is separated from the monocentric settlement with a von Thünen ring of undeveloped land and in a radial discontinuity (while two other forms in a circumferential discontinuity) (Mills, 1981: 201-202).

Penturbia, the last term analyzed within this category, is the least used one. The term is coined by Lessinger in 1986 to define "Small towns that lie beyond city suburbs, viewed collectively"[196] where urbia comes from suburbia and pent- comes from five in Greek referring to "the fifth great migration since the Revolutionary War" (Lessinger, 1986 as quoted in Spencer, 1987 August 20). Therefore, this term refers to the small-scale settlements located on the zones surrounding suburbs.

[195] https://definitions.uslegal.com/l/leapfrog-development/ accessed Oct. 2019.

[196] https://en.wiktionary.org/wiki/penturbia

C. TERMS USED TO DESCRIBE THE OUTER, FAR-PERIPHERAL AND RURAL SETTLEMENTS

Apart from rural, the most widespread word used for a part of this zone is **exurban/exurbia/exurbs** and the usage of the term peaked 1958 and after that point the frequency started fluctuating[197]. The term is defined as "a region or settlement that lies outside a city and usually beyond its suburbs and that often is inhabited chiefly by well-to-do families" in Merriam-Webster and as "the unorganized fringe area beyond the suburbs" by Strauss (1960: 15). Exurbia is defined within the context of **interurbia** a name given to urban strips conurbation on the east coast of the United States (Willem,1958: 25; Strauss, 1959: 24). Exurbia, in relation with interurbia/conurbation is defined as the areas that are not located in the denser urban strips, but rather very low density parts of urban regions, still carrying rural characteristics while the residents are commuting to work located in not necessarily the cities but small towns within the conurbations (Strauss, 1960: 24). The difference between exurban and rural is the word's urban centered perspective and the strong ties of the zone with the urban areas despite the distance.

Satellite town is another term utilized for this zone in some cases. The term is defined as "a usually independent urban community situated near but not immediately adjacent to a large city" (Merriam-Webster) and the term was popular in 1920s and 1950s, after these years, the popularity has decreased[198]. Another parallel term used for the same phenomenon is **dormitory town** and in both cases the towns are not independent and they are located within a daily commuting distance to a metropolitan city (Golany, 1976).

The third term that will be analyzed within this category is **deep rural** referring to the zone lying beyond even the exurbia. The term is a part of rural typology utilized by European Union to analyze the geography and making policies accordingly. In this categorization the land beyond peri-urban areas is divided into two categories, rural and deep rural depending on their accessibility and economic density[199].

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[197] https://books.google.com/ngrams/graph?content=%22exurban%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20exurban%20%22%3B%2Cc0#t1%3B%2C%22%20exurban%20%22%3B%2Cc0 accessed Oct. 2019.

[198] https://books.google.com/ngrams/graph?content=%22satellite+town%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20satellite%20town%20%22%3B%2Cc0#t1%3B%2C%22%20satellite%20town%20%22%3B%2Cc0

[199] Source: Van Eupen et al., 2012: 476.

D. TERMS DEFINING THE PROBLEM

The most popular one is **urban sprawl** and is defined as "the spreading of urban developments (such as houses and shopping centers) on undeveloped land near a city" (Merriam-Webster). Early 1970s were the years when the term was the most popular, then the popularity started falling[200]. The term urban sprawl is mostly associated with United States and recently with China alongside other countries (Barrington-Leigh and Millard-Ball, 2015: 8244) (for a detailed view of urban sprawl in these two cases see Chapter 3). In the urban sprawl literature, the term is empirically linked with "greater vehicle travel, material use, energy consumption, and greenhouse gas emissions" and relatively less empirically but still linked with reductions in social capital, public health issues like obesity (Barrington-Leigh and Millard-Ball, 2015: 8244).

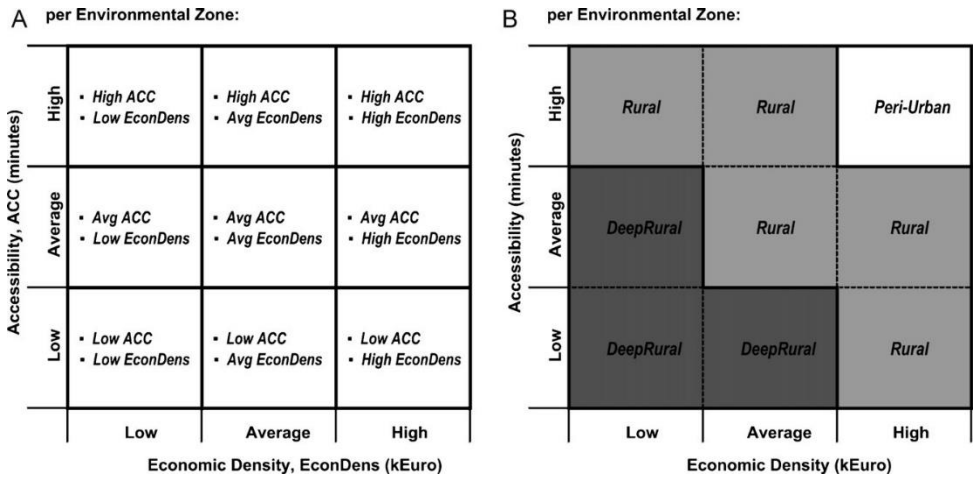

Figure 202 Classification of Land in Europe: A Rural Typology for Strategic European Policies

According to Galster et al. (2001) there are six ways of defining sprawl, the first one is by exemplifying, the second one is as an aesthetic perception of urban development, the third one is as a reason for captive riding, spatial segregation and environmental crisis, the fourth one is as a consequence of poor urban policy, planning or zoning, the fifth one is as existing characteristics of urban development and the last one is as a process in time describing

[200] https://books.google.com/ngrams/graph?content=%22urban+sprawl%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20urban%20sprawl%20%22%3B%2Cc0#t1%3B%2C%22%20urban%20sprawl%20%22%3B%2Cc0 Accessed Oct. 2019.

the expansion of urban area (Galster et al., 2001: 682-683). Galster also proposed eight dimensions of land use signifying urban sprawl; these dimensions are: density, continuity, concentration, clustering, centrality, nuclearity, mixed uses and proximity (Galster et al., 2001: 687-698). The problems attributed to urban sprawl are: increasing air pollution especially by car, the people moving out for clean air ironically creates more air pollution with driving dramatically more in the suburbs, obesity by using car and nowhere to walk and decreasing varieties in flora and fauna, declines in biodiversity (Schmidt, 2004: A623-A625) by consumption of excess land.

The second term referring to the same phenomenon is **suburbanization** and the usage of the term describing the process of urban expansion in the form of suburbs was peaked back in early 1970s[201]. Suburbanization is "the complex and changing process that results in suburbs" (Woodbury, 1955: 2) and the phenomenon was a characteristic of postwar urban development since 1950s (Kain, 1968). The case of United States is unique in suburbanization phenomenon, with a decreasing density in the core city and decentralizing jobs, offices, public administration facilities and the racial segregation becoming more visible in urban space (Kain, 1968). The main characteristic of postwar suburbanization was the increasing car dependency and the sprawled form (urban sprawl) captive riding brought with it (Sagaguchi, 1963).

Counterurbanization is the third term for the spatial results of the movement of population within cities, transforming the boundaries of cities. Counterurbanization, in contrast with suburbanization, focuses on the decreasing population in core cities and the decreasing densities in existing and new neighborhoods. The term was popular in 1980s yet it is seldomly used today[202]. The term basically defines the same process with suburbanization but with a focus on the changes in core cities and defined as the "movement away from cities, including suburbanization, exurbanization, or movement to rural areas"[203]. Counterurbanization term was attributed with distribution of population over geography, settlement pattern deconcentration referring to (downward) migration in other words by some

[201] https://books.google.com/ngrams/graph?content=%22suburbanization%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20suburbanization%20%22%3B%2Cc0#t1%3B%2C%22%20suburbanization%20%22%3B%2Cc0 accessed Oct. 2019

[202] https://books.google.com/ngrams/graph?content=%22counterurbanization%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20counterurbanization%20%22%3B%2Cc0#t1%3B%2C%22%20counterurbanization%20%22%3B%2Cc0 accessed Oct. 2019.

[203] https://socialsci.libretexts.org/Bookshelves/Sociology/Book%3A_Sociology_(Boundless)/17%3A_Population_and_Urbanization/17.5%3A_Urban_Problems_and_Policy/17.5E%3A_Shrinking_Cities_and_Counter-Urbanization accessed Oct. 2019.

scholars, while some considered the term as the "antithesis of urbanization" (Mitchell, 2004: 17). "Rural gentrification" (exurbanization) referring to the changes in rural areas via the population movement changing the settlement pattern geography is also considered on of the essential elements of Counterurbanization (Gosnell and Abrams, 2011: 310). Champion (1989) on the other hand, positions the term counterurbanization in a larger scale and the redistribution of population within a single metropolitan area cannot be considered as counterurbanization even though the density of the core city decreases with suburbanization.

Peri-urbanization is the fourth term which has a meaning closer to suburbanization. It is defined as partial urbanization of a rural area (OECD, 1979: 10). The term is differentiated from urbanization, associated with urban fringe in relation with population and density, and has a negative connotation (Iaquinta and Drescher, 2000: 10). Peri-urbanization is considered as the "spatial development beyond the urban fringes" (Zasada et al., 2011: 59). For some authors, the term peri-urbanization is differentiated from urban sprawl with the emergence of the process and the origin of development: "peri-urbanisation most often results from the urbanisation of rural municipalities, not the spread of urban zones to immediately adjacent areas" where the latter is defined as urban sprawl (Charmes, 2015[204]). In other words, the term is used for peripheral urbanization surrounding the rural settlements located on the edge of or near (large) cities. It might result with leapfrog development following old settlement patterns, or urban sprawl via cities swallowing villages, or villages becoming satellite towns. Urban sprawl might or might not be the result of peri-urbanization.

Rurbanization is the next term that can be studied under this category, the terms referring to problems and phenomena. The term first used in early 1900s, Sorokin (1929) was the one who introduced the word to the sociology realm in his Rural-Urban Sociology and within the "agrarian question" becoming dominant in rural sociology due to the industrial revolution, mass rural-to-urban migration and massive population increase in rural areas (Nikulin and Trotsuk, 2018). The usage of the term in books peaked in 1932[205] yet the meaning of the term varies from geography to geography and within time. In some cases, it is defined as the process of development that resembles urbanization in rural areas (e.g. Ramesh, 2018) while in some other it is the process of development taking place between urban and rural areas in a mixed fashion (e.g. Kolhe and Dhote, 2016), in Sorokin's introductory study on the other hand, the term is used as the mixing together of urban and rural societies creating "a type

[204] http://www.citego.org/bdf_dossier-7_en.html

[205] https://books.google.com/ngrams/graph?content=%22rurbanization%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20rurbanization%20%22%3B%2Cc0#t1%3B%2C%22%20rurbanization%20%22%3B%2Cc0 accessed Oct. 2019.

of rurban society" (Sorokin et al., 1932, 642 as quoted in Nikulin and Trotsuk, 2018). Today, the term is even used as the backwards population movement from urban to rural areas (Holleran, 2014)[206].

Diffuse urbanization is the least used term in this category and used for the "urbanization of territory" extending in time and space meanwhile "metropolitan dissolution" is taking place (Santos, 1993 and Lefevbre, 2003 as quoted in Trindade Junior, 2015: 95). This term rather refers to the distribution of the phenomenon of urbanization over the geography, and with the adjective diffuse, it refers to a dispersed rather than concentrated distribution. Both urban sprawl and urbanization of rural settlements are considered as diffuse urbanization in a complementary fashion (Swerts et al., 2018: 252). Diffuse urbanization with its dispersed nature is attributed to another term that will be analyzed under this category: planetary urbanization based on Lefevbre's thesis on complete urbanization (Trindade Junior, 2015).

The two contemporary popular debates going on in urbanization and urban growth are the **Urban Age** (London School of Economics based) and the **Planetary Urbanization** (Harvard based). These two kernels, working on urban agglomerations, urbanization in global scale and the network of cities worldwide focuses on process of urbanization in a planetary/global scale. In the **Urban age**, only major cities, the world cities are concerned; the rest, namely small scale, towns, counties, villages are neglected. Competitiveness and individualistic metropolitan cities are polished. The main point of departure for the urban age thesis is the majority of population now residing in urban areas (e.g. Soja, 2000; Champion and Hugo, 2004; Davis, 2006; UN, Urban and Rural Areas, 2009[207]; Derickson, 2014). This population breakpoint is a 'watershed in human history' and implies a larger and a more structural change towards urban (Davis, 2006 as quoted in Derickson, 2014: 1; Derickson, 2014: 1). Urban age also refers to the term Anthropocene "an epoch in which human ambition dominated, reshaped and injured the planetary natural order" with a strong emphasis on growing metropolitan/world cities (Gleeson, 2012: 940).

Planetary urbanization on the other hand, paints everywhere in the color of urban with reference to Levefbre's "complete urbanization of the society" (Lefevbre, 2003 as quoted in Derickson, 2014: 2). This planetary urbanization term is suggested by regulation theorists within the Marxist approach for both urban studies and for understanding "capitalism, industrialization and the possibilities of revolutionary politics unfolding at the 'planetary' scale" (Derickson, 2014: 2). The process of urbanization became "a global condition rather

[206]https://www.dissentmagazine.org/online_articles/neo-rurals-spain-lost-generation-economic-crash-rurbanization accessed Oct. 2019.

[207]https://www.un.org/en/development/desa/population/publications/urbanization/urban-rural.asp

than simply a ‘way of life’ that is confined to certain types of settlement space as opposed to others” and what is urban “is not a universal form but a historical process” (Brenner and Schmid, 2014: 743, 751). With the process of urbanization taking place in the society, the space of urbanization cannot be confined to cities or urban settlements solely, since its dispersed with “implosions-explosions” over the geography and the society with an uneven fashion and in planetary scale (Brenner, 2013: 94).

The remaining three terms are not focusing on urbanization and urban growth but rather consumption of agricultural land and urbanization on the agricultural land. The first one of this group is **land loss/agricultural land loss** and even though the term land loss is predominantly used for coastal erosion, the land on the coast that is lost to an open water, it is also used for the land lost for urban land uses. The term is on the intersection of agricultural policy research and rural geography and while problematizing urbanization, land loss refers to the land use shifts from rural to urban (Cloke, 1980). Urban expansion caused agricultural land loss is higher in underdeveloped countries while in developed and advanced ones it is relatively lower (Azadi, 2010: 603). China is among the most dramatic cases of agricultural land loss studies with rapid urban expansion and rurbanization causing massive scale loss of agricultural land that even threatens food security (Shi et al., 2016: 790).

Land consumption is the next term referring to the same phenomenon: loss of agricultural land. Consumption of land (per-capita) is used as a variable in the sprawl index produced by Environmental Protection Agency of United States and urban sprawl studies utilizing a metric perspective (Kahn, 2000: 574; Inostroza et al., 2013). The problem referred here with this term is not the “inevitable” growth of cities dependent on population increase but rather the increasing amount of land utilized: “more land is used to accommodate the same function” (Boyce, 1963: 19). Similar to land loss, land consumption implies urban sprawl, suburbanization, urban expansion and production of urban space. Consumption of land term is ontologically compatible with production of space terminology of Lefevbre and Marxist approach.

Farmland conversion is the last term to be analyzed within this category and with a rural centered perspective the term focuses on the conversion of agriculturally used land into urban land uses in its general meaning. The term is articulated with urban economics and (agricultural) land rent (Livanis, 2006). Farmland preservation via especially zoning is the other side of the coin and in the case of United States taxing policies and transfer of development rights are also measures taken against this phenomenon (Forkenbrock and Fisher, 1980).

E. THE DEFINITIONS OF THE TERMS FOR PLANNING AND CONSERVATION

The most widespread one is **regional planning** aiming to plan both urban and rural areas, and urban and rural land uses. The term is in use since early 1900s and the frequency peaked 1946, 1959 and 1971 according to google books[208]. Regional planning, unlike strategic planning, is closer to the comprehensive planning with a larger geography covered and the process starts with defining the regions based on different characteristics, variables and flows and in the earlier years of the regional planning "a real plan [was] a discovery not an invention" regarding the urbanization and population increase as natural phenomena (Mackaye, 1928: 294-5). Regional planning can be defined as "applying the principles of design to the development of a city or group of towns, and to the surrounding area which is influenced by that development" (Unwin, 1929: 229). Regional planning term is utilized by plenty of fields and perspectives, two prominent ones are new regionalism promoting regional governance and rescaling the state spaces (Macleod and Goodwin, 1999) and urban metabolism focusing on flows within and between city-regions (Kennedy et al., 2007).

The second most frequently used term for planning and conservation in relation with production of space and agricultural production is **rural planning** which is the spatial one of the two central elements of rural policy while the other one being sectoral (agricultural) policy (Iowe et al., 1993: 207). Rural development is tied to rural planning in majority of plans and studies yet the problem of "Thinking, valuing and planning the countryside is done mainly by urbanites and future rural development is mainly focused upon the urban needs" is a still valid problem (Antrop, 2004: 9). Rural planning, the planning of the countryside has two visible school of thoughts in terms of physical environment produced: one is the sentimentalists romanticizing the villages and the others are the realists accepting the transformation of villages as inevitable and needed Kidd, 1950: 634).

The third term is **metropolitan planning** which is also widespread in the Turkish case due to the metropolitan cities gaining ground in both legal framework and the planning discourse. Metropolitan planning specifically refers to the extended areas of metropolitan cities. Globalized neoliberalism, urban managerial entrepreneurialism, and reterritorialization

[208] https://books.google.com/ngrams/graph?content=%22regional+planning%22&year_start=1800&year_end=2008&corpus=15&smoothing=3&share=&direct_url=t1%3B%2C%22%20regional%20planning%20%22%3B%2Cc0#t1%3B%2C%22%20regional%20planning%20%22%3B%2Cc0 accessed oct. 2019.

of state underlining the metropolitan scale are the drivers behind the metropolitan planning discourse (Mcguirk, 2005: 60). The term today accompanies "the neoliberal restructuring of the local state" and in some cases deregulation of zoning and deregulation in urban policy framework as well (Kipfer and Keil, 2002: 244). The metropolitan scale planning is articulated to rescaling of state since "Large metropolitan area planning studies for land development and transportation are drawing upon federal and state funds and experience" (Mitchell, 1961: 170).

Agricultural planning is the next term to be analyzed within this category, and the planning of agriculture is ontologically different by other types of planning and conservation tools under this category since it refers to a sector rather than a scale or space. agricultural land uses, production patterns, regional specializations of production, and scale of production are elements of agricultural planning (Sicular, 1988). Agricultural planning, and the monoculture agriculture in massive scale of regions and product belts went hand in hand in the past (e.g. Saville, 1935; Johnston, 1935; Vass, 1935; Grimes, 1935) which now creates visible problems in sustaining agricultural production and preserving nature. The meaning of agricultural planning is twofold, the first one refers to the sectoral economic planning in other words "planned agricultural economy" and the second one refers to the national scale planning referring to the distribution of natural resources including water and soil among urban and agricultural land uses (Mann, 1935: 32).

Agricultural conservation referring to the conservation of land utilized for agricultural purposes is the next term under this category. Land conservation refers to both conservation of natural land and agricultural land separately since agricultural production also has elements that are conflicting natural preservation. Conserving land for agricultural production refers to two core elements: "the first is the prevention of erosion and the second, the return to the soil of those elements essential for plant life" for sustaining agricultural production (Wilson, 1937: 4). The contemporary meaning of the term agricultural conservation was transformed into "to reduce impact of diffuse pollutant export from agricultural landscapes", usage of water resources and preserving the soil with no-tillage like policies (Ullrich and Volk, 2009 as quoted in Wagena and Easton, 2018: 133). Today, it has transformed into a tool that can be used even for coping with and acting against climate change (Wagena and Easton, 2018).

Conservation agriculture, a new term used by FAO and agricultural policy-makers in the Netherlands redefines the relationship between agriculture and conservation and aims to conserve (the nature) while being agriculturally productive. Conservation agriculture has three core elements which are "maintenance of a permanent soil cover, minimum soil

disturbance (i.e. no tillage), and diversification of plant species" (FAO, 2019)[209] and unlike agricultural planning encouraging monoculture (product belts) conservation agriculture encourages multi-culture in production patterns.

Agricultural land preservation/Agricultural preservation refers to the prevention of farmland conversion into urban land uses which is different from the conservation of agricultural land focusing on agricultural production itself and the agricultural qualities of land (Duke and Ilvento, 2004). Agricultural land preservation is a matter of land use planning and zoning (Duke and Ilvento, 2004) and a significant element of comprehensive planning and regional planning. Transfer of development rights and taxing policies to limit urban growth on the edge of growing cities are also relevant for agricultural preservation alongside the problem of urban sprawl (Duke and Ilvento, 2004; Peterson and McCarthy, 1977). There are plenty of tools for farmland preservation especially in the case of United States and plenty of these methods are defined clearly and technically (See Johnston and Duke, 2007).

Agropolitan approach is the last term in this category and it is the least frequently used one. Agropolitan approach as "a territorial model of planning" predominantly focuses on development and emphasizes the significance of "linking a self-generated process of dynamic change from within agricultural communities to the larger processes of central guidance by the state" (Friedman, 1985: 155). Friedman coined the term back in 1978 and the usage of the term remained limited. Agropolitan development, according to Friedman is tied to modular urbanization and planning from below while aiming the rural development and overcoming the uneven development within urban and rural areas (Friedman, 1979: Friedman, 1985).

[209] http://www.fao.org/conservation-agriculture/en/

F. AN APPLICATION OF THE RICARDIAN RENT THEORY

To illustrate the theory at work, I have applied the formula of Ricardo to the wheat market in Turkey, in 2018. Four equal plots of land in the same region with different levels of productivity are compared to each other and the amount of rent is put forward with reference to the market price and the production cost of wheat. With a fixed land size, the rent is determined with the difference between the total market value of the product minus the total cost of product for the least fertile land solidified in this case as 45000 which is the multiplication of 100 decares (the fixed land size) with 450 TL cost per decares in the year 2018. Hence, the formula for rent under these conditions is:

Rent = [Amount of Production (tons) x market value of 1 ton (TL)] – [size of land (decares) x cost of production per decare (TL)]

If this is negative, the production stops. If Rent is equal to zero, that land is marginal land which determines the basic cost of production per decare and if it is a positive number, then the land is more fertile and productive than the marginal land.

Table.x Rent, Production and Market Price in Ricardo applied in Wheat Production in Turkey.

Degree of Land	Land Size (decares)	Amount of Production (tons)	Total Cost of Production (TL) (for 100 Decares)	Total Market Value of Production (TL)	Status of Land	Rent (TL)
1st	100	75	45000	84375	Above-Marginal Land	39375
2nd	100	60	45000	67500	Above-Marginal Land	22500
3rd	100	40	45000	45000	Marginal Land (no rent)	0
4th	100	30	45000	33750	Below-Marginal Land	-11250

The two lesser degree lands, 3rd and 4th are where production stops. The cost of production of wheat is determined by the costs of the marginal producer according to Ricardo, and for this marginal producer the rent is zero. “When land of an inferior quality is taken into cultivation, the exchangeable value of raw produce will rise, because more labour is required to produce it.” (Ricardo, 1821: 43) and “The reason then, why raw produce rises in comparative value, is because more labor is employed in the production of the last portion obtained, and not because a rent is paid to the landlord” (Ricardo, 1821: 44). With this, Ricardo concluded that the price of the wheat is determined by not the rent but rather the demand and the availability of fertile land. In the below marginal land, the production does not take place.

G. BID FUNCTION IN VON THUNEN

Bid function is determinant in von Thünen's understanding of rent: "farmers will bid rents for land according to the profitability of the location and the price of the agricultural product determines the rent, not the other way around (Geray et.al., 1973). The profits of the farmer will therefore be shared with the landowner through land payments" (Alonso, 1960: 150). Following Adam Smith, von Thünen attributed a central role to the competition in the market (over the land determining the rent). With the assumptions that fertility among plots and input and output prices, and friction of distances in all directions (from the city/core) are fixed, and the farmer can bid rent until his/her profit is zero. Then, the bid rent function is as follows:

> Rent = [Price of Product x Quantity of sold Product] – [non-transport and non-land production Costs] – [Transport costs per unit per km x Quantity of sold Product x Distance to the market in km]

With this function the maximum distance for each agricultural product can be calculated and illustrated in concentric zones. (Rural) land use and rent is determined simultaneously; the distance-based differentiation in rent is caused by concentration and scale of demand (in city center) and this is a social phenomenon nothing to do with landowner, and this surplus value (rent) is created not because of a creative act of the landowner but rather owning that land (Geray et.al., 1973).

H. LAND RENT IN ALONSO & MUTH AND MILLS

Alonso's assumptions are as follows: "for each user of land, […] a family of bid rent function is derived[…]; the equilibrium rent at any location is found by comparing the bids of the various potential users and choosing the highest; equilibrium quantities of land are found by selecting the proper bid rent curve for each user" (Alonso, 1960: 153).

The central observation of the cumulative model of Muth, Mills and Alonso was "commuting cost differences within an urban area must be balanced by differences in the price of living space" and this balance has several "implications for the spatial structure of the city (Brueckner, 1987: 821). Alonso's urban land use model consists of two forms of rent which are bid rent (agents willing to pay) and market rent (produced by the market with reference to efficiency) (Haila, 1990). Alonso assumed the consumption of land directly by individuals while Muth and Mills regarded it as an intermediate input of consumption in housing production (Brueckner, 1987). The differentiation of building height between the city core and the peripheral, suburban areas of the city is one of the most significant variables in these models and not only the distance from the core but also the amount of land consumed (for production of housing and other urban land uses) had taken into account (Brueckner, 1987; Geray et.al., 1973). The combined model of this trio "describe the equilibrium residential pattern (land rent, housing height, housing size) in a monocentric city" (Lai and Tsai, 2008: 537). In these studies, urban growth, the relative amounts of development is regarded as a function of land, land prices and land rent (Capozza and Helsley, 1989; Whitehand, 1972).

I. THE TABLE OF SPATIAL PLANNING HISTORY OF KONYA

Plans	Year	Target Year	Scale	Coverage	Authority	Scale of Authority	Planning Approach	Vision	Population Planned	population planned for city of Konya	Population Realized – City of Konya	Proposed Settlement Area – total (ha)	proposed settlement Area – City of Konya (ha)	Planning Area (ha)	Proposed Gross Density (pop/ha)	Strengths	Problems
Beautiful City Plan	1946	1965	1/2000	City	The Bank of Provinces	Central	Holistic – Comprehensive	Beautiful City (City-Beautiful)	75000	75000	150000	816	816	816	91,9	• compact, well-defined spine and heart for the city	• no regulations over the east, north-east and south-east ribbon-development sprawl zones; promoted development on west and south-west (on more fertile agricultural land and easier access to water), realized population exceeds planned population, neglecting agricultural production (zeitgeist)
Revision Plan	1954	1965	1/2000	City	The Bank of Provinces	Central	Partial	Meeting the demand for housing	*96000	*96000	150000	912	912	912	105,3	• continuity with the previous plan	• continuing the same problems with previous plan, encouraging development on southern axis, bus terminal location decision (on south-east) increasing the land development pressure on southern area
Konya Development Plan	1966	1985	1/5000	City	Competition Plan – The Bank of Provinces	Central	Holistic – Comprehensive	Industrial City, a city with two centers	480000	480000	439181	2380	2380	2380	249,5	• decreasing urban development pressure on southern fertile lands of the city, proposals preventing unauthorized housing, encouraging development on north and north-west axes, green corridor between the two centers	• some of the decisions did not get the chance to be applied such as green corridor between the new and the old center, realized population exceeds planned population
Environmental Plan	1984	2000	1/25000	City	The Bank of Provinces – Military Control	Central	Neoliberalism, Privatization, Developmentalism	Poli-centric metropolis and decentralization with sub-centers, linear corridor (north and north-west axes) industrial city	1300000	1300000	742690	12860	12860	12860	101	• encouraging development on the north axis, relatively larger area of control, but using all the land within the border for development	• aiming to replace agricultural production with industrial production with a heavily developmentalist view
Kon-Plan Metropolitan City Plan 2020	1999	2020	1/25000	City	Metropolitan Municipality	Local	Marketing the City-Competitive Cities	metropolitan city identity with mega infrastructure provisioned, industrial city	1805000	1805000	**1278195	29100	29100	29100	62	• encouraging development on the northern axis, three sub-centers, hierarchy for centers and sub-centers	• lack of compact urban form design for three proposed subcenters, neglecting agricultural production, planned population exceeds realized population**
Konya-Karaman 2025 1/100000 Environmental Plan	2013	2025	1/100000	Konya and Karaman Provinces	Ministry of Environment and Urbanization	Central	Marketing the City – Strategic	growth and development in a sustainable manner, higher quality of life	3940000	1900000	NA	157520	67077	4105000 ***	47,5	• planning most of Konya endorheic basin comprehensively, partially regulating development plans, greenbelt decision	• Planned population does not seem to match with the trend (decreasing rate of increase), two recent same scale same geography plans (2025 and 2043 plans)
Konya 2043 1/100000 Environmental Plan	2016	2043	1/100000	Province	Metropolitan Municipality	Local	Strategic – Developmentalism	higher quality of life with sustained sustainability both in urban and rural areas	3196000	2400000	NA	164709.5	71393	4105000	60.75	• Staged development principle, comprehensive and detailed view for both urban and rural areas in the planning area, planning most of Konya endorheic basin comprehensively, regulating older partial development plans and 1/25.000 regulatory development plans according to the plan	• Planned population does not seem to match with the trend (decreasing rate of increase), regarding plateau settlements same as rural settlements, two recent same scale same geography plans (2025 and 2043 plans)

J. 2025 ENVIRONMENTAL PLAN PROPOSED POPULATIONS

For 2017, calculated with adding the neighborhood populations of each central city of each district from TURKSTAT 2017 Census.

district	2000	2017	difference 2017-2000	change %	2013_2025 planned	difference (city-plan)	city/plan %
Ahırlı	5685	989	-4696	-82.60	13000	12011	1314.5
Akören	10946	2946	-8000	-73.09	29000	26054	984.4
Akşehir	60226	64644	4418	7.34	95000	30356	147.0
Altınekin	9145	3708	-5437	-59.45	26000	22292	701.2
Beyşehir	41312	42924	1612	3.90	84000	41076	195.7
Bozkır	10483	7864	-2619	-24.98	28000	20136	356.1
Çeltik	4692	3862	-830	-17.69	11000	7138	284.8
Cihanbeyli	18306	17232	-1074	-5.87	42000	24768	243.7
Çumra	42308	35486	-6822	-16.12	105000	69514	295.9
Derbent	7440	2355	-5085	-68.35	18000	15645	764.3
Derebucak	5072	1901	-3171	-62.52	11000	9099	578.6
Doğanhisar	9756	5139	-4617	-47.32	16000	10861	311.3
Emirgazi	8524	4713	-3811	-44.71	16000	11287	339.5
Ereğli	82633	110403	27770	33.61	152000	41597	137.7
Güneysınır	10217	4857	-5360	-52.46	26000	21143	535.3
Hadim	16620	3474	-13146	-79.10	37000	33526	1065.1
Halkapınar	2021	1453	-568	-28.10	5000	3547	344.1
Hüyük	8472	3200	-5272	-62.23	21000	17800	656.3
Ilgın	26698	31796	5098	19.10	53000	21204	166.7
Kadınhanı	14816	12595	-2221	-14.99	21000	8405	166.7
Karapınar	35285	34997	-288	-0.82	50000	15003	142.9
Kulu	28024	23533	-4491	-16.03	50000	26467	212.5
Sarayönü	10386	9106	-1280	-12.32	16000	6894	175.7
Seydişehir	48372	44409	-3963	-8.19	100000	55591	225.2
Taşkent	10779	1569	-9210	-85.44	21000	19431	1338.4
Tuzlukçu	5845	3366	-2479	-42.41	8000	4634	237.7
Yalıhüyük	5330	1383	-3947	-74.05	16000	14617	1156.9
Yunak	12734	8598	-4136	-32.48	29000	20402	337.3
Total / Average	**488502**		-63625	**-33.8**	1099000	610498	**479.1**

Sources: TURKSTAT Population Census 2000 and 2017, 2025 Konya-Karaman Environmental plan (Ministry of Environment and Urbanization, 2013)

K. 2043 ENVIRONMENTAL PLAN PROPOSED POPULATIONS

For 2017, calculated with adding the neighborhood populations of each central city of each district from TURKSTAT 2017 Census.

district	2000	2017	difference 2017-2000	change %	2016_2043 Planned	difference (city-plan)	city/plan %
Ahırlı	5685	989	-4696	-82.60	3000	2011	303.3
Akören	10946	2946	-8000	-73.09	7000	4054	237.6
Akşehir	60226	64644	4418	7.34	80000	15356	123.8
Altınekin	9145	3708	-5437	-59.45	7000	3292	188.8
Beyşehir	41312	42924	1612	3.90	75000	32076	174.7
Bozkır	10483	7864	-2619	-24.98	14000	6136	178.0
Çeltik	4692	3862	-830	-17.69	6000	2138	155.4
Cihanbeyli	18306	17232	-1074	-5.87	35000	17768	203.1
Çumra	42308	35486	-6822	-16.12	60000	24514	169.1
Derbent	7440	2355	-5085	-68.35	5000	2645	212.3
Derebucak	5072	1901	-3171	-62.52	5000	3099	263.0
Doğanhisar	9756	5139	-4617	-47.32	10000	4861	194.6
Emirgazi	8524	4713	-3811	-44.71	7000	2287	148.5
Ereğli	82633	110403	27770	33.61	175000	64597	158.5
Güneysınır	10217	4857	-5360	-52.46	6000	1143	123.5
Hadim	16620	3474	-13146	-79.10	5000	1526	143.9
Halkapınar	2021	1453	-568	-28.10	3000	1547	206.5
Hüyük	8472	3200	-5272	-62.23	7000	3800	218.8
Ilgın	26698	31796	5098	19.10	45000	13204	141.5
Kadınhanı	14816	12595	-2221	-14.99	20000	7405	158.8
Karapınar	35285	34997	-288	-0.82	50000	15003	142.9
Kulu	28024	23533	-4491	-16.03	40000	16467	170.0
Sarayönü	10386	9106	-1280	-12.32	15000	5894	164.7
Seydişehir	48372	44409	-3963	-8.19	75000	30591	168.9
Taşkent	10779	1569	-9210	-85.44	3000	1431	191.2
Tuzlukçu	5845	3366	-2479	-42.41	6000	2634	178.3
Yalıhüyük	5330	1383	-3947	-74.05	3000	1617	216.9
Yunak	12734	8598	-4136	-32.48	15000	6402	174.5
Total / Average		**488502**		**-33.8**	**782000**	**293498**	**160.1**

Sources: TURKSTAT Population Census 2000 and 2017, 2043 1/100000 Scale Konya Environmental Plan, Metropolitan Municipality, 2016.

L. URBAN SPRAWL MEASURES CALCULATIONS – COMPACTNESS INDEX

Roeck	Continuous – core settlement				
year	1989	2004	2014	2017	2021
r (km)	10,2	14,4	14,4	14,5	14,7
circle area	324,7	655,5	655,5	658,8	678,8
settlement area within radius	138,213096	223,11689	249,78505	259,780675	275
Roeck Ratio	0,43	0,34	0,38	0,39	0,41

Urban Form of City of Konya					
	2017	2014	2004	1989	2021
Convex Coverage Area	1120,013981	1042,9576	1042,9576	886,093814	2678145769
Convex Coverage Perimeter	121,778107	118,030142	118,030142	111,32356	198738
settlement area	281,881642	266,072081	239,857004	168,315755	169764525
convex hull ratio	0,25	0,26	0,23	0,19	0,11

Slope Compactness	2017	2014	2004	1989	2021
r (km)	14,5	14,4	14,4	10,2	14,5
maximum slope	79,00%	79,00%	79,00%	79,00%	79,00%
settlement area within radius	259,780675	249,78505	223,11689	138,213096	265
unsettled area below 40%	392,819325	392,81495	419,48311	185,386904	387,6
circle area	658,8	655,5	655,5	324,7	658,8
Slope below 40%	652,6	642,6	642,6	323,6	652,6

(45 Degree slope is equal to 100%)
percentage slope thresholds are the ones used in the plan 2016.

year	1989	2004	2014	2017	2021
cluster size class					
0-10 hectares	449	421	521	478	334
10-100 hectares	64	59	70	67	515
100-1000 hectares	14	9	9	10	118
1000-10000 hectares	0	1	1	1	18
Over 10000 hectares	1	1	1	1	2
cluster size class (Number of clusters/polygons according to their sizes in hectares)					
percentage of each class area	1989	2004	2014	2017	2021
0-10 hectares	3,7	3,4	3,8	3,7	0,5
10-100 hectares	12,4	7,5	8,0	8,0	4,9
100-1000 hectares	22,9	12,1	11,7	12,6	11,4
1000-10000 hectares	0,0	4,7	5,8	5,7	13,9
Over 10000 hectares	61,0	72,3	70,7	70,0	69,3
	100,0	100	100	100	

M. AGRICULTURAL MACHINERY SCALE GROUPS

Large Scale Plant Production Machinery:

1150103. (Kulaklı Traktör Pulluğu)

1150105. (Ark Açma Pulluğu)

1150106. (Diskli Traktör Pulluğu)

1150107. (Diskli Anız Pulluğu (Vanvey))

1150108. (Kulaklı Anız Pulluğu)

1150109. (Toprak Frezesi (Rotovatör))

1150110. (Kültivatör)

1150111. (Merdane)

1150112. (Diskli Tırmık (Diskarolar))

1150113. (Dişli Tırmık)

1150114. (Kombikürüm (Karma Tırmık))

1150115. (Ot Tırmığı)

1150119. (Traktörle Çekilen Hububat Ekim Makinesi)

1150120. (Kombine Hububat Ekim Makinesi)

1150123. (Patates Dikim Makinesi)

1150125. (Kimyevi Gübre Dağıtma Makinesi)

1150126. (Orak Makinesi)

1150130. (Tınaz Makinesi)

1150134. (Patates Sökme Makinesi)

1150135. (Kombine Patates Hasat Makinesi)

1150136. (Pancar Sökme Makinesi)

1150137. (Kombine Pancar Hasat Makinesi)

1150139. (Traktörle Çekilen Çayır Biçme Makinesi)

1150147. (Mısır Hasat Makinesi)

1150148. (Selektör (Sabit Veya Seyyar))

1150149. (Yem Hazırlama Makinesi)

1150150. (Sap Parçalama Makinesi)

1150182. (Dip Kazan (Subsoiler))

1150184. (Taş Toplama Makinesi)

1150185. (Toprak Tesviye Makinesi)

1150186. (Set Yapma Makinesi)

1150187. (Toprak Burgusu)

1150189. (Pnömatik Ekim Makinesi)

1150190. (Üniversal Ekim Makinesi (Mekanik) (Pancar Mibzeri Dahil))

1150191. (Anıza Ekim Makinesi)

1150193. (Sap Döver Ve Harman Makinesi (Batöz))

1150194. (Sap Toplamalı Saman Yapma Makinesi)

1150197. (Ürün Kurutma Makinesi)

1150199. (Ürün Sınıflandırma Makinesi (Selektör Hariç))

1150203. (Kepçe (Tarımda Kullanılan))

1150401. (Biçerdöver (0-5 Yaş))

1150402. (Biçerdöver (6-10 Yaş))

1150403. (Biçerdöver (11-20 Yaş))

1150404. (Biçerdöver (21 Yaş Ve Üzeri))

1150169. (Römork (Tarım Arabası))

1150198. (Meyve Hasat Makineleri)

Smallholder Agriculture Machinery:

1150101. (Karasaban)

1150102. (Hayvan Pulluğu)

1150124. (Çiftlik Gübresi Dağıtma Makinesi)

1150127. (Biçer Bağlar Makinesi)

1150131. (Döven)

1150138. (Hayvanla Çekilen Çayır Biçme Makinesi)

1150146. (Mısır Daneleme Makinesi)

1150153. (Sırt Pülverizatörü)

1150154. (Sedyeli, Motorlu Pülverizatör Tozlayıcı Kombine Atomizör)

1150155. (Kuyruk Milinden Hareketli Pülverizatör)

1150156. (Motorlu Pülverizatör)

1150157. (Tozlayıcı)

1150158. (Atomizör)

1150183. (Rototiller)

1150188. (Hayvanla Ve Traktörle Çekilen Ara Çapa Makinesi)

1150192. (Fide Dikim Makinesi)

1150195. (Saman Aktarma-Boşaltma Makinesi)

1150196. (Motorlu Tırpan)

Irrigation Machinery:

1150159. (Santrifüj Pompa)

1150160. (Elektropomp)

1150161. (Motopomp (Termik))

1150162. (Derin Kuyu Pompa)

1150201. (Damla Sulama Tesisi)

Large Scale Livestock Machinery:

1150163. (Yağmurlama Tesisi)

1150170. (Su Tankeri (Tarımda Kullanılan))

Smallholder Livestock Machinery:

1150164. (Krema Makinesi)

1150165. (Kuluçka Makinesi)

1150166. (Civciv Ana Makinesi)

1150167. (Süt Sağım Tesisi)

1150200. (Yem Dağıtıcı Römork)

N. APPROVAL OF THE METU HUMAN SUBJECTS ETHICS COMMITTEE

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER

ORTA DOĞU TEKNİK ÜNİVERSİTESİ
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05 NİSAN 2017

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Prof. Dr. Melih ERSOY;

Danışmanlığını yaptığınız doktora öğrencisi Ceren GAMZE YAŞAR ***"Kentsel Politika Uygulamalarının Kırsal/Çevre alanlara Etkisi: Konya örneğinde kentleşme ve tarımsal üretim"*** başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay **2017-SOS-051** protokol numarası ile **05.04.2017 – 30.07.2017** tarihleri arasında geçerli olmak üzere verilmiştir.

Bilgilerinize saygılarımla sunarım.

Prof. Dr. Ş. Halil TURAN
Başkan V

Prof. Dr. Ayhan SOL
Üye

Prof. Dr. Ayhan Gürbüz DEMİR
Üye

Doç. Dr. Başar BUNDAY
Üye

Doç. Dr. Zana ÇITAK
Üye

Yrd. Doç. Dr. Pınar KAYGAN
Üye

Yrd. Doç. Dr. Emre SELÇUK
Üye

O. CURRICULUM VITAE

Fields of expertise

- City Planning, Urban Policy, Local Governments, Strategic Planning, Urban Geography, Land Use Policy, Land Use Planning
- Institutional Capacity Building, Legal Frameworks of City Planning, Environment, Infrastructure and Urban Services, Water Management
- Spatial Analysis, Geographic Information Systems, Mapping

Skills

- Project Management, Reporting, Research, Planning, Technical Expertise, Training, Institutional Analysis, Policy Analysis, Data Analysis, Spatial Analysis
- Mapping, Dataviz, Infographics

Memberships &Awards

- International Water Association I 2022
- American Association of Geographers I 2015-2016; 2020-2021
- UCTEA Chamber of City Planners I Board Member (for Turkey Headquarters: 2008-2010; 2020-2022, For Ankara Branch 2022-2024)
- Ecology Collective Association I 2009-2020
- Fulbright Fellowship I 2015-2016 (Alumni Turkey Chapter)
- Union of Chambers of Turkish Engineers and Architects - Energy Commission Head (2008-2010)
- Union of Chambers of Turkish Engineers and Architects - Metropolitan Cities Legislation Commission Deputy (2008-2010).
- Planning Schools of Turkey National Student Project Award - 2nd Prize I 2007

Program Skills

QGIS	★★★★☆
ArcGIS	★★★☆☆
SPSS	★★☆☆☆
R	★☆☆☆☆
Python	★☆☆☆☆
Photoshop	★★★★★
Online Mapping Tools	★★★★★
Online Dataviz Tools	★★★★★

Languages

English	★★★★★
Turkish	★★★★★
Japanese	★☆☆☆☆

Interests

- Street Photography, Architectural Photography, Terrarium, Bonsai, Graphic Design, Sewing

Ceren Gamze Yaşar

Spatial Planner, Urban Policy & Local Governments Specialist, Institutional and Social Projects Director

Phone **Email** **Address**

Experience

Institutional & Social Projects Director 2020 - Ongoing
Aqwadem Consulting I Ankara
Project Management in Corporate Development, Water Management, Solid Waste Management Creditworthiness for Local Governments, Public Expenditure Review - Water Sector, Public Transport projects. **Reporting** on Training Needs Assessment, Capacity Building Program, Gap Analysis, Institutional and Operational Analysis, Financial and Operational Performance Improvement Plan, Asset Management Plan, Organizational Development Plan, Project Implementation Document and Technical Review (for Urban Mobility Project), Public Expenditure Review -Water Sector, Green Finance Training Program Design.

Technical Expert and Trainer 2013 - Ongoing
Several I Turkey - Several Cities
Technical Expert in EU, WB, European Climate Foundation and Greenpeace financed projects in Institutional Analysis, Just Transition, Strategic Planning, Spatial Analysis, Policy Analysis, Tourism and Local Development, and Urban Mobility. **Trainer** in EU and International Center for Journalists financed projects on Spatial Analysis, GIS, Strategic Planning, Organizational and Institutional Development, Water Management, Water and Wastewater Legal Framework,, Climate Change Adaption in Water and Wastewater Services, Energy Efficiency in Water and Wastewater Treatment Plants. Lectures also given in Universities: METU, Kassel, Özyeğin on Spatial Analysis, Right to the City and the Politics of Urban Morphology

Project Manager 2020
Aqwadem Consulting I Ankara
Water, wastewater and solid waste management infrastructure projects - technical assistance component project management

Project Coordinator 2020
Ecology Collective Association I Ankara
Just Transition Strategic Plan Project for Amasra Municipality encouraging fossil-based energy phase - out with local development and employment increase

Research Assisstant 2008-2015
Middle East Technical University I Ankara
Research and Training: City and Regional Planning 2nd Year Studio, City and Regional Planning 4th year Studio, Contemporary Issues in City and Regional Planning, additional: web page admin, graphic design

Deputy Secretary General 2008
UCTEA - Chamber of City Planners I Turkey
Publications Management, Editorial Studies, Research, Agenda Setting, Graphic Design, Web Page Admin

Education

Doctor of Philosophy (expected) 2010 - 2022
Middle East Technical University I Turkey
Production of Space and Agricultural Production under Metropolitan Municipality System: The Case of Konya - Urban Policy Planning and Local Governments, Advisor: Prof. Dr. Melih Ersoy

Fulbright - Visiting Student Researcher 2015 - 2016
University of Pennsylvania - USA
School of Design - City and Regional Planning, Advisor: Prof. Dr. Thomas Daniels

European Module on Spatial Development Planning 2013
KU Leuven - Belgium
Three Months Training program on spatial development planning affiliated to European Union - European Spatial Development & Planning Network

Master of Science 2007-2010
Middle East Technical University I Turkey
Politics of Urban Sprawl: The Case of Ankara - Urban Policy Planning and Local Governments Program, Advisor: Prof. Dr. H. Çağatay Keskinok

Bachelor of Science
Middle East Technical University I Turkey 2002-2007
City and Regional Planning Department

Intensive Program on Spatial Development 2007
University of Bicocca- Milano I Italy
Intensive training on Redevelopment projects in the metropolitan area of Milan, Bicocca and Parco Nord

P. TURKISH SUMMARY / TÜRKÇE ÖZET

Mekân üretimi ve tarımsal üretim, bu çalışmanın merkezinde yer alan iki süreçtir. Mekân üretimi ve tarımsal üretim, farklı düzlemlerde devam eden ayrı süreçler olarak kabul edilmekte ve farklı bilimsel alanlarda ayrı ayrı ele alınmaktadır. Ancak bu ikili Uzay-zamanda, ekonomide, toplumsal problemlerde ve ekolojik problemlerde birbirleriyle ilişkilidirler. Bugün, birbirine bağlı bu iki süreç arasında gözle görülür bir çatışma bulunmaktadır. Bu uzun süredir devam eden tektonik kayma hem gezegen ölçeğinde hem de ülke ölçeği ve yerel ölçekte gözlenebilmektedir.

Gıda ve suyun insanlığın hayatta kalabilmesi için temel ihtiyaçlardır ve tam da bu nedenle mekân üretimi her zaman en başta tarımsal üretime ve su kaynaklarına bağlı olmuştur. Aradaki mekan üretimi ve tarımsal üretim arasındaki çatışma, kentsel yerleşimler onları besleyen tarımsal alanlar olmadan mümkün olmadığı için ilk kentlerin kurulmasıyla başlamıştır. Bu uzun çatışma tarihinde içinde bulunduğumuz çağın önemi, mekân üretiminin tarımsal üretime bağımlı ilişkisinin artık kitlesel ölçekte kaynak ve arazi kullanımları mücadelesine dönüşmesidir. Bu erken aşamada, mekân üretimi teriminin, analizi tarımsal üretimle aynı zemine oturtacağı için seçildiğinin açıklığa kavuşturulması yararlı olacaktır. Her iki terim de sadece ürünleri değil aynı zamanda üretim ilişkilerini de ifade etmektedir. Tarımsal üretimin ürünü bellidir ve mekân üretiminin ürünü de kentsel mekândır.

Büyükşehir Belediye Sistemi (BBS), pek çok sonucunun yanı sıra, planlama yetkisinin parçalanmış bölümlerini yapılandırma ve düzenleme yolunda bir adım olarak değerlendirilebilir. Kentsel saçılma sorununu çözebilir ya da mevcutun devamı olarak daha derin bir kentsel saçılma sorunu ile sonuçlanabilir. Kentsel gelişim ve arazi spekülasyonu uğruna tarım arazilerinin tüketiminde daha derin sorunlar yaratabilir veya tam tersi şekilde de sonuçlanabilir. Bu noktada, yerel yönetimlerde ve kentsel planlama eğitiminde yeni, tepkici ve proaktif kentsel politika geliştirme biçimlerini oluşturmak için BBS'nin kentsel biçim, tarımsal üretim ve yerleşme örüntüleri üzerindeki etkilerini ölçmek son derece önemlidir. Bu bağlamda, **bu çalışmanın genel amacı**; BBS'nin tarımsal üretim, yerleşme örüntüleri ve kentsel biçim üzerindeki etkilerini birbiriyle ilişkili olarak deşifre etmek ve planlama, arazi kullanım politikası, kentsel politika ve planlama eğitimi konularında gelecekteki tartışmalar için değerlendirmeler üzerine inşa edilmiş **bir operasyonel rehber üretmek** amacıyla istatistiksel (ekonomik ve sosyal dâhil), mekânsal ve politik bir analiz geliştirmek ve üretmektir.

Bu tezin **ilk hipotezi** şudur: İl ölçeğinde geliştirilen kentsel politikalarda, kentsel büyümeyi destekleyen ağırlıklı kentsel bakış açısıyla güçlendirilmiş olan ve alanı ile genişleyen Büyükşehir Belediye Sistemi, illerde yer alan görece büyük yerleşimlerde ve merkez yerleşimlerde yaygın bir kentsel biçimi teşvik ederek verimli ve üretken tarım arazilerinin tüketimini artırma potansiyeli taşımaktadır. Kısaca ifade edildiğinde; ilin çeper coğrafyalarını kentleşme için rezerv alanlar olarak gören söylemle birleşen BBS, kentsel saçılma ve arazi spekülasyonu yoluyla tarım arazisi tüketimini artırmıştır.

Birinci hipotezle bağlantılı olarak **ikinci hipotez** şudur: Büyükşehir Belediye Sistemi, politika oluşturmada ildeki daha büyük yerleşimlere odaklanarak ve yerelde yeniden ölçeklenmeye paralel olarak, mekânda ve üretimde ölçeklendirmenin dağınık, kırsal ve küçük ölçekli yerleşimleri terk ederken, illerin yerleşme örüntülerini çekirdek yerleşimlerde yoğunlaşma lehine değiştirmesi muhtemeldir. Diğer bir deyişle, nüfusun büyükşehir kent merkezlerinde yoğunlaşma eğilimi artarken, kırsal ve dağınık örüntüler nüfus azalmasıyla karşı karşıya kalmaktadır. Sadece BBS etkisi altında değişen kentsel biçim değil, dağınık kırsal yerleşimlerde (köylerde) azalan üretken nüfus ile yerleşme örüntüsünün değişmesi de tarımsal üretimi olumsuz etkilemektedir.

Bu iki hipoteze dayalı olarak önerilen **üçüncü hipotez** ise şudur: Büyükşehir Belediye Sistemi, üretimde ekonomik yeniden ölçeklendirmeyi teşvik ederek, tarımsal üretimde küçük ölçekli tarımdan büyük ölçekli ve/veya sanayileşmiş tarıma yeniden ölçeklendirmeyi teşvik edecektir. İl coğrafyasına yayılan BBS nedeniyle değişen düzenlemeler tarımsal üretimi olumsuz etkilemiştir.

Kentsel biçim, yerleşme örüntüleri ve tarımsal üretim, **bu üç hipoteze karşılık gelen üç sacayağı**nı oluşturmaktadır ve Konya saha araştırması bölümünün temel yapısını oluşturmaktadır. İlk iki sacayağı olan yerleşme örüntüsü ve kentsel biçimin tarımsal üretim üzerindeki etkisi de ölçülecektir.

BBS, bu çalışmanın "bağımsız" değişkenidir ve etkiler bu sınırlamaya dikkat edilerek ölçülecektir. Amacımız, BBS'nin kentsel biçim, yerleşme örüntüsü ve tüm bu değişkenlerin tarımsal üretim üzerindeki etkileri üzerindeki etkilerini ve olası sonuçlarını kabaca göstermekle sınırlıdır. Türkiye'de kentsel ve arazi kullanım politikasındaki paradigma kayması ne getirmektedir? Kapsamlı bir yaklaşım için analiz unsurları neler olmalıdır? Kent politikası ve arazi kullanım politikasının nasıl dönüştürülmesi gerekmektedir? Mekânsal planlama ve mekânsal planlama eğitimi nasıl geliştirilmelidir? Bunlar aynı zamanda bu çalışma boyunca ölçtüğümüz ve analiz ettiğimiz konulardır.

Büyükşehir belediye sisteminin (BBS) tarımsal üretim, yerleşme örüntüsü ve kentsel biçim üzerindeki etkisinin ölçülmesi, farklı ölçekler, yaklaşımlar ve yöntemler gerektirebilmektedir. Toplanan nicel ve nitel veriler tez boyunca birkaç farklı yöntemle

kullanılmaktadır. Makro ölçekli çalışmada, ildeki tarımsal üretimin ve mekân üretiminin durumunu temsil edecek şekilde tarım ve kentsel büyüme ile ilgili göstergeler seçilmiştir. 30 metropoliten ilin karşılaştırılması ve sıralaması bize, mekân üretimi ile tarımsal üretimi arasında en fazla potansiyele sahip BB'yi belirleme şansı vermiştir. Bu karşılaştırma ve sıralamaya bağlı olarak ikinci ölçek durum çalışması olarak seçilmiştir. Tarımsal üretim ve kentsel büyüme ile ilgili göstergeler seçilmiştir ve bu çalışmanın kümülatif sonucuna bağlı olarak Konya örneği seçilmiştir.

Çalışmanın merkezinde mekân üretimi ve tarımsal üretim politikası bulunmaktadır. İki adet karmaşık ve birbiriyle ilişkili süreci özetleyen bu çalışma, yöntem olarak önce oyuncuları ve oyuncuların rollerini belirleyerek, sonrasında iki sürecin akış şemalarını çizerek süreçleri yapılandırmış ve kategorize etmiştir. BBS'nin etkileri, süreçteki ve oyuncuların hiyerarşisindeki değişiklikler olarak gösterilmektedir. Kentsel biçim, yerleşme örüntüsü ve tarımsal üretim, mekan üretimi ile tarımsal üretim arasında üçlü bir yapıda bağ olarak analiz edilmiştir.

Saha çalışmasının yerleşme örüntüsü kısmında, ildeki tüm yerleşimlerin (720 mahalle, 28 çevre ilçe ve üç ana ilçeden oluşan Konya şehri) 1990'dan 2021'e kadar toplanan nüfus verileri, BBS zaman çizelgesi içinde yerleşme örüntüsündeki değişiklikleri izlemek için kullanılmaktadır. Zaman çizelgesi BBS kırılma noktalarına göre bölünmekte ve bu tarihler arasındaki aralıklardaki değişim ölçülmektedir. Konya örneği dört temel analiz üzerinden değerlendirilmiştir.

Bu bölümde nüfusun istatistiksel verileri mekânsallaştırılarak nüfusta il ölçeğinde yoğunlaşmalar ve yayılmalar yorumlanmıştır. Bu analizin ardından yerleşimler nüfus sınıflarına göre gruplandırılmıştır (500-2000, 2000-5000, 5000-10000, 10000-25000, 25000-50000, 50000-100000 ve 100000'in üzerinde) ve bu nüfus sınıfları arasındaki yerleşimlerin hareketliliği Sankey diyagramları ile analiz edilmiştir. Yerleşme örüntülerinde yeniden ölçeklendirme bu diyagramlara dayanarak yorumlanmıştır. Nüfus gruplarının artan veya azalan nüfusa sahip olma eğiliminde olduğu ilçeler ve kırsal mahalleler bu yöntemle analiz edilmiştir.

Bir şehrin coğrafi ve kaçınılmaz olarak geometrik bir niteliği olduğu için, bir şehrin saçılmış olup olmadığını sadece kuşbakışı, haritadan veya şehrin çeperlerini gezerek anlamak mümkündür. Bununla birlikte, şehirleri veya zaman içinde karşılaştırmak için daha tanımlanmış bir yönteme ihtiyaç vardır. Bu sorulara ancak standartlaştırılmış, karşılaştırılabilir, nicel ve nitel yöntemler kullanılarak cevap verilebilir. Şehirler arasındaki farkları ve zaman içindeki değişimleri yakalamak için kompaktlık/derişiklik ölçümü çalışmalarından ve nicel yöntemlerden yardım alınmıştır. Kompaktlık, matematiksel terimlerle dışbükeyliği ifade eder (Bozeman ve diğerleri, 2008).

Kentsel saçılma düzeyini ve zaman içinde bu düzeydeki değişimi hesaplamak için yedi ölçüt kullanılmıştır. Bunlar Polsby-Popper, Schwarzberg, Roeck, Convex Hull, Contiguity Index, Urban Fragment Sizes, Distribution of Sizes ve son olarak Slope Compactness'tir.

Tarımsal üretim analizi, saha çalışmasının son kısmını oluşturmaktadır. BBS ile birlikte yukarıda analiz edilen sütunların kümülatif etkisi ölçülür. Bu kısım üretim faktörlerine göre yapılandırılmıştır: toprak, iş gücü ve sermaye, ve bu üretim faktörleri, 6360 Sayılı yasanın etkileri göz önünde bulundurularak Konya örneğinde incelenmiştir.

Mekân üretimi, esas olarak, bir araziyi "kente" dönüştüren bir kentsel işlev olarak kabul edilirken, tarımsal üretim "kırsal" alanlarda gerçekleşmektedir ve daha da ötesi, mekânda tarımın varlığı, bir mekânı kırsal yapan niteliklerden biridir. Bu iki üretim biçimi mekân üzerinde birbirini dışlar niteliktedir ve bu karşılıklı münhasırlık ilişkilerin sosyal ve ekonomik katmanlarında var ya da var olduğu varsayılmaktadır. Tarımsal üretim ve kentsel mekân aynı zemin üzerinden sorunsallaştırıldığında, tartışma kentsel saçılma ve arazi spekülasyonu referans alınarak tarım arazilerinin kentsel parsellere dönüştürülmesiyle sınırlıdır. Bu çalışma, kentsel ve kırsal arazi kullanımları arasındaki arazi mücadelesine ilişkin bu sınırlı anlayışı aşmayı planlamaktadır. Bu nedenle, ilk önce, sosyal ve ekonomik arka planlarıyla çatıştıkları mekânla ilgili tüm terimleri listeleyerek, mekân üretimi ile tarımsal üretim arasındaki ilişkiyi çözmek için analiz çerçevesi genişletilmiştir. İkinci olarak, mekânsal ilişkiler, sosyal ilişkiler ve ekonomik ilişkiler arasındaki bir bağ olarak rant, iki üretim biçimi arasındaki ilişkiyi anlamanın bir aracı olarak kullanılacaktır.

Bu çalışmanın temel kavramları, anahtar sözcükleri: mekân üretimi, kentsel biçim, yerleşme örüntüsü, büyükşehir belediye sistemi ve tarımsal üretimdir. Bu ana anahtar kelimelere ek olarak, iller içinde büyükşehir belediyelerinin kontrol ve yetki bölgesi olan mekânsal bir farklılaşma için **merkez, yarı-çeper ve çeper** kullanılmaktadır. Bu üç terim, dünya sistemleri teorisinden ödünç alınmış ve ilk olarak kentsel biçimi merkez ve yarı-çeper olarak ikiye bölmek ve aynı zamanda ilçeyi, ilçe merkezi (kentsel biçim) ve çeper olarak ikiye ayırmak için kullanılmaktadır. Bir sonraki bölümde bu bölgeleri ve problemin kendisini tanımlayan terimler için bibliyometrik bir analiz üretilmiştir.

Mekân üretimi terimi ilk olarak Lefevbre tarafından kullanılmıştır ve bu fikrin özü, "mekânın sadece 'okunmasına' değil, inşa edilmesine de izin veren bir kod" arayışından gelmektedir (Lefevbre, 1991: 7). Üst üste dizilmiş sonsuz sayıda "mekânlar çokluğu" vardır; iç içe geçmiş veya yabancılaşmış ve mekân(lar)ın nasıl üretildiğini anlamak, ancak bu farklı mekan tiplerini "coğrafi, ekonomik, demografik, sosyolojik, ekolojik, politik, ticari, ulusal, kıtasal, küresel", fiziksel, zihinsel, sosyal, süreçlerin mekanı, özel, tekil, matematiksel vb. olarak anlamakla mümkündür (Lefevbre, 1991: 8, 15-16). Fiziksel, zihinsel ve sosyal olan üç

mekân kategorisi Lefevbre'nin yaklaşımının merkezinde yer alır ve bu üç mekân biçimi algılanır, tasarlanır ve yaşanır (Lefevbre, 1991).

İkinci temel terim ise yerleşme örüntülerinin şekli, boyutu, yoğunluğu ve konfigürasyonu dâhil olmak üzere, yerleşim alanlarını oluşturan fiziksel özellikler olarak tanımlanan **kentsel biçim**dir ve, bölgeden kente, mahalleden, yapı adasına ve sokağa ölçeğine bağlı olarak kent örüntüsünün farklı unsurlarını ifade eder (Williams, 2014: 6). Kevin Lynch, terimi kullanan ve kuramlaştıran eden öncü isimlerden biridir (Lynch ve Rodwin, 1958). "Kentler genellikle daha küçük çevrelerin toplamı olarak kabul edilir" ancak "her fiziksel bütün, yalnızca parçalarının kalitesinden değil, aynı zamanda toplam organizasyon ve düzenlemelerinden de etkilenir. Bu nedenle, biçim analizinin ilk kriteri, şehir veya metropol ölçeğinde önemli olan, yani o ölçekte kontrol edilebilen ve farklı örüntülerde düzenlendiğinde farklı etkileri olan ve o ölçekte tanımlanabilen biçimin niteliklerini belirlemesidir." (Lynch ve Rodwin, 1958: 203).

Üçüncü temel terim, **yerleşme örüntüsü**dür. Literatürde yerleşme örüntüsü tanımı, kent formuna benzer şekilde ölçeğe göre değişmektedir. Terim, bazı durumlarda kentsel dokuda olduğu gibi (ör. Turner, 1968) yerleşimin kentsel dokusunu tanımlamak için, göç çalışmalarında göçmenlerin yerleşim yerlerindeki konumsal eğilimlerini göstermek için (ör. Schiller ve Çağlar, 2009: Alba ve diğerleri) ve bazı çalışmalarda ise yerleşimin ve nüfusun coğrafi dağılımını tanımlamak için (ör. Linard ve diğerleri, 2012) kullanılmaktadır. Bu çalışmada terim, zaman içindeki değişimlere bağlı olarak nüfusun ve yerleşimlerin coğrafi dağılımını tanımlamak için kullanılmıştır. Bu terimi kullanan çalışmaların çoğu nicel araştırmalardır. Genel olarak yerleşme örüntüleri için değişen demografik rejimlerin etkileri konusunda belirgin bir ayrıntılı araştırma eksikliği vardır ancak çok merkezli bölgeleri (Champion, 2001: 659) ve kırsal, küçük ölçekli yerleşimleri analiz etmek için yararlı bir araç olabilir.

Kentsel ve kırsalı aynı düzlemde bir araya getirmeye yönelik ikinci adım, yarı çevredeki kentsel kırsal çarpışmadan esinlenmiştir. Kentsel ve kırsal arazi kullanımları arasındaki arazi dönüşümü sorunu ve rant açısından arazi kullanımlarının birbiri üzerindeki hiyerarşisi, arazi dönüşümü için baskı yaratmaktadır. Yukarıda açıklanan il coğrafyası anlayışında merkez çeper ve yarı çeper gibi bu da 6360 sayılı Kanun'un yürürlüğe girmesiyle altı çizilen ve ana akım haline gelen bir sorudur. Belediye sınırlarının genişletilmesinden sonra sorun haline gelen noktalardan biri de tarım arazilerinin kentsel saçılma şeklinde ağırlıklı olarak kentsel alanlara doğru gelişmesidir. Bu dönüşüm sürecinin temel unsuru toprak rantıdır.

Çeper ve yarı-çeper coğrafyalarını tanımlamak için kullanılan terimlerin bibliyometrik analizinin ardından rant teorileri incelenmiştir. Literatür taraması kapsamında analiz edilen teoriler ve yaklaşımlar, rant, arazi kullanımı, kentsel büyüme ve mekân üretimine verilen

isimler üzerinden okunan kentsel büyümenin tarihsel coğrafi bağlamı üzerineydi. Bu farklı teorik mekanlar, bu çalışma için bir çerçeve oluşturma amacıyla rant temelli bir arazi kullanımı dönüştürme anlayışına indirgenmiştir. Arazi kullanımları arasındaki ilişki rant biçiminde tanımlanarak ve kullanımlar arasındaki arazi dönüşümü rant odakları üzerinden tanımlanmıştır. Temel olarak üç odak vardır, bunlar:

- yayılma odaklı rant
- kullanım odaklı rant
- çift odaklı rant (hem yayılma odaklı, hem de kullanım odaklı rant)

Farklı arazi kullanımları arasındaki bu rant odakları, baskı yönünü gösteren oklarla gösterilmiştir. Rantın genişleme odağı, arazi kullanımının başka bir arazi kullanımı üzerinden genişlemesinden kaynaklanan rant ve rant baskısını ifade eder. Yayılma, kullanım ve çift odaklı rant, farklı arazi kullanımları arasında değişen düzeylerde baskılar yaratır. Rant baskısı, farklı arazi kullanımları arasındaki ilişkiye göredir. Arazinin genişletilmesi ve ekstraktif olarak kullanılması şeklindeki arazi dönüşümü "doğal yollarla" gerçekleşmez. Bu dönüşümün nedeni, mümkün kılan, hatta teşvik eden idari yapı ve aktörlerin varlığıdır.

Literatür taramasının ardından dört ülke için yerleşme örüntüleri, yaygın kentsel biçimler ve tarımsal üretim alanları incelenmiştir. Bu analizin ardından tarım alanlarının o ülke bağlamında varsa planlama uygulama araçlarıyla nasıl korunduğu açıklığa kavuşturulmuştur. Seçilen üç örnek Amerika Birleşik Devletleri, Hollanda ve Çin'dir ve bu üç ülke ile karşılaştırmalı olarak Türkiye'deki yerleşme örüntüleri, kentsel biçimler ve tarımsal üretim mekânları da analiz edilmektedir. Bu üç örnek, dünyanın en büyük 20 ekonomisi olan G20'den ve tarımsal üretim ile mekân üretimi arasındaki gerilime bağlı olarak seçilmiştir.

Türkiye de dâhil olmak üzere dört ülkenin karşılaştırmasına ilişkin bölüm, ağırlıklı olarak, diğerlerine kıyasla bağlamımızı anlamak (ve diğer ülkeler için de aynı karşılaştırmalı düzlemde Türkiye'nin durumunu anlamalarını sağlamak) için vardır, ancak bu bölümün asıl gündemi, onlardan ders çıkarabilmek için bu ülkelerin planlama, kentsel ve arazi kullanım politikalarını deşifre etmektir. Tarımsal üretimde, kentsel biçimde ve yerleşme örüntüsünde yaptıkları ve elde ettikleri, özetle öğrenilen dersler odak noktasıdır. Her üç vaka da kentsel saçılmadan mustarip olmakla birlikte Hollanda, tarihsel olarak en kontrollü ve nispeten kompakt olanıdır. Her üçü de tarımsal açıdan gelişmiş ülkeler iken Çin, nüfus açısından en tarımsal olan ülkedir. ABD ve Çin ölçek olarak büyük ve hem yoğun hem de dağınık yerleşme örüntülerine sahipken, yoğun nüfusu ile Hollanda bir takımyıldız gibi, birbirine bağlı ve yüksek yoğunlukludur.

Çin'in bu çalışmada bana öğrettiği şey, yerel yönetimlerde, kentsel politikada ve arazi kullanım politikasında herkese uyan tek bir yaklaşımın işe yaramadığıdır. Çin örneğinden öğrenilen ikinci ders, kolektif mülkiyet kalıplarının üstesinden gelen devletin kalkınma

yaklaşımının üstünlüğüdür. Çin örneğinde toprak mülkiyeti iki yönlüdür, burada kentsel arazi devlete ve kırsal arazi toplu olarak köylere aittir, ancak belediyelerin bu arazileri ekonomik kalkınma, sanayileşme ve kentleşme adına geliştirme hakları vardır. Arazi kullanımları hiyerarşisi rant baskısı açısından Çin'de de benzerdir, kentsel ve endüstriyel arazi kullanımları tarımsal ve doğal arazi kullanımları üzerinde yayılma eğilimindedir. Çin'de de imar haklarının devrine benzer bir şekilde, imar hakları kısmen ayrılmıştır, ancak bu yöntem arazinin piyasalaştırılmasını sağladığı için eleştirilmektedir.

Amerika Birleşik Devletleri örneği, iki ana mekânsal planlama aracı olan imar ve vergi anlaşıldığında kendiliğinden açıklayıcıdır. Arazi kullanım planlaması ve mekânsal olarak değişen vergilendirme seviyeleri, arazi korumada iki ana süreçtir. ABD örneğinde kentsel saçılma, yetersiz arazi kullanım kontrollerinin bir yan etkisi değil, düşük yoğunluklu araba bağımlı kentsel büyüme ve şehir planlamasının doğal bir sonucudur. Izgara biçimli kentsel doku, düşük yoğunluklu bölgede yayılmayı iyileştirmeye yardımcı olmaz. ABD'nin özel mülkiyet bağlamında tarımsal arazilerin korunmasında iki ana mekanizma önemlidir; bunlar Geliştirme Haklarının Transferi (TDR) ve Geliştirme Haklarının Satın Alınması (PDR). Birincisi, mekânsal konumundan ayrılan imar hakkının sahibinden başka bir malike satılması ve hakkın başka bir yerde (ağırlıklı olarak kentsel yerleşimlerin çeper ve yarı-çeperlerinde) kullanılmasıdır. Geliştirme haklarının satın alınması (PDR) ise kamu yararı için kamu kurumları tarafından maliklerden imar haklarının satın alınması, diğer bir deyişle arazinin kamulaştırılması değil, mevcut arazi kullanımının korunması için o araziye verilen imar hakkının kullanılmasıdır.

Hollanda örneğinde planlama ilkesi, yoğunlaşmış merkezden uzaklaştırmadır ve yükseklik / delta-coğrafyası nedeniyle sınırlı arazi ve büyük su sorunu ile, arazi kullanımı üzerindeki kontrol tüm ülkede mutlaktır. Hollanda'da şehirler ve köyler nispeten gençtir ve hatta Amerika Birleşik Devletleri'nde daha da gençken, Çin ve Türkiye'de çok sayıda antik şehir ve köy vardır. Hollanda örneği suyun önemini vurguluyor ancak bu sefer kıtlık değil, bolluk arazi kullanımı ve kentsel politikanın katı çerçevesini tanımlıyor. Tarım arazisi kullanımlarının doğal arazi kullanımları üzerindeki baskısı en çok, son derece sınırlı araziye sahip Hollanda örneğinde görülmektedir. Üretim kalıpları anlayışının planlanması ve tarımsal ve doğal arazi kullanımlarının yoğunlaştığı "yeşil kalp" dâhil olmak üzere ulusal ölçekte imar, Hollanda örneğinden alınan iki büyük derstir. Ölçek meselesi en çok Hollanda örneğinde görülmektedir.

Türkiye örneğinde, arazi kullanım politikası ve şehir planlaması beş gerilim noktası etrafında şekillenmektedir; yerelleşme-merkezileşme, derişiklik-kentsel saçılma, kalkınmacılık-patronaj, arazinin korunması-toprak tüketimi ve küçük ölçeği destekleyen-büyük ölçekten yana. Türkiye örneğinde arazi dönüşümüne karşı koruyucu önlemler yasal

çerçevede mevcuttu (ve bir dereceye kadar hala öyle) ancak uygulanması kısmında ciddi eksiklik vardır. Planlama sürecinde her ölçekten kısmi müdahaleler arazi dönüşümlerinde daha fazla düzensizlik yaratmaktadır.

Tüm gezegendeki arazi kullanımı değişikliğinin tarihi oldukça bilgilendiricidir. Tüm araştırmacılara göre, kentsel alanlardan baktığımızda, büyük kentsel alanlar ve coğrafyaya hâkim kentsel üretim ilişkileri ile kitlesel olarak kentleşmiş görünmektedir. Birincisi şüpheli iken, ikincisi için durum böyle görünüyor. Zaman aralığı tüm insan uygarlığı tarihine uzatılırsa, görünür olan en önemli değişiklik, hem tarımsal amaçlar için kullanılan ekili alanların hem de meraların büyümesi olur (Ellis, ve diğerleri, 2020). Bu iki arazi kullanımını kırsal alanlarda sınıflandırıyoruz, ancak bu büyük artış gezegen ölçeğinde nüfus artışından kaynaklanıyor ve bu nüfus kentsel alanlarda yığılıyor. Başka bir deyişle, kırsal üretim ilişkileri daha çok kentsel üretim ilişkileri nedeniyle var olmaktadır. Kentleşmenin tarihi aynı zamanda arazi kullanımı dönüşümü açısından tarımın da tarihidir.

Her ülkedeki tarım arazisi dönüştürme politikaları, "benzersiz yasal ve arazi kullanım yapısına" bağlıdır (Pease, 1991: 340), ancak bu çalışmada incelenen tüm durumlarda hala bazı ortak unsurlar ve sorunlar vardır. Tarım arazilerinin korunması ve mekân üretiminin kontrolüne ilişkin tarihsel olarak oluşturulmuş yasal ve mekânsal çerçeve birçok faktörden etkilenmektedir. Ülkedeki yaygın mülkiyet örüntüleri ve yapısı temel olanlar arasında yer alırken, yerel yönetimlerin merkezi-yerel dengeyi referans alan yapısı bir diğeridir. Mülkiyet örüntüleri tarihsel-coğrafi bağlamı içinde kentsel biçim, tarımsal üretim ölçeği ve mekânın üretim ölçeği üzerinde de etkilidir.

Mekân üretimi her durumda güçlüdür ve Hollanda dışında üçünde de tarımsal üretimden daha güçlüdür. Bu sonuç, kentleşmenin, kentsel büyümenin ve mekân üretiminin en güçlü hale geldiği kentlerin kıyısında geçerlidir. Şehirlerden uzaklaşmak bu gücü azaltır. Bununla birlikte, çoğu durumda şehirlere daha yakın olduklarında tarımsal üretimin gücü de daha yüksektir, çünkü tarihsel olarak daha erişilebilir, genellikle daha fazla sulanan ve daha az marjinaldirler. Bütün örneklerde tarım arazilerinin dönüşümünde kilit sorunlardan biri konumsallıktır ve yerleşim yerlerinin tarihsel coğrafyasının yanında rant teorileri de bu olguyu açıklamakta iyidir. Bu nedenle, tarım arazilerinin dönüştürülmesi sorunu, belirsiz ve genel miktardan ziyade bir kalite (konum) sorunudur.

6360 sayılı Büyükşehir Belediyeleri Kanunu ile güncellenen 5216 Büyükşehir Belediyesi Kanunu incelenmiş ve son 10 yılda gözlemlenen sonuçlar ortaya konmuştur. 6360 sayılı Kanun'un getirdiği değişiklikler ve yerel yönetimler için yasal çerçevenin genel resmi önceki bölümlerde özetlenmiştir. Yerel yönetimlere ilişkin değişiklikler ve genel yasal çerçeve, kentsel politika, tarımsal üretim, yerleşme örüntüsü ve kentsel biçime doğrudan yansımaları açısından analiz edilmektedir. Bu üçü de BBS'nin etkisi altındaki arazi kullanım

politikası referans alınarak analiz edilmiştir. BBS Kent politikasının etkisi beş başlık altında analiz edilmektedir: güç dağılımı – hiyerarşi, hizmet sunumu, bütçe, temsiliyet ve kentsel planlama.

Türkiye'nin BBS'nin genel ve önemli etkilerini içeren bağlamsal analizinin ardından Konya örneği kapsamlı bir şekilde analiz edilmiştir. Konya, 1469,4 km^2 yüzölçümü ile Türkiye'nin en geniş arazi örtüsüne sahip ilidir. Sınırların en uzağı şehir merkezine 180 km, en yakını ise 60 km uzaklıktadır. Dolayısıyla ilin kapsadığı alan ve 6360 sayılı kanunun kabulünden sonra Büyükşehir Belediyesi'nin yetkili olduğu alan çok geniştir. Üçü merkez büyükşehir ilçesi olan ve çalışma boyunca merkez ilçe olarak adlandırılan toplam 31 ilçe bulunmaktadır. **Kent**te, 6360 sayılı Kanunun 2012 yılında yürürlüğe girmesi ve 2014 Yerel Seçimlerinden sonra mahalle olarak anılan ilde 587 köy bulunmakta olup, Yasa tam olarak yürürlüğe girmiştir. Köyler eklenmeden önce Konya ili ve ilçelerinde 1112 mahalle bulunuyordu. 2018 yılı için toplam mahalle sayısı 1699 iken 2022 yılında 1154'e gerilemiştir. **Konya kenti**nin şu anda 6360 sayılı kanunla mahalle olan 355 mahallesi ve 67 köyü bulunmaktadır. Üç merkez-büyükşehir ilçesi olan Meram, Karatay ve Selçuklu birbirine bitişik olup Konya şehrini oluşturur.

Konya ili, büyük ölçüde Konya kapalı havzasında yer almaktadır. Bölgeyi güneyden çevreleyen Toros Dağları, Akdeniz'in etkisini engelleyerek iklimi kuru tutmaktadır. Bozkır, yarı kurak iklim ile yaz-kış, gece-gündüz sıcaklık farkları fazladır. Yağış miktarı ülkede en az olanlardandır ve bölgedeki kuraklık sorunu derinleşmektedir. Türkiye'nin tek çölü Konya ili, Karapınar ilçesinde yer almakta ve büyümektedir. İklim değişikliği süreci ile birlikte sıcaklık 7°C derece yükselebilir ve yağış miktarı %20 ila %30 arasında azalabilir (WWF-Türkiye, 2014).

Planlama tarihi açısından Konya'nın planlı bir şehir olduğu, ancak kentsel saçılma sorunlarıyla karşı karşıya olduğu, tarım alanlarını özellikle sulanan ve çeperdeki verimli tarım arazilerini tükettiği sonucuna varılabilir. İmar planları, kentsel saçılma ve tarım arazilerinin tüketimi sorununu çözmeye yardımcı olmamıştır, aksine sorunu bir dereceye kadar derinleştirmiştir. Büyükşehir Belediyesi Yasası, kentsel ve kırsal alanları bütünleştiren planlama nazarında sorunu hafifletmiş olabilir ama çözmesi beklenmemektedir. Konya kenti için üretilen beş planın yerleşme örüntüleri üzerindeki etkisi, planların sadece Konya kentinin kentsel biçimunu kapsaması nedeniyle doğrudan olmamıştır. Son iki plan ise ili bir bütün olarak kapsamakta ve olası etkiler planlardan ve planların verdiği kararlardan anlaşılabilmektedir. Bu nedenle planlar iki gruba ayrılabilir: dolaylı etkili planlar ve çeper üzerinde doğrudan etkisi olan planlar ve çeperdeki yerleşme örüntüleri. Paralel bir yaklaşımla, Konya ilinin planlama tarihi, tarımsal üretime etkisi açısından iki aşamaya ayrılabilir. İlk beş

plan, tarımsal üretim üzerinde dış etkilerle birinci aşamadayken, son iki plan, tarımsal üretime doğrudan verilen kararlarla ikinci aşamadadır.

Piyasanın egemen olduğu kapitalist toplumda işleyen kamu yönetimi ve yerel yönetim sistemi büyük ölçüde karmaşıktır. Bu çalışmada, tarımsal üretim, yerleşme örüntüsü ve kentsel biçimle ilgili politikalar üzerinde durulmuştur. Konya örneğinde kentsel politika planlamasının kara kutusunu ve 6360 sayılı Kanunun Büyükşehir Belediyeleri üzerindeki etkisini ortaya çıkarmak için stratejiler, güç yapısı, bir tarım arazisinin kentsel arsaya dönüşme süreci ve Konya ili coğrafyasında etkili olan yönetmelik ve oyuncuların haritası analiz edilecek ve çalışılacaktır.

Hem tarımsal üretim hem de mekân üretimi için stratejilerin yapısı oldukça karmaşık ve çok katmanlıdır. Bu çalışma, bu iki stratejide sermayenin iki döngüsünü soyutlama ve yapısal olarak özetleme girişimidir. Sermayenin dolaşımı ve birikimi ile bu ikisini sınırlayan, sağlayan ve teşvik eden düzenlemeler, tarımsal üretim ve mekân üretimi için ayrı ayrı incelenecektir. Yerleşme örüntüsü, birincisi kentsel merkezlerdeki talebe bağlı, ikincisi ise coğrafyadaki nüfus hareketlerinden etkilendiği için hem mekân üretimi hem de tarımsal üretim için bir unsurdur. Dolayısıyla bu iki devre, göç eden, tüketen ve iş gücü olarak çalışan nüfusla birbirine bağlıdır. Bu iki devrenin bir diğer temas noktası karadır. Her iki devre de coğrafya üzerinde gerçekleşir ve araziyi kullanır. Tarımsal üretim ve mekân üretimine ilişkin bu arazi kullanımları mücadelesi il ölçeğinde görünmez ve istatistiksel iken, merkezin çeperinde karşılaşma görünür ve somut hale gelir. İş gücü ve toprak dışında hem kullanılan enerji ve su gibi hem de süreçlerin tetikleyicisi olan sermaye için ortak girdiler de vardır.

Mekân üretimi, konut, altyapı, genel olarak her türlü arazi kullanımı ile yapılı çevre ve gelişmiş ve speküle edilmiş arazi üretimini içerir. Kentsel biçim bu döngü içinde tanımlanır. Bu devrede birbiriyle ilişkili üç üretim süreci vardır. Mekân üretimi dışında, inşaat girdileri sanayi ile madencilik ve enerji üretimi devredeki diğer iki üretim sürecidir.

Mekân üretimiyle toprağa gömülen sermaye, daha önceki devirlerde para ve kısmen fazlalık yaratsa da doğası gereği bu inşaat ekonomisi fazla ve uzun vadede verimsizdir. Arazi üzerindeki mekânsal yatırımların bazı kısımları, üretken işlevler için biriktirilirse fazlalık yaratır. Ancak arz, toplumun mekân talebini aşarsa, bir üretim sürecinden çok bir tüketim süreci haline gelir. Türkiye ve Konya bu sorunun uygun örnekleridir. Büyük metropol şehirlerde üretilen konut fazladır. Buradaki sorun, üretilen konutun orta, üst-orta ve üst sınıfları hedeflemesi, alt sınıflara ise talebin daha fazla olmasıdır. Yani aynı anda hem konut fazlası hem de konut sıkıntısı bulunmaktadır. İşgücünün yeniden üretiminin temel öğesi olan konut, işgücünün çoğunluğu için yeterince bulunmazken ve satın alınamazken, yatırım için finansal araç olarak kullanılan konut fazlası da bulunmaktadır.

6360 sayılı Kanun ve BBS'nin; KBB, Konya ili ve Konya ili üzerindeki etkisi, kapsamlı ve yapısal bir anlayış sağlamak için çeşitli önlemler ve geniş bir veri yelpazesi ile ölçülmüştür. KBB'nin hizmet alanı 19,5 kat artmıştır. Hizmet verilen ilçe sayısı 3'ten 31'e yükselmiştir. Hizmet verilen mahalle sayısı, çok sayıda dağınık, derin kırsal köy de dahil olmak üzere 170'ten 1154'e yükselmiştir. Hizmet verilen nüfus 1,2 Milyondan 2,1 Milyona yükselmiştir (2014 nüfusu) ve bugün yaklaşık 2,3 Milyon kişidir (2021). 1,3 milyonu merkezde, 350.000'i küçük ölçekli ve kırsal yerleşimlere dağılmış, geri kalanı ilçe merkezlerinde yarı yoğunlaşmıştır.

Bu bir ölçek meselesidir ve 6360 sayılı yasa ile yerel yönetimlerin ölçeği belediye-kent-merkezden kitlesel il ölçeğine doğru büyük ölçüde yayılmıştır. Yerel yönetimlerde ve kamu yönetimi teorisinde yerindenlik ilkesine meydan okuyan bu yayılma, sadece daha önce belediye kentsel merkezlerini değil (ve bu merkezlerin yayıldığı yarı-çeperler), aynı zamanda kırsal ve doğal arazi kullanımları ile kırsal ve kentsel yerleşimleri de kapsayan geniş kırsal ve doğal coğrafyaları kapsayan kentsel politika ve yerel yönetimlerle sonuçlandı. Bu yayılma, bu tezin arkasındaki itici güçtür ve mekân üretimi ile tarımsal üretimi aynı teorik tartışma düzlemine getirme sebebidir. Bunları bir araya getirmenin ilk adımı, bu alanların farklı coğrafyalarda ve farklı zaman aralıklarında literatürde nasıl sınıflandırıldığını ve anlaşıldığını anlamaktır.

6360 sayılı Kanun'un yürürlüğe girmesi, başta arazi meselesi olan, beraberinde getirdiği tüm kentsel ve kırsal sorunları ile bu çalışmayı tetiklemiştir. Arazinin tarımdan yerleşime veya genel olarak kentsel alana dönüştürülmesi, mekân üretimi. Bu hareket noktası kısa süre sonra orijinal ölçeğinde "sorunun özünü anlamada" yetersiz hale geldi. Daha derine baktığımda, geniş tarımsal ve doğal alanlara bakıldığında, öncelikle kentsel arazi kullanımlarının küçük olduğunu, dolayısıyla belediye sınırlarının 6360 ile genişletilmesinin, arazinin tarımdan kentsel arazi kullanımına dönüştürülmesinden çok daha fazlasını ifade ettiği gözlemlenmiştir. İkincisi, rant baskısı açısından arazi kullanımları ve sınırlı bir kaynak olarak su arasında artan veya azalan baskının temel bileşenleri arasında bir hiyerarşi vardır. Önemli olan sadece bu değişen rant baskısı değil, aynı zamanda hem kentsel hem de tarımsal arazi kullanımları için temel olan kaynaktır ve kapalı bir havzada yer alan Konya da dahil olmak üzere bazı coğrafyalarda ciddi şekilde sınırlıdır. Özetle, çalışmaya arazinin sınırlı kaynak olması ana özelliği ile başlanmışken ve bunun yerine ana özellik olarak karada suyun varlığı ve erişilebilirliği (çift odaklı rant) sonucuna varılmıştır. Sorun önce ölçeklenmiş, sonra verilerle derine inerken yeniden şekillenmiştir.

Çalışmanın sınırlamaları zaman sınırlaması, yer sınırlaması ve nedensellik sınırlamasıdır. Yasanın çıkmasından bu yana geçen süre, mekânsal etkilerin ölçülmesi için oldukça düşük bir süre olan sadece 10 yıl iken, Türkiye'de sermayenin ikincil devresine

sermaye akışı, mekân üretimi son derece yüksek ve hızlıdır. İkinci sınırlama ise Konya ilinin kendisidir. Konya, 6360 sayılı Kanun'un getirdiği değişikliklerde avantajlı iller arasında yer alıyor. Bunun yanında siyasi eğilimler açısından yerel yönetim merkezi yönetime paraleldir ve aralarında herhangi bir gerilim yoktur. Bu nedenle bu çalışmada elde edilen sonuçlar diğer iller için daha düşük temsil düzeyine sahiptir. Üçüncü sınırlama en önemlisidir, sosyal bilimlerde nedenselliğe ulaşmak zordur, çünkü tek bir bağımsız değişkeni seçip doğrudan etkilerini ölçmek neredeyse imkânsızdır. Bu sınırlama, çalışmayı çok çeşitli nicel, nitel ve uzamsal verilerle mümkün olduğunca geniş tutmamıza neden oldu. Başlıca bulguları okurken, bu sınırlamalar akılda tutulmalıdır.

Tüm analizler yapıldıktan sonra bulunan sonuçlar özetlenerek ve hipotezlerin test sonuçları gösterilmiştir:

Birinci Hipotezin Cevabı: Konya ilinin kuzey ve doğu çeperlerinde bu hipotez geçerlidir, çünkü meydana gelen kentsel saçılma, 6360 sayılı Kanuna dayanılarak hazırlanan 2016 KBB Çevre Düzeni Planı'nın verdiği imar haklarının doğrudan bir sonucudur. Kentin güney çeperlerinde, Meram'da, bu yöndeki kentsel saçılma, nazım planların verdiği haklardan ziyade daha çok plan revizyonları ve plan değişiklikleri ile ilgili olduğundan, bu hipotez geçerli değildir. 6360 sayılı Kanunun doğrudan bir ürünü olan Konya Büyükşehir Belediyesi 2016 Çevre Planı ilçe belediyeleri tarafından yerel olarak üretilen imar planlarının verdiği gereksiz imar haklarını azalttığı için hipotez 28 çevre ilçe için de geçerli değildir. 6360 sayılı Kanun tarafından önerilen yeniden ölçeklendirilmiş yekpare yerel yönetim yapısı daha fazla kentsel saçılma yaratabilir, ancak kentsel saçılma sorunu aynı zamanda diğer birçok faktörün etkisi altındadır. 6360'ın kapsamlı yaklaşımı, kentsel planlama ve kentsel saçılmanın önlenmesi için olumluyken, metodolojik şehircilik ve ana sonuçlara odaklanma, merkez ilçelerde, yani Konya şehrinde daha fazla kentsel gelişme baskısı ile sonuçlanır. Konya örneğinde de böyle olmuş ve şehre gelen nüfus, yarı-çeper üzerindeki rant baskısını artırmış ve bu da çok sayıda plan revizyonu, değişikliği ve kısmi müdahalelerle sonuçlanmıştır.

İkincisi, ölçek meselesidir. Kentsel arazi kullanımları ilin sadece %1.6'sını kaplamaktadır ki bu, ilin %98,4'ünü kapsayan toplam tarım alanları ve doğal alanların büyük yüzdesi karşısında oldukça önemsizdir. Kentsel mekân üretimi için tarım arazilerinin tüketimi, ilin tamamı düşünüldüğünde istatistiksel olarak o kadar da önemli değildir. Coğrafya ile birlikte ve üzerinde düşünüldüğünde önemi ortaya çıkmaktadır. Bu bir ölçek meselesi değil, bir kalite meselesidir. Tarım arazisinin konumu, olanakları, sulamanın varlığı, yüksek düzeyde erişilebilirlik, tarımsal araziden kentsel araziye dönüşüm analiz edilirken göz önünde bulundurulması gereken niteliklerdir. Arazi miktarı il ölçeğinde pek dikkate alınmaz, ancak arazi dönüşümünü sorunlu kılan konum, su, erişilebilirlik ve olanaklardır. Buna ek olarak, arazi kullanımı dönüşümü sıfır toplamlı bir oyundur. Burada kentsel arazi kullanımları

tarafından tüketilen verimli, sulanabilir ve erişilebilir bir tarım arazisi, tarımsal üretimde tarım arazisi kullanımları için daha fazla doğal alanın dönüştürülmesi gerektiği anlamına gelir. Tüketilen her tarım arazisi için, tarım amaçlı doğal arazi tüketimi olması muhtemeldir. Kentin yarı-çeperinde tarım arazilerini tüketen kentsel saçılmanın önemi bu noktada yatmaktadır.

İkinci Hipotezin Cevabı: Hipotez Konya örneği için geçerlidir. Coğrafyadaki nüfus hareketleri yerel yönetim kararlarından çok daha karmaşık olduğu için 6360 Kanununun yerleşme örüntüleri üzerindeki etkisini okumak zordur, ancak 6360'ın küçük ölçekli ve kırsal yerleşimlerine nüfus kazanma/kaybetmeme konusunda yardımcı olmadığını söylemek mümkündür. 2000-2014 yılları arasında nüfus akışının odak noktası Konya olurken, 2014 yılından sonra ilçeler de köylerden/kırsal mahallelerden ayrılan nüfus için destinasyon haline gelmektedir. 6360 sayılı Kanunun Konya ilinin nüfus coğrafyasına etkisi daha dengeli bir göç gibi görünmektedir ve bu sefer beklenmedik bir şekilde sadece Konya merkez değil ilçe merkezleri de nüfus çekmektedir. Yerleşme örüntülerindeki değişiklikler, 6360 sayılı yasanın doğrudan sonucu olabilir veya olmayabilir, ancak 6360'ı oluşturan bağlam, yerel yönetim yetkisini illerin merkezinde yoğunlaştırırken, yerleşme örüntülerinde de aynı tür yoğunlaşmayı üretmiştir. Nüfusu 10000'in altında olan yerleşim yerlerinde nüfus kaybı artmaktadır. Kırsal mahallelerin, eski köylerin ortalama büyüklüğü azalırken, nüfusu 500'ün altında olan köylerin sayısının artması, hizmet sunumunu daha da zorlaştırmakta ve bir daralma kısır döngüsü yaratmaktadır. Büyükşehir belediyelerinin planlama yaklaşımı şehirci ve kentsel gelişme odaklıdır. Konya Büyükşehir Belediyesi de bir istisna değildir. 6360 sınırları genişleyen kent politikasının önündeki sorun, daha kırsal, daha az ölçekli, daha dağınık, küçülen ve yönetilemez hale gelmektedir. Bu alanların ele alınması için gerekli politikalar, 6360 sayılı Kanun nedeniyle il ölçeğinde kent politikasının merkezinde yer alan oyuncu Konya Büyükşehir Belediyesi tarafından yeterince tanımlanmamıştır. Kentsel alanlara ve ıssız kırsal alanlara akın eden nüfus, hem arazi kullanım değişikliği hem de üretim için ihtiyaç duyulan işgücü açısından tarımsal üretim üzerinde güçlü bir etkiye sahiptir.

Üçüncü Hipotezin Cevabı: Hipotez Konya örneği için geçerlidir ve tarımsal üretimde daha büyük ölçeklere doğru bir ölçekleme yaşanırken, bir yoğunlaşma da gözlenmektedir. 6360 sayılı kanunun yürürlüğe girmesinden sonra tarımsal üretim ve sulama daha çok 3 merkez ilçede yoğunlaşmıştır. Tarımsal üretimde yeniden ölçeklendirmenin temel unsuru, sulamanın sağlanmasıdır ve sulama yatırımları da ağırlıklı olarak merkez ve daha büyük ilçelerde yoğunlaşmaktadır. Sulama ile birlikte, tarımsal üretimin daha büyük ölçeklere dönüştüğü, hayvancılığın ise kentleştiği ve sanayileştiği görülmektedir. Kümes hayvancılığı, arıcılık ve hatta küçükbaş hayvancılık zamanla merkez ilçelerde daha fazla yoğunlaşmaktadır ve 6360'dan sonra süreç hızlanmıştır.

Küçülen köyler/kırsal mahalleler (özellikle kuru tarım yapanlar) ile yeniden ölçeklendirme ile merkezde tarımsal üretimin yoğunlaşması beklenildiği gibi gözlemlenmektedir. Sulama, her üç hipotezde de ilin coğrafyasını değiştiren, hem yerleşme örüntülerini, hem üretim kalıplarını hem de kentsel büyümeyi etkileyen ana etkendir. Yeniden tahsis edilen su, bazı köyler için suyun azalmasıyla sonuçlanırken, bazılarında refah ve yerleşme örüntüsü suyun varlığı ile güçlü bir korelasyona sahiptir. Tarımsal üretim modellerinde yeniden ölçeklendirme ve yoğunlaşma, sulama yatırımlarıyla da yakından bağlantılıdır. Konya'daki üretim deseni değişimi, coğrafyada artan sulama olanaklarının doğrudan bir sonucudur. Ancak sulama Konya için bir kısır döngüdür. Kapalı havza, ihtiyaç duyulan su kaynaklarından yoksun olup komşu havzalardan su taşımakta ve her yıl yeni sulama alanları açılmaktadır. Buradaki sorun önemli miktarda sulanan alanların Konya ilinin yarı-çeperinde ve büyümekte olan ya da büyük ilçe merkezlerinde yer almasıdır. Bir yanda sulama yatırımları yapılırken, diğer yanda KBB, ilçe belediyeleri, ÇŞİDB ve planlama yetkileri olan diğer kamu kuruluşları bu sulanan alanlarda imar hakkı vermektedir. 6360 sayılı kanunun kapsayıcı yaklaşımı bu konuyu aşamamış ve bu konuda kapsamlılıktan yoksun kalmıştır. Sulama ve tarımsal üretimin yoğunlaşması tehdidi artırmaktadır.

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