RESILIENCE TO DISASTERS: LESSONS FROM TURKISH URBAN REGENERATION EXPERIENCES

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN
REGIONAL PLANNING IN CITY AND REGION PLANNING

JANUARY 2019

Approval of the thesis:

RESILIENCE TO DISASTERS: LESSONS FROM TURKISH URBAN REGENERATION EXPERIENCES

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ABSTRACT

RESILIENCE TO DISASTERS: LESSONS FROM TURKISH URBAN REGENERATION EXPERIENCES

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January 2019, 176 pages

This thesis focuses on the relationship between urban regeneration policy and disaster resilience in cities with an empirical evidence from Turkish case, as departing from the clauses of the Law no.6306 "Transformation of Areas Under Disaster Risk". Main argument of the thesis is, urban regeneration policies and projects contribute to the urban resilience to disasters in cities. For identifying the connections between urban regeneration policy and disaster resilience, the literature about resilience and urban resilience is covered. For identifying the relationship, the disaster management in the context of urban areas is reviewed for building the analytical framework of the study. After putting the case of Law no.6306 "Transformation of Areas Under Disaster Risk" in the context of urbanization and disaster management system of Turkey, the research focuses on the analysis of the policy, institutions and the "risky area" implementations. These analyses were based on the research findings of interviews conducted by the related institutions, official law documents, the quantitative data gathered from the Ministry of Environment and Urbanization, development plans of project areas and other academic researches. Resulting from the research, there are evidences of using urban regeneration projects as a way of achieving disaster resilience in cities by including mitigation and preparedness actions and risk assessment as a part of urban

regeneration policy. However, as seen in Turkish case, there exist some limitations and challenges while implementing the urban regeneration policy where policy recommendations are proposed based on these findings.

Keywords: Resilience, Urban Resilience, Urban Regeneration, Disasters, Law no.6306

ÖZ

AFETLERE DAYANIKLILIK: TÜRKİYEDEKİ KENTSEL DÖNÜŞÜM DENEYİMLERİNDEN ÇIKARILAN DERSLER

Adıkutlu, Selin
Yüksek Lisans, Bölge Planlama
Tez Danışmanı: Dr. Öğr. Üyesi Meltem Şenol Balaban

Ocak 2019, 176 sayfa

Bu tez kentsel dönüşüm politikaları ile kentlerde afetlere dayanıklılık kavramları arasındaki ilişkiyi 6306 sayılı "Afet Riski Altındaki Alanların Dönüştürülmesi Hakkında Kanun" örneği üzerinden analiz etmektedir. Bu ilişkinin belirlenebilmesi için öncelikli olarak dirençlilik ve kentsel afetlere dirençlilik kavramları araştırılmıştır. Ayrıca çalışmanın analiz çerçevesini oluşturabilmek amacıyla kentsel afet yönetimi konusu irdelenmiştir. Örnek olarak belirlenen kanunun incelenmesine geçilmeden önce Türkiye kentleşme tarihi ve afet yönetim sisteminin gelişimi ele alınmıştır. Bu çerçeveyi baz alarak araştırma; politika analizi, kurumsal ilişkiler analizi ve "riskli alanlar" örnek uygulama analizi olarak üç boyutlu bir analizi kapsamaktadır. Bu analizler, tez kapsamında belirlenen yetkililer ile gerçekleştirilmiş görüşmeler, Çevre ve Şehircilik Bakanlığı'ndan elde edilen veriler, kanun ve yönetmelik belgeleri, nazım ve uygulama imar planları ve diğer akademik araştırmalardan elde edilen veriler kullanılarak yapılmıştır. Araştırmanın sonunda, kentsel dönüşümün afetlere dayanıklı kentler oluşturulmasına, sakınım stratejileri, riskleri belirlemeye ve azaltmaya yönelik eylemler içererek katkı sağladığı sonucuna ulaşılmıştır. Ancak diğer yandan Türkiye örneğinden elde edilen bulgulardan görüldüğü üzere, bu ilişkide bir takım kısıtlar ve sorun alanları bulunmaktadır. Bu kısıtların belirlenmesi araştırmanın bir diğer önemli bulgusudur. Sonuç olarak afetlere

dayanıklılık bağlamında kentsel dönüşüm uygulamalarındaki problem alanları; projelerin kapsamı ve süresi, dönüşüm modellerinin çeşitliliği ve kapsayıcılığı, etkilenen tarafların ve toplumsal katılım, afet riski yönetimi araçları ve finansal araçların etkinliği olarak saptanmış ve bu alanlara yönelik öneriler sunulmuştur.

Anahtar Kelimeler: Dayanıklılık, Kentsel Dirençlilik, Kentsel Dönüşüm, Afetler, 6306 sayılı Kanun

To my beloved family; Beril, Serpil and Osman Adıkutlu

ACKNOWLEDGMENTS

I would first like to express my sincere appreciation and gratitude to my supervisor Assist. Prof. Dr. Meltem Şenol Balaban for her guidance, continuous support, constructive comments and feedback provided throughout this research study.

Secondly, I am thankful to the examining committee Prof. Dr. H. Çağatay Keskinok, Prof. Dr. Nil Uzun, Assist. Prof. Dr. M. Anıl Şenyel and Assist. Prof. Dr. Suna Senem Özdemir for their inspiring comments and contributions.

I would like to thank my professors at City and Regional Planning Department in METU, for the stimulating discussions we had throughout the years in undergraduate and graduate studies.

Also, I owe a debt of gratitude to my former colleagues in the Ministry of Environment and Urbanization and experts in the Disaster and Emergency Management Presidency (AFAD) who do not hesitate to share their valuable knowledge with me during my research.

I am very grateful to my friend Tuğçe Sönmez Saner for her support, and valuable feedbacks. And I would like to express my special thanks for my dear friend, my sister Damla Yeşilbağ, who always motivates and supports me from very beginning of this academic journey.

Finally, I gratefully express my special thanks and indebtedness to my sister Beril Adıkutlu, my parents Serpil Adıkutlu and my father Osman Adıkutlu for their unfailing support and motivation and especially their concomitance and contributions to my research. Their love and continuous encouragement are my inspiration for life. This accomplishment would not have been possible without them.

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LIST OF ABBREVIATIONS

ADPC: Asian Disaster Preparedness Centre

AFAD: Disaster and Emergency Management Presidency (in Turkish *Afet ve Acil Durum Yönetimi Başkanlığı)*

CSB: Turkish Ministry of Environment and Urbanization (in Turkish *Çevre ve Şehircilik Bakanlığı*)

KAF: North Anatolian Fault Line (in Turkish *Kuzey Anadolu Fay Hattı*)

MTA: General Directorate of Mineral Research and Exploration (in Turkish *Maden Tetkik ve Arama Genel Müdürlüğü*)

TOKI: Housing Development Administration (in Turkish *Toplu Konut İdaresi Başkanlığı*)

UNISDR: United Nations Office for Disaster Risk Reduction

CHAPTER 1

INTRODUCTION

1.1. Context of the Research

World's urban population has been rising day by day resulting in a continuous increase in urbanization rates. Due to increased rates of urbanization cities are now facing variety of problems and challenges, like over consumption of the resources, the impacts of global warming and climate change. It is widely accepted that natural disasters are results of human activities so that the risks and vulnerabilities in cities are increasing because of increased concentration of people and commodities. In this respect along with the sustainable development goals, several universal targets are set as achieving disaster resilience or becoming a resilient city (UNISDR, 2012).

Originated from the ecological sciences, resilience is now a notion used across many other disciplines varying from social sciences, engineering to development studies. The principal characteristic of resilience is, it is a concept for describing the adapting, coping and transforming capacities of complex systems when facing disturbances, shocks or changes. With the evolution of the concept, some argued that resilience thinking includes the 'learning' capacity as well as coping and adaptive capacities in systems. So, one way of defining resilience is, developing the capacities through learning to sustaining development when come up against unexpected or wonted changes and disturbances (Folke, 2016). This concept is adapted to the new challenges in cities like disaster risk management. As highlighted by Cutter (2014), resilience thinking help connecting disaster risk management, disaster risk reduction and envisioning sustainability within cities with several public policies and community-based movements. Resilience notion in disasters research stands for set of actions for preventing the possible losses and reducing risks while increasing the capacity to

recover when facing any disturbances like disasters (Johnson & Blackburn, 2014; UNISDR, 2017).

On the other hand, with the economic restructure in cities beginning in 1980s, urban regeneration policies became one of the core urban policy of local governments as a solution to the challenges and problems occurred in urban areas. Even though the main purpose of the urban regeneration concept was commonly accepted as to develop new urban spaces within the deindustrialised cities, the policy and its instruments used in solving many other urban problems such as regeneration of illegal settlements. Lately, the policy is also used as a way of disaster risk management, a mitigation or a recovery, tool in facing disaster risks in cities. A variety of urban regeneration cases from world, show that urban regeneration help addressing the urban problems in multiple dimensions in cities. Yet there is no clear description about the ways of developing urban regeneration policies in the context of disaster resilience in cities.

From this point, this research seeks for finding answers to the questions of in what ways urban regeneration policies connected to the disaster resilience. With this aim, the *Turkish Law no.6306 Transformation of Areas under Disaster Risk* is analysed in this research

1.2. Aim and Objective the Research

The aim of this study is to investigate how and in what extend urban regeneration is affecting urban resilience to disasters by using a case from Turkey. In order to determine a framework for this research the literature about disaster risk reduction for having resilient cities on one side and urban regeneration literature will be reviewed on the other side. And upon these reviews the relation of the two sets of literatures will also be evaluated according to the aim of this study.

By conducting this research finding out *how the urban regeneration policies and projects affect urban resilience in the context of disaster risk management and planning* is intended. So, the objectives of this research are reviewing the literature about urban resilience and the policies, tools in this concept in relation to disaster

management in cities, putting urban regeneration concept in the context of disaster research, identifying the variety of intervention mechanisms in the resilience dimensions, identifying the strengths and challenges in using urban regeneration policy and developing learning outcomes for urban policy makers based on the Turkish case.

1.3. Methodology of the Thesis

In this section, the methodology of this thesis is explained by describing the selection of the types of research used, the methods used, the development of the theoretical background of the study. Following the description of the research design, the data collection methods and the limitations of the study is explained.

The research was primarily built upon the experiences and observations in the field of urban regeneration policy and projects in Turkey as seen in Table 1.1. Upon those empirical observations made, a brief primary literature was reviewed in the field of urban studies, urban regeneration and disaster risk management in cities as seen in Table 1.2. So, the main research question of this thesis was formulated as to find out *how the urban regeneration policies and projects affect urban resilience in the context of disaster risk management and planning*. Based on this, the research question was divided into sub questions and areas of study while designing the research. In order to understand the main problems questions were formulated as;

- Why use urban planning and its tools, especially the urban regeneration, in achieving urban resilience to disasters?
- What is the relationship between urban regeneration policies and projects and resilience dimensions and intervention mechanisms?
- Are there any examples of using urban regeneration as an instrument for achieving urban resilience to disasters?
- Based on the empirical evidence, what are the strengths and advantages of using urban regeneration for urban resilience to disasters?

- Based on the empirical evidence, what are the weaknesses, disadvantages of and problems occurred in urban regeneration policies and projects for achieving urban resilience to disasters?
- What can policymakers learn from cases where urban regeneration was used for achieving resilience?

Table 1.1. *Formulating the research questions*

Observations	**Law No 6306 "Transformation of Areas under Disaster Risk"**		
	Policy: - The aim is to create safe and liveable cities by urban regeneration projects - Aims safeguarding the lives and assets of the community - Aims to create resilient cities - Uses urban regeneration as a way of disaster risk reduction in urban areas - Includes disaster mitigation measures - Aims supporting the projects with 'facilitative' measures such as financial supports to accelerating the regeneration projects - Aims to create a regeneration model where the negotiation of all parties is requisite	Instruments in the Law: - Defines 3 ways of intervention: Area Under Disaster Risk, Risky Buildings and Reserve Area for Development - Defines technical, institutional, financial mechanisms of urban regeneration - Includes both building-based and area-based regeneration model - Describing the roles of institutions and people in the decision-making phase, project development and implantation phase	Decision Making Process: - The Ministry of Environment and Urbanisation is defined as the main responsible body of this law - There are other central or local level institutions and real or legal person(s) defined in the proposal of the projects - The designation of areas under disaster risk can be done by the proposal of the Ministry to the council of the Ministers - Designation of an area as "Reserve Area for Development" can be done by the decision of the Minister of Environment and Urbanisation
Problems	Ambiguous relation with disaster	Fragmented development,	The share of powers Centralization of the decision-making

	management and urban planning system	building based development, density, infrastructure	process in urban regeneration
Questions	What is resilience in context of disasters? How to connect urban policies especially urban regeneration policies with disaster risk management and resilience to disasters? What are the principal elements of disaster risk management in cities? What are the ways of urban regeneration policy's contribution to resilience to disasters?		

Table 1.2. *Conceptualizing the Research in Theoretical Framework*

	Broader ⟶ Narrow		
Conceptual Level ⋮ ▼ Analytical Level	Resilience concept in urban & regional planning		Urban Resilience
	Disaster Management in cities Disaster Risk Reduction Mitigation Planning		Urban Resilience to Disasters
	Urban Planning's role in Disaster Urban Policies for Disaster Risk Reduction	Housing development & housing policy and planning Urban Regeneration	Urban Regeneration Policy for Disaster Resilience

1.3.1.1. Expected Outcomes of the Research

When the expected outcomes of this fundamental research concerned in light with the research questions, the study aims to;

- Identify the policies, intervention mechanisms and tools of urban regeneration which can be used for achieving urban resilience to disasters in cities,
- Identify the relationship between urban regeneration policies and projects with urban resilience to disasters in cities,

- Define the problems occurred while using urban regeneration policies and projects for urban resilience to disasters
- Explain the strengths and advantages of using urban regeneration in seeking urban resilience to disasters
- Determine several solutions and policy suggestions that was spotted from the research conducted.

1.3.1.2. Research Methods

As previously explained, this descriptive study was designed based on the research question and findings answers with empirical evidence from Turkish Case with analysing the Law No. 6306 Regeneration of Areas Under Disaster Risks in Turkey. This case study is chosen due to several reasons.

Main reason for selecting this case is because the author herself has experience in the practice of decision-making and implementations of this law. Even so, the literature was reviewed to identify other cases to study where urban regeneration policies and/or projects were developed in the context of disaster risk management. However, there is very limited information about other examples in the literature which is covered in Chapter 2.

On the other hand, the Turkish Case of Law no. 6306, was used as an evidence because the law is enforced since 2012, which provide six years of practice experience to be analysed. And also, this law is covering the whole country and is implemented in many different cities which provides the wide range of implementations for analysis and discussion rather than a project-based analysis.

1.3.1.3. Data Collection

To allow a comprehensive analysis of the law with the policies defined, institutions and sample projects; this study includes both a primary data collection and also a secondary data collection with respect to the different levels of analysis of the case study.

For policy, institutional and sample project analysis, primary data were collected by the interviews conducted with open-ended questions with the institutions involved in the decision-making process of risky area. For this reason, first the Law and its regulation were analysed to identify the interviewees in the decision-making process. Among the determined institutions, people who are involved in the decision-making process were categorized according to their position in the institutions as; administrator roles or people who provide technical information; city planners, architects, geological engineers. Within the context of this research 9 interviews conducted in the Ministry of Environment and Urbanization with 3 directors having backgrounds as urban planner, architect and mechanical engineer, 4 urban planners, 1 architect and 1 geology engineer. And for the interviews with AFAD 2 interviews conducted with 2 directors.

The objective of the open-ended interview questions was to collect data in the 3 levels of the framework of this analysis as, to identify the relationship between urban regeneration policy and resilience policies, to identify the ways of contribution to urban resilience and how they are contributing to resilience to disasters, as explained in the previous section. The questions can be seen in Appendix-A.

In addition to the data gathered from interviews, statistical data about the implementations of the law, urban development plans and the details about the selected sample projects was collected from the Ministry of Environment and Urbanisation. Using this data, the current urban regeneration projects were analysed by using a sampling method. This method was chosen because of the time and data constraints occurred in the research.

The secondary data resources that were used in this research were mainly the academic articles and researches, theses and official reports both about the theoretical background of the study and for the analysis of the urban regeneration policy case of Law no.6306.

1.4. The Structure of the Thesis

Based on the literature on urban resilience, disaster risk management in cities and urban regeneration, the thesis constitutes three chapters in addition to this introductory chapter. The conceptual diagram of the structure is given in Figure 1.1.

Chapter-2 covers the theoretical background of the study which is about understanding the resilience concept, the urban resilience concept and the disaster resilience with respect to the urban regeneration literature. The theoretical background will be discussed under three sections and a last section for concluding remarks of the discussions in the chapter. Section 2.1.1 and 2.1.2 covers the definitions and discussions about resilience and urban resilience concept. After clarifying these concepts, the second subset of our theoretical literature, disaster risk management in cities is explained in section 2.1.3. And the third section covers the development of urban regeneration concept and its relationship with disasters. Before moving on to the following chapter, examples from the world about urban regeneration policies and projects that are targeting disaster resilience in cities are explained. In the section 2.2., the framework of analysis of this research is clarified based on the theories covered.

The third chapter of the thesis includes the analysis of case study under three sections and a fourth concluding section. In section 3.1 and 3.2 the contextual background of the Turkish cities is explained based on the literature of urbanization, urban regeneration and disaster risk management. Followingly, the analysis of the Law no.6306, has 4 parts as; background of the law, policy analysis, institutional analysis and analysis on the "risky area" implementations.

In the last chapter, the learning outcomes and conclusion of the research is put forward with emphasis on the limitations of the research. Based on the research findings, finally several policy suggestions are made. As the conclusion in this chapter the future research suggestions are identified.

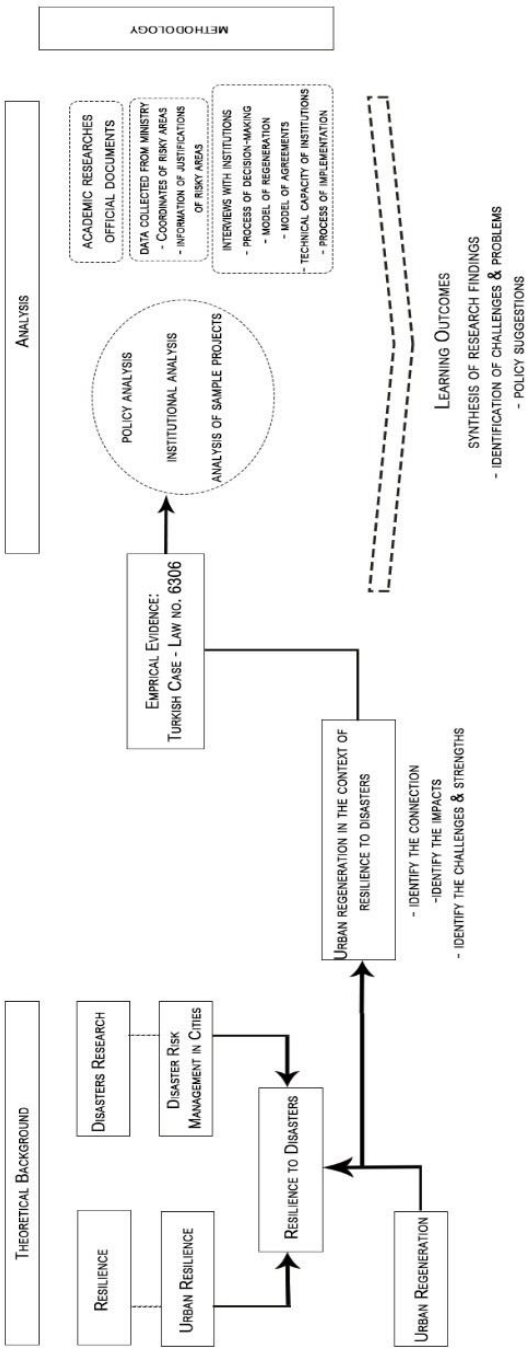

Figure 1.1. Structure of the thesis

CHAPTER 2

RESILIENCE TO DISASTERS: MAIN CONCEPTS AND DEFINITIONS

2.1. Introducing the Theoretical Concepts of the Research

Recent numbers show that as of 2017, 54% of the total population of the world live in urban areas (UN, 2018). Additionally, according to the United Nations' projections in the world urbanization prospects, the levels of urban population was 30% in 1950 and will reach 68% in 2050 across the globe.

In terms of disasters, the common understanding is that natural disasters are the output of human activities which creates vulnerabilities (Johnson & Blackburn, 2014). Along with such increase in urban population it was highlighted by Quarantelli (2003), (as cited in Sonmez Saner, 2015), cities become more vulnerable to natural disasters as a result of high concentration of people and commodities. Moreover, Nicholls et al (2007) (as cited in Şenol Balaban, 2016) underlined the fact that increased population thus increased economic activities in cities expectedly increase the social and economic impacts of disasters. In this respect, the concern is to reduce and cope with hazard risks which could be done by increasing the 'resilience' (Johnson & Blackburn, 2014). The term 'resilience' becomes the central paradigm in many disciplines as a target of development. Especially in fields where vulnerability and risks exist such as Disaster Risk Reduction, Climate Change Adaptation etc. (Béné, Wood, Newsham, & Davies, 2012). Yet it is arguable that a common understanding of resilience does not exist in the literature. For example, there is no commonly accepted definition of resilience whether it is an application or a measurement or a state of being (Johnson & Blackburn, 2014).

From this point of view, this research is in search of analysing the resilience concept in cities focusing on the resilience to disasters aiming disaster risk reduction in urban

areas. To have a comprehensive analysis, the resilience concept is explained with respect to the evolution of the concept from the beginning. The definition of the urban resilience concept follows this part to link the resilience thinking with urban studies and cities. The resilience concept in the context of disaster risk reduction is explained after constructing a clear understanding of disaster research.

2.1.1. Understanding the Resilience Concept

In this part the resilience concept is explained firstly by describing the development of the concept and the definitions from different perspectives. This is followed by analyzing the main components of resilience concept based on the definitions.

2.1.1.1. Development of the Resilience Concept

Resilience concept was first defined by Holling (1973, 30), (as cited in Johnson and Blackburn, 2014), from an ecological perspective as, "the ability of environmental systems to absorb impact and reorganize to regain full functionality". When this very first definition analysed, there is a 'system' defined which has an 'aim', to regain functionality, by using 'ways' such as 'absorbing' and 'reorganizing' itself. This concept is later reviewed by Gunderson (2000), Folke (2006) and Scheffer (2009), and defined as a concept to explain the capacity of ecological systems to endure its original conditions under several distributions (Folke et al., 2010). Moreover, according to Holling (1996) (as cited in Folke et al.,2010), from an engineering perspective resilience can be defined as *"the return rate to equilibrium"* upon a disturbance. These descriptive definitions of resilience evolved in time into a more flexible 'approach' for analysis of different socio-ecological systems as it came to the agenda of other scientific disciplines besides ecological sciences to help understanding more complex systems (Brand & Jax, 2007).

The evolution of the term with its transfer to the social sciences brings new dimensions to the ecological sciences perspective. Now that resilience is used not only for expressing a return to equilibrium but to "bounce forward". This new positive notion

has brought different ideas to the agenda of resilience such as poverty and vulnerability alleviation by reducing risks (Alexander, 2013).

In order to understand the differences in resilience approaches, Brand and Jax (2007) compared the various definitions of resilience concepts under 3 groups of descriptive, hybrid and normative concepts with respect to their degree of normativity (Table 2.1). As seen from this the original ecological perspective is a more descriptive where additional dimensions and operational tools were also defined by others upon the original definition of Holling. On the other hand, the resilience concept displays a boundary object as in the sociological definitions. Additionally, the concept evolves into a more hybrid concept including both descriptive and normative definitions as in socio-ecological definition. The transformation of the original resilience concept continued, and the concept is lately seen as a perspective rather than a defined concept for clarifying complex systems. This make resilience as a way of thinking and as an approach to address social processes, such as social learning, leadership and adaptive governance (Brand & Jax, 2007).

Table 2.1. *Definitions of the term resilience*

Categories and classes	Definitions	References
(I) DESCRIPTIVE CONCEPT		
(I-A) Ecological Sciences		
Original-ecological	persistence of systems and of their ability to absorb change and disturbance and maintain the same relationships between populations or state variables	Holling 1973:14
Extended-ecological - *Three characteristics* - *Four aspects*	The magnitude of disturbance that can be absorbed before the system changes its structure by changing the variables and processes that control behaviour and The capacity of a system to experience shocks while retaining essentially the same function, structure, feedbacks, and therefore identity	Gunderson and Holling 2002:4 Walker et al. 2006:2 Walker et al. 2002

	capacities i) to absorb disturbances, ii) for self-organization, and iii) for learning and adaptation 1) latitude (width of the domain), 2) resistance (height of the domain), 3) precariousness, 4) cross-scale relations	Folke et al. 2004:573
Systemic-heuristic	Quantitative property that changes throughout ecosystem dynamics and occurs on each level of an ecosystem's hierarchy	Holling 2001
Operational	Resilience *of* what *to* what? And The ability of the system to maintain its identity in the face of internal change and external shocks and disturbances	Carpenter et al. 2001 Cumming et al. 2005
(I-B) Social Sciences		
Sociological	The ability of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change	Adger 2000:347
Ecological-economic	Transition probability between states as a function of the consumption and production activities of decision makers and The ability of the system to withstand either market or environmental shocks without losing the capacity to allocate resources efficiently	Brock et al. 2002:273 Perrings 2006:418
(II) HYBRID CONCEPT		
Ecosystem-services-related	The underlying capacity of an ecosystem to maintain desired ecosystem services in the face of a fluctuating environment and human use	Folke et al. 2002:14
Social-ecological system - *Social-ecological* - *Resilience-approach*	The capacity of a social-ecological system to absorb recurrent disturbances (...) to retain essential structures, processes and feedbacks	Adger et al. 2005:1036 Folke 2006

	A perspective or approach to analyse social-ecological systems	
(III) NORMATIVE CONCEPT		
Metaphoric	Flexibility over the long term	Pickett et al. 2004:381
Sustainability-related	Maintenance of natural capital in the long run	Ott and Döring 2004:213f

Source: Brand & Jax, 2007

In addition to these wide range of definitions that are categorized under different concepts, Johnson and Blackburn (2014) stated that resilience can be defined as "idealized "state of being" (for instance "a resilient city") or a dynamic process through which this state of being is improved through learning and adaptation (as a governing strategy*)"* (Johnson & Blackburn, 2014, p.30). Alexander (2013), describes this wide range in the definitions of resilience as covering from a simple description or characteristic of a thing to an entire 'body of thought'. And also as seen above, the concepts can be used in various forms like resilience, resiliency and resilient which reflects the story behind it as a descriptor of an object or state of being or behavior of things and people (Alexander, 2013). The evolution of the term and a summary of the concepts can be seen in Figure 2.1.

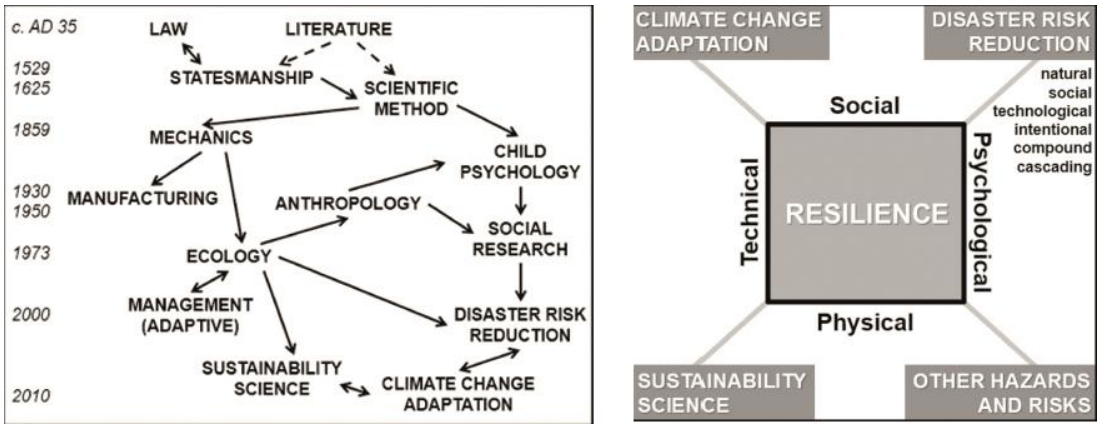

Figure 2.1. Schematic diagram of the evolution of the term "resilience" (Alexander,2013)

This wide range of definitions, some having a common sense, some adding new dimensions to the concept, show that resilience concept has some fundamental characteristics.

First, as stated by Cutter (2014), the resilience concept has different dimensions of economic, environmental, social, institutional, organizational, infrastructure and psychosocial. Within those dimensions there are areas of analysis in other words the types of resilience are addressed such as individuals, buildings, sectors, systems, communities and cities (Cutter, 2014; Cutter, Burton, & Emrich, 2010). Also, it is essential to identify the policy realm, that resilience is targeting, such as climate change, disaster risk reduction, post-disaster recovery (Cutter et al., 2010).

Covering these different dimensions and domains of study, the concept includes measurement of 'a capacity' while absorbing or transforming itself under disturbances to protect and develop its function, identity and structure. Capacity defined by UNISDR (2009) as "the combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals*"*(United Nations International Strategy for Disaster Reduction, 2009, p.5). In resilience context, capacity is commonly attributed to "capacity to adapt and transform" of complex systems (Folke et al., 2010). So, the capacity to adapt and transform can be described as the adaptive and/or transformative intensities, characteristics and resources that can be used for achieving or sustaining resilience.

Further, Johnson and Blackburn (2014) emphasized the role of 'learning' and adaptation for achieving a better situation. Folke (2016) stated, resilience is about the combination of the concepts of learning and being a capacity of adaptation and transformation. According to Folke (2016), the concept is about "cultivating the capacity to sustain development in the face of expected and surprising change and diverse pathways of development and potential thresholds between them" (Folke, 2016, p.1). Thus, it is argued that not only having a capacity but also improving the capacity to adapt and transform by learning, is part of resilience understanding.

Based on these characteristics analysed, as this research is focusing on cities, it is essential to grasp the meaning of resilience in the context of socio-ecological complex systems. From this point of view, the resilience understanding includes 3 features of resilience; *"*(1) the ability of a system to absorb or buffer disturbances and still maintain its core attributes, (2) the ability of the system to self-organise and (3) the capacity for learning and adaptation in the context of change*."* (Eraydin & Taşan-Kok, 2013, p.6).

This definition expresses that resilience is not only a measure or solely a target to achieve or a process, but it is covering all these by being 'a way of thinking' and understanding.

The idea of resilience argues that from the individual level to community level to societal level, all elements are making up the socio-ecological systems. In this respect, resilience way of thinking describes governing approaches of this social-ecological system across these different levels for people and institutions (Folke, 2016). The aim in resilience thinking is to managing sustainability challenges. For sustaining development, it is essential to 'cultivate the capacity of developing and sustaining' while experiencing any kinds of disturbances; accumulative or sudden, expectedly happening or surprising.

Folke (2010) highlighted the fact that, in resilience thinking while aspiring sustainability in social-ecological system's development path, the issue is managing the adaptive and transformative capacity for controlling and responding to the sudden or expected changes or disturbances (Folke et al., 2010).

On the contrary, some argue that defining a way of thinking such as resilience thinking will not affect the capability of grasping and tackling the problems of poverty and vulnerability. The idea is that, someone's resilience can be another one's vulnerability (Alexander, 2013).

2.1.1.2. Components of Resilience

As seen in the wide range of resilience approaches and definitions, the 'ways' of behaving in facing disturbances, impacts of changes in the systems and shocks differ and depends on the capacity of the system. Some abilities defined as; to allowing the change, continuing the current connections between variables, self-organization for knowledge enhancement activities, withstanding, adapting or cultivating the identity against changes and externalities, coping with disruptions with conserving or improving the capacity of transformation (Brand & Jax, 2007). In this respect, the resilience concept is evolved from only bouncing back or returning the initial state to abilities to adapt and transform.

As a component of resilience 'adaptability' expresses the capacity of a system to organizing responses while facing internal or external disturbances in favour of development. Also, IPCC (2001) (as cited in Béné et al., 2012), describes adaptability 'as an ability of a system to adjust climate change' for balancing the possible harms and for evoking opportunities or for coping with the results of climate change.

On the other hand, transformability defined by Folke (2010) as a capacity of surpassing the limits in the context of development. More, transformation in a small part of the system enables larger changes in larger scales (Folke et al., 2010). Bene et al. (2012), also describe the transformability component as, a capacity for developing a new system when the current system is indefensible.

Lastly, the coping capacity in resilience concept consists of strategies where the elements in a system, like people or community, balance or safeguard the impacts of disturbances or shocks on livelihoods and commodities (Béné et al., 2012).

In resilience thinking, all these 3 capacities are part of achieving resilience or describing a state of being. This is reflected in the Resilience Framework as seen in Figure 2.2. (Béné et al., 2012).

Figure 2.2. Resilience Framework (Bene et al., 2012)

As seen from the framework of Bene et al. (2012), resilience cannot be described with only one component. Rather, under different cases, with the differences in the intensity of change, the responses of the system can change while building resilience. It is also essential to highlight the fact that all these responses can co-exist or separately be used in different levels.

In addition to the resilience dimension, the conceptual framework was redeveloped for including the set of intervention mechanisms in the context of resilience. As shown in Figure 2.3, there exist 'protective, preventive, promotive and transformative' interventions for contributing to the reduction of vulnerabilities and addressing the different dimension of resilience.

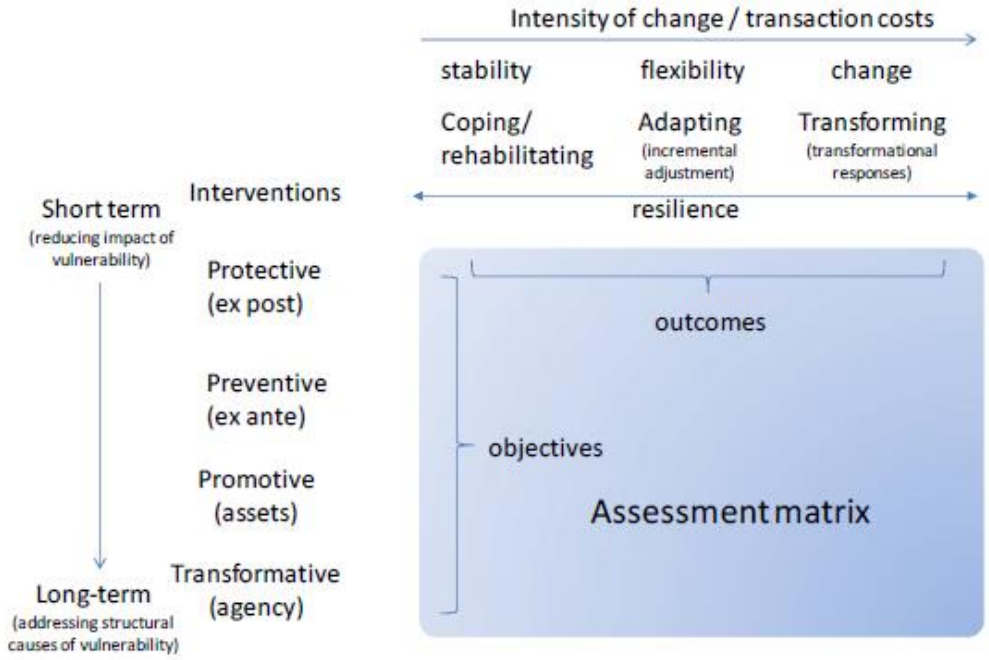

Figure 2.3. 3P & T-3D Framework (Bene et al.,2012)

The 3P-T framework is a conceptual typology that reflects the fact that interventions can be separated into various categories based on their general objectives and the types of vulnerabilities they are trying to address. In this framework;

- *Protective* policies described as short-term policies targeting reducing the impacts of existing vulnerabilities such as allocation of basic needs in the recovery phase of a disaster for enhancing the coping capacity of people. There are various methods in developing protective measures such as emergency feeding programmes, reconstruction supporting schemes.
- *Preventive* measures include disaster policies developed for reducing the vulnerabilities in facing disasters such as developing insurance schemes. For instance, in facing climate related disasters, there exist 'weather and health insurance' for the protection of livelihood of assets.
- *Promotive* policies cover measures targeting enhancing the capabilities by activities for income generation, credit programmes, cash or asset transfer.

- Lastly, *transformative* programmes or policies are more likely to target structural origins of vulnerabilities. For this purpose, frameworks can be developed targeting the institutional transformation within a system.

The four types of interventions differentiate in terms of their scope, yet they can overlap in some circumstances such as one policy can both promote income generation simultaneously prevent deficiencies (Béné et al., 2012).

2.1.1.3. The Resilience System: Resilience to Urban Resilience

Previous part clarifies the fact that there are many different approaches while defining resilience. In addition to these different approaches, the concept itself includes many features by nature. Resulting from this complexity there exist a need for creating a system for understanding and for assessing resilience concept. Resilience Alliance (2010), formulated a system for including all characteristics of resilience thinking as "Resilience Assessment Framework".

Resilience Assessment Framework includes 5 stages starting from the description of the system, understanding the dynamics in the system, exploring the interactions in the system, evaluation of governance and final assessment (Resilience Alliance, 2010). In the context of research, the 1st stage of the framework is discussed below.

This framework puts forward two questions in order to understand the system as follows;

- Resilience of what?
- Resilience to what?

The first question is asked to identify the component or subject in the resilience system whether it is an individual, a community or an institution. The second question is asked for classifying the source or type of disturbances, shocks or uncertainties that a system is facing. These questions is towards describing the 'specified' type of resilience (Resilience Alliance, 2010). There is also a 'general' type of resilience in a resilience system describing not targeting any specific disturbance or subject. Taking resilience

as a system, it is essential to identify this difference between specified and general resilience. Because, while developing set of actions or intervention mechanisms in resilience dimensions, if the attention and all capacities is just to be given to a specified resilience such as only developing policies to resilience to disasters in cities, this can cause a reduction in system wide resilience, as the capacity to cope with unexpected disturbances could be lessened. So, the resilience thinking should take both specified types of resilience and general resilience into consideration (Resilience Alliance, 2010). This approach is used in understanding the specified 'resilience to disaster' concept in the 'general' context of urban resilience in the following part of the thesis.

2.1.2. Understanding the Urban Resilience Concept

The urban resilience concept was first defined by Resilience Alliance in 2007. It is defined as a general resilience concept which connects four specific resilience in an urban system. As shown in Figure 2.4, the multi-dimensions are metabolic flows, governance networks, social dynamics and built environment. Metabolic flows represent, the ability to sustain urban functions, quality of life and well-being of the society covering all types of production and consumptions systems. The governance networks describe the society's capability of learning, adapting and identifying urban challenges. Further, social dynamics is a comprehensive term defined for covering all people, users, consumers and communities that have a relationship with the built environment. The built environment covers all the urban forms and spatial relations and connections within (Chelleri, 2012; Resilience Alliance, 2007).

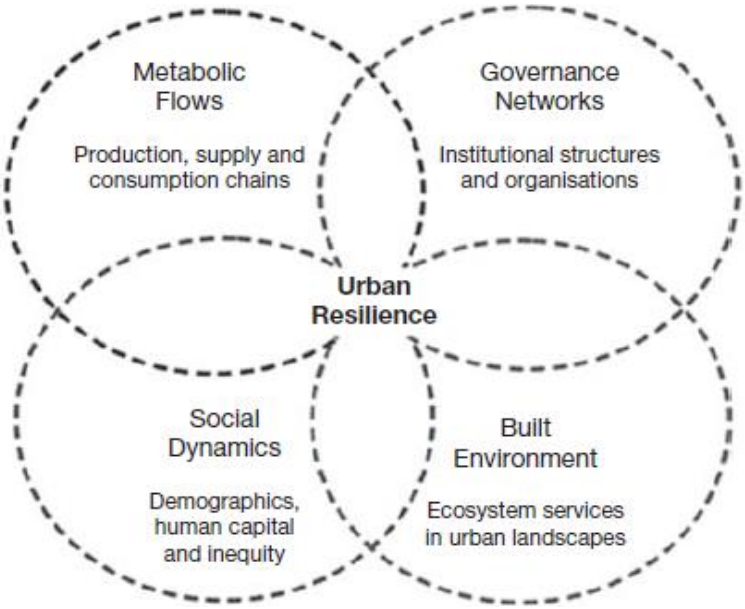

Figure 2.4. Conceptualizing Urban Resilience (Chelleri, 2012; Resilience Alliance, 2007)

More updated definition of the urban resilience emphasises the capabilities of urban system to keep up or to restore its functions after disturbances for providing adaptation to change, and building transformation capacity to enhancing future adaptive capacity (Meerow, Newell, & Stults, 2016). Like the first definition, this definition also has urban system approach while defining the urban resilience. And the urban system was described as a combination of socio-ecological, socio-technical networks among different scales. Meerow et al. (2016), conceptualized the urban-system and its components as shown in Figure 2.5. In this system, like the Resilience Alliance's conceptualization, there exists a layer for governance networks reflecting all the instructional and multi-sectoral relations, a layer of material and energy flows representing all the natural resources and the production patterns based on these resources. Another layer is called "urban infrastructure and forms" which is similar with "built environment" concept in the first conceptualization. And as a base layer there exists socio-economic dynamics similar to social dynamics concept. Different from first conceptualization, here the relations defined in a vertical bilateral relation with respect to space and time.

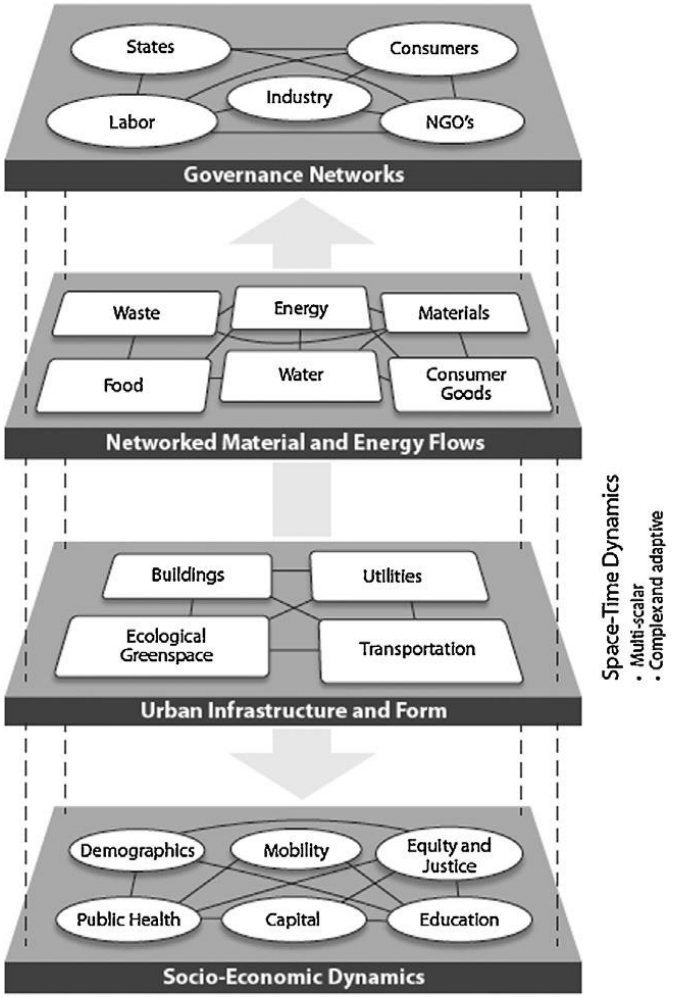

Figure 2.5. Conceptual schematic of the urban 'system' (Meerow et al.,2016)

2.1.2.1. The Measures of Urban Resilience

As urban resilience is the combination of specified resilience of four layers or dimension, to understand how to attain urban resilience it is essential to understand the measures of resilience in four dimensions.

Starting with metabolic flows or material and energy flows, this layer in a city reflects all the production and consumption activities take place with all other activities related

with these, such as transportation of assets and people. One dimension to take into consideration for resilience is the resources used or consumed in metabolic activities. It is a common knowledge that production and consumption activities need energy and resources like fuel, to produce, to transfer and for the consumption of the goods. Also, these processes create externalities. Another point is that these processes interconnect with other systems and dependent on both the resources and systems in other places. Lastly, the activities for improving these systems in seeking efficiency, could also lead to lessening resilience (Resilience Alliance, 2007).

In order to find solutions and improving the system's resilience first measure is confining the externalities on resources by using such programs for minimising the use of non-renewal energy resources in transportation. Another measure for resilience is to transforming current production and consumption patterns into a more efficient way with increasing the diversity to achieving resilience to incidents and unexpected disturbances (Resilience Alliance, 2007)

The socio-economic dynamics layer of the urban system represents the demographical characteristics, the human capital and how the resources are distributed the social groups in a city. Resulting from high rates of urbanizations; with increased rural to urban migrations, population increases and there is an expansion of the urban lands, there exist several challenges and disruptions which are affecting the resilience of the social dynamics. For instance, the enlargement of urban areas and the emergence of metropolitan areas resulted as urban sprawl hence longer commuting times, the disintegration of working and living places, which eventually affect the resilience of communities.

The built environment in a city consisted of both man-made built environments and the green spaces. With a fast urbanization, the built environment also facing a change, disturbances and new relations between urban patterns which make the system dynamic all the time. These are also impacting the capacity of adaptation and transformation of the built environment.

In facing these changes and disturbances, one thing to consider is urban planning in cities. As criticized by Resilience Alliance (2007), current reactive characteristics of urban planning systems are lack of responding to the dynamism and complexity in terms of resilience. For sustaining resilience in the built environment more innovative and proactive ways of urban planning is needed for actively seeing the impacts of urban design on new and old landscape patterns and ecological systems in cities.

As the social dynamics and built environment in cities changing rapidly with the urbanization this requires new methods of management in communities, an involvement of the new actors and institutions to the system. While governing the urban systems, in order to contribute to resilience, transparency, adaptive capacity to change in the socio-economic environment, inclusive management methods allowing participation in every level and leaving space for community management or co-management models are needed (Resilience Alliance, 2007).

In terms of management of urban resilience, the term adaptive governance come forward. This form of governance contributes to the resilience with leaving room for flexibility, change, inclusiveness, diversity and innovation (Resilience Alliance, 2010). Within the adaptive governance system, there exist interactions among different levels and layers of the urban system and people and organizations. Also, this way of governance is defined as more flexible for allowing new forms of institutional arrangements which affect resilience. In addition, this form of governance covers both formal and informal relations exist within a society. For instance, the rules sourced from the relationship or interactions among people, community are known as informal relations. The flexibility, diversity and inclusiveness are components of the adaptive capacity in resilience context (Resilience Alliance, 2010).

As described the resilience concept is evolved from a descriptive concept in ecological sciences into a more hybrid concept standing for a way of thinking to help explaining the adapting, coping and transformative capacities of complex systems like cities in facing expected or surprising disturbances, changes and shocks. This way of defining

resilience which can be conceptualized as "resilience thinking" describes a system including components of adaptation coping and transformation. In analysing resilience system, it is also essential to identify resilience of what and resilience to what. By asking these questions the one can draw to boundaries of research the subject of the resilience and the specified and general type of resilience as in urban resilience and disaster resilience. Up to this point, the urban resilience is explained by using different conceptualization in the literature. In the following section the specified type of disaster resilience in cities will be explained.

2.1.3. Development of Disaster Resilience

This part of the research covers the explanation of the disaster risk management in cities and its relationship with resilience concept for building an understanding of resilience to disasters in cities. For this reason, the disaster risk management literature is reviewed with respect to the different approaches and the international literature that helps evolution of the field. Lastly this is followed by the analysis of the relationship between resilience concept and disasters.

2.1.3.1. Explaining Disaster Risk Management in the Context of Cities

This section of the thesis tries to explain the concepts used in disaster research so that an accurate understanding of disaster risk management can be demonstrated. After clarification of the concepts in disaster research, descriptions of approaches in disaster risk management is discussed critically in section 2.1.3.2. Further, the international conferences that contributes to the development of ideas, concepts and systems in disaster research is explained in part 2.1.3.3.

There exist a variety of definitions of concepts used in disaster research. Yet the United Nations Office for Disaster Risk Reduction (UNISDR) created a terminology for having more comprehensive and relevant definitions for the concepts like hazard, vulnerability and risk (Sonmez Saner, 2015).

Hazard defined as "a dangerous phenomenon, substance, human activity, or condition that may cause loss of life, injury, or other health impacts; property damage; loss of livelihoods and services; social and economic disruptions; or environmental damage*"*(United Nations International Strategy for Disaster Reduction, 2009, p.17). In the definition of hazard, there exist 2 categories of natural and human-made hazards. Natural hazards described as natural series of actions resulted as events such as floods, landslides, earthquakes. And human-made hazards described as the jeopardies as a consequence of human activities or failures in the human-made systems.

Secondly, UNISDR describes vulnerability as "the characteristics and circumstances of a community, system, or asset that make it susceptible to the damaging effects of a hazard"(United Nations International Strategy for Disaster Reduction, 2009, p.30). There exist four connected categories of vulnerability as physical, social, economic, and environmental originated from a variety of conditions.

The risk is defined as "the probability of harmful consequences or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted, or environment damaged), resulting from interactions between natural or human-induced hazards and vulnerable conditions." This definition indicates risk relates to hazard and vulnerability. Greene (2000) (as cited in Sonmez Saner, 2015) clarify this relation as, risk is equal to the probability of a hazard's becoming a disaster and the possible impacts of this disaster on the vulnerabilities. This concept will be discussed again in the following chapter with respect to the resilience concept.

In cities there exist variety of risks in addition to natural disaster risks. Some of the risks in cities are listed as; "risks in macro-form and growth tendencies (settlement configuration alternatives); urban fabric risks (building height/proximity, plots, density, roads, car parks, etc.); incompatible land-use risks (buildings and districts); risks of productivity loss (industrial plants); risks in the building stock, infrastructure, and lifelines; risks in emergency facilities and lifelines (hospitals, schools, etc.);

special risk areas/special buildings (landslide, flooding/historic buildings); risks in hazardous uses (LPG and petrol stations, etc.); and open-space deficiency risks*"*(Sonmez Saner, 2015, p.1389).

As expressed in the previous parts, since more and more people start to reside in urban areas, in other words the increased rates of urbanization, resulted in increased levels of vulnerabilities to natural disasters. And in cities there are several correlative factors that increase the vulnerability such as the location of settlements, unplanned urban development, the density of people and built environment, poverty, weak governance. (ADPC, 2010). In order to intervene and manage the vulnerabilities in an accurate way or with the appropriate approach, it is essential to understand the reason(s), differences and similarities between them. So, while working on disasters, there should be a phase for identification of risks, hazards, vulnerabilities and factors affecting them. Additionally, there should be a method for management of them. This system is known as disaster risk management in disaster research. Yet there exist a variety of definitions for disaster risk management.

ADPC (2010) and UNISDR (2009), define disaster risk management as a process of using the set of abilities and capacities while applying strategies and policies for reducing, or preventing the impacts of hazard and the possibility of disaster. The components of this systematic process described as mitigation, prevention, preparedness, response and recovery (ADPC, 2010; UNISDR, 2009).

On the other hand, there exists a more comprehensive definition of disaster risk management. According to Cutter (2014), disaster risk management is a process of measurement of any kind of activities, plans, policies which is targeting reducing the effects of disasters on people or assets. Those activities, plans or policies cover the analysis of hazards, measuring the risk and based on these findings, designing a field of action such as prevention, reduction, mitigation, recovery or preparedness. What makes this process a system is, these steps need to be finalized by an evaluation phase of the decisions made in terms of effectiveness (Cutter, 2014).

From this systematic perspective, there exist a variety of field of actions or in other words approaches of disaster risk management. These approaches are analysed in the following section.

2.1.3.2. Approaches in Disaster Risk Management

Disaster risk management from a systematic perspective, includes several fields of actions or processes for mitigating risk, reducing the effects of disasters and for recovering while sustaining efficiency. Beginning from the pre-disaster phase to during disasters to post-disaster period, the system is composed of actions of mitigation, preparedness, response and recovery. These concepts are explained in a processive manner under 3 sections of; pre-disaster approaches that cover different types of mitigation strategies and actions, during disaster event as response and post-disaster approaches that include post-disaster recovery, rehabilitation and reconstruction.

2.1.3.2.1. Pre-Disaster Management Approaches

Pre-disaster management approaches cover mitigation and preparedness actions. Mitigation is a concept for describing the set of actions in various levels which are for the alleviation of the impacts of hazard and disasters (UNISDR, 2009). Mitigation approach includes assessment of hazard and risk, analysis of vulnerabilities for developing strategies and actions for alleviating the vulnerabilities, reducing the disaster risks and risk avoidance (Şenol Balaban, 2016).

Mitigation strategies cover a set of actions at different levels. Some strategies could be developed as building-based engineering solutions such as hazard-resistant constructions (UNISDR, 2009). Other could be nation-wide actions like the improvement of environmental policies, raising public awareness or macro assessment of the loss (Sonmez Saner, 2015; UNISDR, 2009). Besides, urban planning can be used as a pre-disaster management approach as it includes measures of mitigation by proactive and preventive nature such as analysis of the geological features of land and determination of the suitable areas for the development of urban settlements while

implementing several regulations and rules about hazard zones or other zoning decisions.(Balamir, 2007). Additionally, the systematic decision-making and design of the land for having safer and liveable cities also contributes to the risk reduction and alleviation of vulnerabilities (Sonmez Saner, 2015).

In terms of planning for mitigation, the mitigation planning or urban mitigation planning concept is known as a contemporary effort in pre-disaster management. Balamir (2007), highlighted the fact that there exists no particular methodology for mitigation planning. Instead, there is set of actions related to it such as micro-zonation, building robustness, retrofitting, density control, classification of uses at risk. Still the mitigation planning approach has potentials in covering risk avoidance, risk reduction and risk sharing measures (Balamir, 2007).

For mitigating disaster risks, preparedness measures are also accepted as another set of actions in pre-disaster disaster management. Although ADPC (2010) categorizes preparedness and mitigation as disjoint sets of action under disaster risk management, by the nature of preparedness actions and as the mitigation is defined in this research as a comprehensive concept covering any set of actions and strategies for risk avoidance, risk reduction or alleviation of vulnerabilities, preparedness actions can also be categorized as a mitigation measure.

Preparedness defined as "The knowledge and capacities developed, by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions" (UNISDR, 2009, p.21). Preparedness covers actions such as forecasting studies for early warnings, raising an understanding of risks and disasters for developing a public understanding for emergency. By this way preparedness strategies aims to develop the ability to react quickly and respond in a proper way against disasters. With these objectives, it can cover education programs, public awareness raising studies, training and contingency planning (ADPC, 2010; UNISDR, 2009).

As explained above, there exist a variety of mitigative actions in the context of pre-disaster management. Some of these actions are nation-wide and under the responsibility of authorities and implemented by higher level public policies as a result of expert decision makings with lack of participation (Balamir, 2007; Sonmez Saner, 2015). Nonetheless, it is argued by many that effectiveness in the disaster management policies can be achieved by involvement of the local community while implementing mitigation and preparedness measures (Karancı, 2013).

2.1.3.2.2. Post-Disaster Management Approaches

The aims of post-disaster approaches are, to restore usual activities and conditions, protecting and preparing the community for the possible effects of hazards and constructing common objectives for all (Platt & So, 2017). Post-disaster approaches can be conceptualized as recovery strategies and actions. According to ADPC (2010) recovery covers actions of rehabilitation, reconstruction, community rebuilding and counselling. In this respect, urban planning activities are required for fulfilling all the needs and achieving all the objectives (Balamir, 2007).

In terms of post-disaster planning or post-disaster recovery, the process can be conceptualized as seen in Figure 2.6. The process is started with the moment of disaster event aiming achieving either recovering and reconstructing what was there before or to building the system even better than the conditions before the disaster reflected in the figure as the objective of "more resilient future". This approach is recognized as a set of actions for reconstructing for reducing the vulnerabilities, enhancing living conditions with an effective reconstruction system (Jha, Barenstein, Phelps, Pittet, & Sena, 2010).

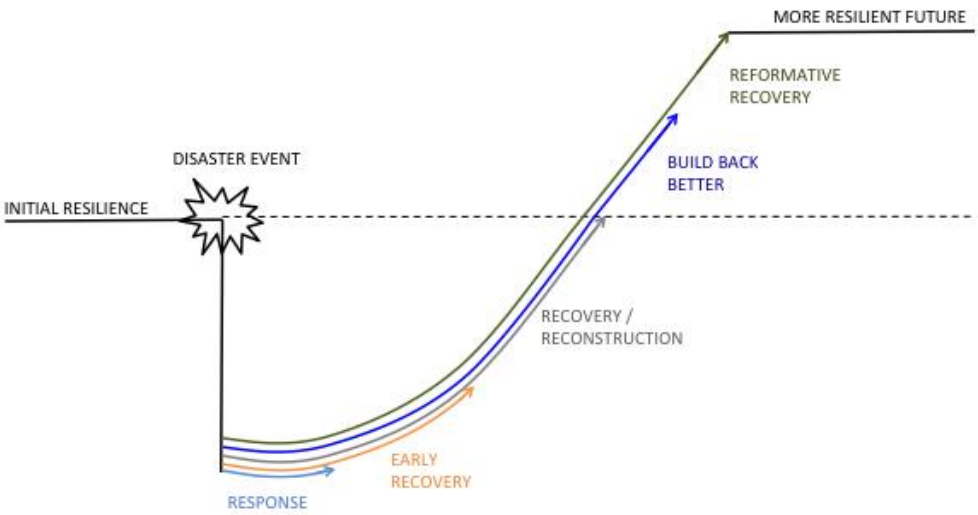

Figure 2.6. Recovery Curve (Lallemant,2013)

Another part of the disaster management system is a set of actions for responding to the disaster event. Although as seen in Figure 2.6, there is no clear time difference for separating response actions from recovery. Still some actions are more prior to disaster events such as rescue and evacuation, public emergency assistance, assessments and requirement analysis for saving lives, reducing the initial impact, supplying basic needs (ADPC, 2010; UNISDR, 2009).

2.1.3.3. Paradigm Shifts in Disaster Risk Management Approaches

In this section, the international literature contributing to the development of disaster management approaches is analysed for developing an understanding of the concepts, the reasons behind and for contemporary discussions. 4 milestones in literature, that helps to develop the ideas, strategies and guidelines for risk assessment, estimations, mitigation of risks, disaster risk reduction, socio-spatial solutions and sustainability and resilience, will be analysed in this part (Şenol Balaban, 2016).

First of all, the World Conferences on Disaster Reduction took place in Yokohama in 1994 and 10 years after in Kobe are accepted as pioneering conferences in terms of

contributing to the literature of disaster risk reduction. These conferences help to develop a strategic approach and a framework for the reduction of vulnerabilities and risks in cities (Sonmez Saner, 2015).

Following these developments, in 2005 a new framework was created putting the mitigation actions at the heart. The Framework also emphasized building resilience of nations and communities by fulfilling the 5-priority area. According to the framework, it is essential to make disaster risk reduction as one of the priority of national and local level policies, enhancing the system of risk identification, assessment, early warning system and monitoring, reducing the fundamental risk factors, creating a culture and understanding of safety and resilience by education, innovation and knowledge and enhancing preparedness for achieving effectiveness while responding to disasters (UNISDR, 2005). Under these action areas, the framework emphasises the needs with regards to urban planning for disaster management. The need is about the concepts of combining the disaster risk debates with planning procedures and developing disaster reduction measures in the framework of urban planning and land-use policies at both national and local levels (UNISDR, 2005).

Afterwards in 2015, following the developments in Hyogo Framework, Sendai Framework for Disaster Risk Reduction (2015-2030) was endorsed in the Third UN World Conference on Disaster Risk Reduction (WCDRR). The framework aims enhancing the resilience by prevention of new risks and reduction of current risks with integrated and inclusive and multifaceted measures of economic, structural, health, cultural, educational, environmental, technological, political and institutional, in order to prevent and reduce disaster hazards and vulnerabilities and for increasing preparedness for responding to disasters and post-disaster recovery. In light of this goal there exist four priorities which one of them is "investing in disaster risk reduction for resilience" for reaching sustainable development goals. This way of resilience thinking in disaster management helps to redefine the disaster risk understanding. It is now defined as not only the interplay of hazard and vulnerability

but also negative impacts of lack of coping capacity of a place, community or institution (Şenol Balaban, 2016).

From this point, the resilience thinking in disaster management and the new resilience understanding in disaster research is explained in the following section.

2.1.3.4. Understanding the concept of Resilience to Disasters

The main goal of this section is explaining how resilience thinking is integrated with disaster management and especially in disaster risk reduction.

As explained in detail in the section 2.1.1., the resilience term can be used in wide range of disciplines where there is a social or physical shock or disturbance to a system occur varying in scale including disasters as a disturbance or just a knock (Alexander, 2013).

Cutter (2014), highlighted the non-existence of a universal definition of the 'disaster resilience' concept where consensus on some parameters exists. In the UNISDR terminology, resilience is defined as;

> The ability of a system, community or society exposed to hazards to withstand, absorb, accommodate to and recover from the effects or impacts of a hazard in a timely, faster and effective manner, including through the preservation and restoration of its essential basic structures and functions (UNISDR, 2017,pp.5).

Similarly, as cited in Cutter (2014), UK Foresight report (2012) defines the concept as;

> "the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions."(Cutter, 2014,p.73).

Johnson and Blackburn (2014) stated that resilience thinking, in disaster research illustrates a notion about the capability of a system in preventing the losses and damages arising from natural hazards. This notion can be adopted in different scales and different systems including urban systems (Johnson & Blackburn, 2014).

Another definition of disaster resilience is rooted in the natural hazard assessment notion. It is described as a capability of a community to recover with using its own sources (Cutter et al., 2010). Also, there is a community resilience understanding while defining disaster resilience. In this perspective resilience is series of actions connecting adaptive capacities with responses and transformation after the disaster events. In this notion, resilience can be enhanced by interventions and policies developed for improving the respond and recovery capabilities of the community against disasters (Cutter et al., 2010).

On the other hand, as observed in the disaster management approaches, there is also another definition of disaster resilience used in engineering discipline. Bruneaue et al. (2003) (as cited in Cutter et al., 2010) state that this approach focuses more on the mitigation measures on buildings and critical infrastructure. However, this approach is highly criticized for excluding the social dimensions of resilience in communities (Cutter et al., 2010).

Another discussion is made from the intersection of natural and social science perspectives, focuses on the concepts of vulnerability, risk, adaptive governance and sustainability while developing public policies for disaster management (Parsons et al., 2016).

As seen in the majority of the definitions, besides the engineering notion, disaster resilience concept developed for connecting disaster risk management, disaster risk reduction and envisioning sustainability of communities by adopting several top-down and community-based actions (Cutter, 2014). Figure 2.7., describes this notion where resilience is a path, or a process combined with a set of actions for achieving sustainability goals.

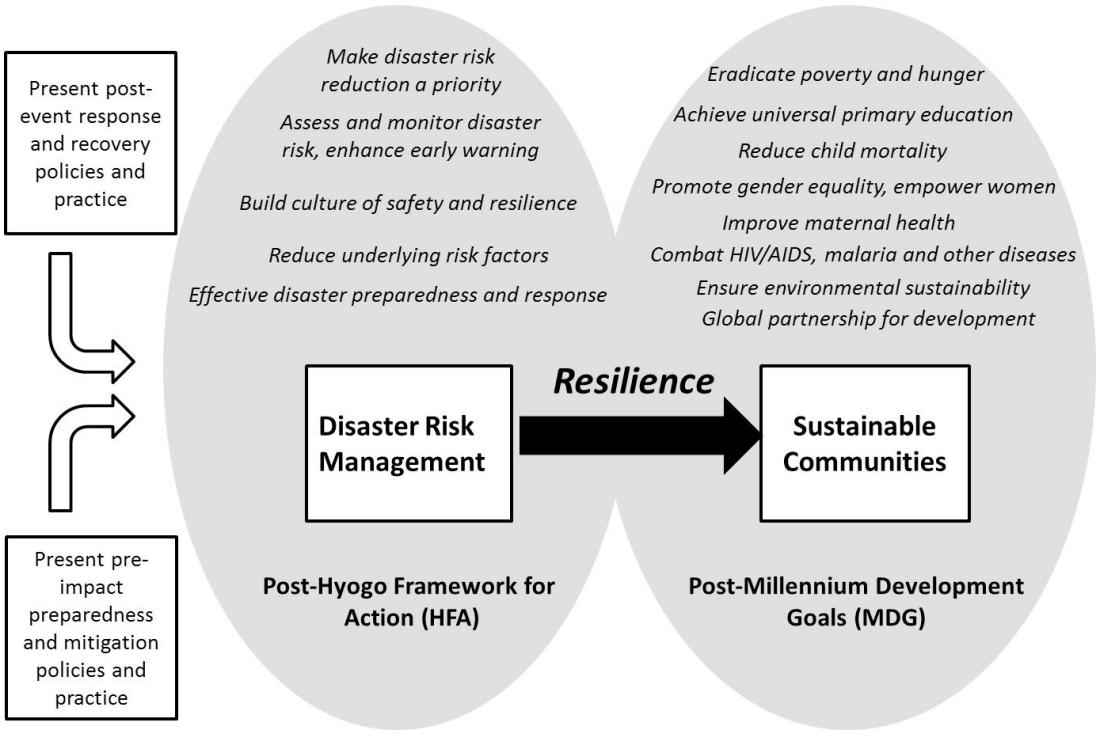

Figure 2.7. Disaster Resilience (Cutter,2014, p.74)

All of the disaster resilience definitions shown above illustrate the set of actions rooted from several policies, strategies and technical tools for building the notion of resilience in a community. Some of them listed by Cutter (2014) as, management of disaster risks, lessening vulnerability, developing a strong governance system by implementing reforms at the institutional level with policies at all scales, capacity building strategies covering learning processes, monitoring and evaluating the system by the newly created tools (Cutter, 2014).

Also, the nature of the urban resilience to disaster concept encompasses two-dimension or set of knowledge and information. The first one is related to all the activities related with reduction of the disaster risk based on the knowledge of hazard and vulnerability. Those activities, as described above, includes actions related to disaster risk reduction such as mitigation of hazard, assessment of risks, mapping of

hazard, raising awareness about risk, education, urban planning activities for mitigation, preparedness and response (Johnson & Blackburn, 2014). The other dimension covers the phase or knowledge that are not directly related with disaster risk reduction activities. The "accumulated resilience" covers "built-in" resilience measures of a city such as infrastructures, built environment, social and economic conditions which the capabilities of coping, adapting to and recovering from disasters are sourced. According to Johnson and Blackburn (2014), the source of accumulated resilience in a city is good governance because most of the features are coming from the high-level decision-making process. They described good governance as transparent, responsive and proactive structures in a governance system (Johnson & Blackburn, 2014).

Another characteristic of resilience concept is the capacities of adaptation and cope. In the context of disaster resilience, coping and adaptive capacity plays a key role. First of all, adaptive capacity is defined by Johnson and Blackburn (2014) as the capabilities of planning, preparation for and implementation of adaptation actions. Social capital, prosperity, infrastructure, knowledge and skills determine this capacity. The capacity can only be built by the planning process, implementation of the plans and policies based on risk knowledge available excluding the unforeseen risks (Johnson & Blackburn, 2014).

In terms of uncertainties, Folke (2016) describes the path for building or enhancing the adaptive capacity in cities. According to him, policies and other arrangements should target, grasping how to live with uncertainties and change, creating a variety of options for reorganization and renewal and developing different methods of learning (Folke, 2016). Similar with this view, as shown in Table 2.2., adaptive capacity includes themes of "governance, policy and leadership and social and community engagement*"* (Parsons et al., 2016, p.7).

On the other hand, Alexander (2013) argues in the times of increased hazards and climate change, building and maintaining the adaptive capacity is the most required

condition and it includes the resilience goals instead of being a component of it (Alexander, 2013).

On the other hand, coping capacity is described as all the instruments that people or institutions use the accessible resources, abilities and conveniences for encountering hazards and disaster risks (Parsons et al., 2016). The instruments are defined in Table 2.2.

Table 2.2. *Adapting and Coping Capacity Features*

	Indicators	*Definition*
Coping Capacity	**Social character** *The social characteristics of the community*	Represents the social and demographic factors that influence the ability to prepare for and recover from a natural hazard event.
	Economic capital *The economic characteristics of the community*	Represents the economic factors that influence the ability to prepare for and recover from a natural hazard event.
	Infrastructure and planning *The presence of legislation, plans, structures or codes to protect infrastructure*	Represents preparation for natural hazard events using strategies of mitigation or planning or risk management.
	Emergency services *The presence of emergency services and disaster response plans*	Represents the potential to respond to a natural hazard event.

	Community capital *The cohesion and connectedness of the community.*	Represents the features of a community that facilitate coordination and cooperation for mutual benefit
	Information and engagement *Availability and accessibility of natural hazard information and community engagement to encourage risk awareness.*	Represents the relationship between communities and information, the uptake of information about risks and the knowledge required for preparation and self-reliance.
Adaptive Capacity	**Governance, policy and leadership** *The capacity within government agencies to learn, adapt and transform*	Represents the flexibility within organizations to adaptively learn, review and adjust policies and procedures, or to transform organizational practices.
	Social and community engagement *The capacity within communities to learn, adapt and transform.*	Represents the social enablers within communities for engagement, learning, adaptation and transformation

Source: (Parsons et al., 2016, 7)

Up to this point, the definition, the actions and the dimensions of disaster resilience are analysed. Based on this analysis, it can be said that there is a need for drawing a framework for defining the boundaries of the concept and for identifying measures

and field of actions. In the search for a framework, there exist several sets of actions or frameworks defined in the literature for both identification and assessment. The first one is adopted by Johnson and Blackburn (2014) from UNISDR's ten essentials of resilient city report. As seen in Table 2.3, institutional, financial, infrastructure including vital facilities, land use planning, community awareness, ecological protection and recovery and response measures are core elements of disaster resilient cities (Johnson & Blackburn, 2014).

Table 2.3. *Essentials for Resilient City*

1- Institutional and administrative framework
2- Financing and resources
3- Multi-hazard risk assessment − know your risk
4- Infrastructure protection, upgrading and resilience
5- Protect vital facilities: education and health
6- Building regulations and land use planning
7- Training, education and public awareness
8- Environmental protection and strengthening of ecosystems
9- Effective preparedness, early warning and response
10- Recovery and rebuilding communities

Source: (Johnson & Blackburn, 2014)

Beside UNISDR's framework or action priorities, Cutter et al. (2008) conceptualized another set of dimensions and variables of disaster resilience in six subcomponents as ecological resilience, social resilience, economic resilience, institutional resilience, infrastructure resilience, community competence. This "Community Resilience" framework brings the ecological systems and resilience of social and institutional systems together (Cutter et al., 2008). The ecological dimension cover variables for measuring the loss ratio in environment, the structures related with defence of ecologically sensitive zones. The social dimension stands for all the characteristics related with the demography, the social networks and organizations and community competence highlights the levels of local understanding of risk, counselling services

as a part of post disaster recovery and measures related with quality of life. Further, economic dimension focuses on the employment levels, activities related with wealth generation, property values and public revenues. And in terms of built environment and infrastructure, variables are listed by Cutter (2008) as “Life lines and critical infrastructure, transportation network, residential housing stock and age, commercial and manufacturing establishment” (Cutter et al., 2008, p.604). Institutional aspect of resilience can describe all the measure implemented by any levels of institution such as hazard reduction programs, mitigation plans, post-disaster response measures, existence of zoning and building standards.

Last but not least, the mind map of the development of urban resilience to disaster concept is shown in Figure 2.8. to summarize the conceptual framework based on the literature covered in disaster risk management and resilience.

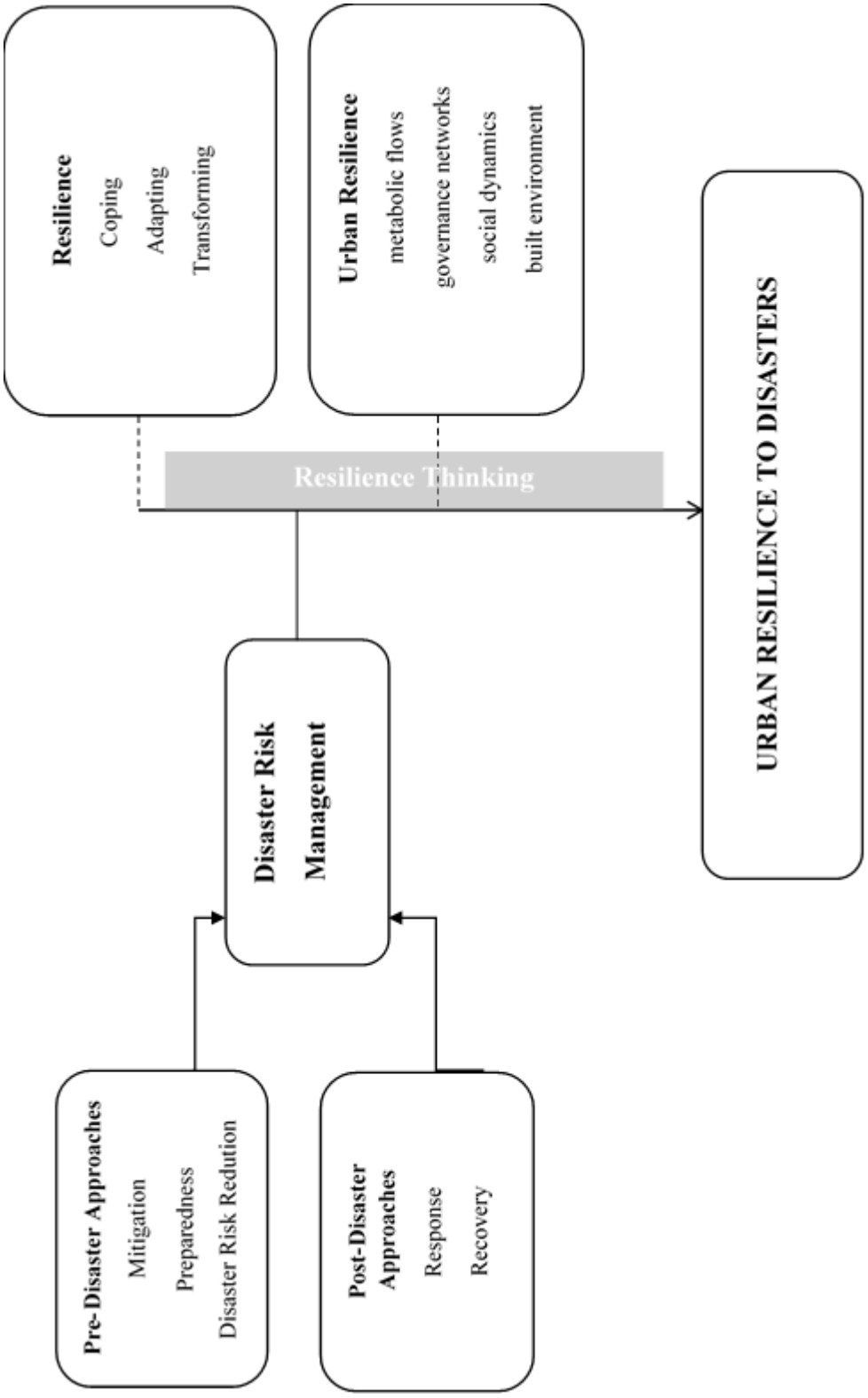

Figure 2.8. Conceptual Framework of Urban Resilience to Disasters

The conceptual framework developed to emphasise the need for developing actions in a comprehensive way to cover all dimensions of disaster risk management and resilience altogether. Cutter (2014) underlines the complexity and interconnectedness of the dimensions in disaster resilience. In addition to this by the nature of disasters and disaster risk there is always a change in conditions in the system and sometimes an uncertainty or anticipation. Although contributions to any of the fields could contribute to the enhancement of the disaster resilience in cities, still the policies and actions should target a variety of scales and fields at the same time. One way for responding to complexity and interconnectedness in this system is planning for resilience. Yet the urban planning approach needs to include solutions at different scales with an enhanced governance system and management tools ranging from local to international units of analysis (Cutter, 2014).

Urban planning is the one of the main tools of managing cities which covers analysis of the current conditions and main problem areas and synthesizing them to come up with several solutions and developing strategies for the development of the cities in the near future. Upon these steps of the urban planning, defining current risks that a city would encounter in the future, is changing through history. There are many risks that cities are encountering for a long period of time like disaster risks, but there are also many new risk definitions as cities are developed economically and socially with the help of innovation, technology.

Also, resilience thinking could contribute to urban planning in many aspects. Some of the contributions are listed as;

> "- Helps to underline the adaptive capacity of social-ecological systems,
> - Highlights external and non-systemic factors and disturbances that are important in shaping the individual urban systems,
> - Provides a basis for the systemic analysis of cities and their vulnerabilities,
> - Concentrates on building capacity to deal with changes in the wake of different types of disturbances

- Helps to link physical (spatial) and ecological aspects in a systematic way" (Eraydin & Taşan-Kok, 2013,p.6-9).

In the context of urban planning and its tools, as the focus of this research is only on the urban regeneration, the analysis of urban regeneration policies and projects in terms of responding to the need of urban resilience systems in facing disasters will be discussed in the following section.

2.1.4. Explanation of the Urban Regeneration Concept in Relation to Resilience to Disasters

Urban regeneration as an urban policy can be used as a tool for both in disaster risk reduction phase as a mitigative action or could be used in post-disaster recovery phase in reconstruction activities after a disaster as it provides a large radius of action.

In order to understand the relationship between urban regeneration and disasters, first, it is essential to develop an understanding of urban regeneration concept itself. So, in this section, after describing the development of the urban regeneration concept from a historical development perspective, the relationship between urban regeneration and disasters will be discussed with respect to the literature of disaster management.

2.1.4.1. Urban Regeneration

In the 1980s with the rise of post-Fordist production and consumption patterns an accumulation of the capital was created as a result of the increased surplus value from industries in cities. This resulted as a dynamism in capital seeking for profitable investment locations hence internalisation of the capital. The globalisation process also helps the formation of an international economic system where circulation of people, commodities, capital, identities was accelerated as well as the increasing mobility of ideologies, economic principles, policies and the lifestyles (Brenner & Theodore, 2008).

Starting from the post-war period, with the restructuring of the economies in cities under the impact of deindustrialisation, cities started to face new challenges. In order

to understand the challenges that cities are facing, the context of economic restructuring is explained primarily.

Kuznets (1973) (as cited in Dogruel, 2013), stated that economic restructuring is a shift from industrial activities to services covering adjustment in productive units integrated with adjustments in the firms involved in the economy and the status of labour. This transition in demand and supply conditions and shift from the secondary sector to tertiary sector are also known as deindustrialisation.

The restructuring of economies in cities and accelerated mobility of capital, altered the role of cities as well. In this circumstance beginning from 1980s, in a globalised world, the responsibilities and the function of cities also changed. They became substantial nodes for global capital, consumers and a key command and control centre. This new understanding of and structuring in urban areas needed to be supported by spatial restructuring to have new spatial organization as old industrial areas lost their function and new production spaces were required to support new production and consumption patterns. From a political economy perspective, the urbanization processes of cities in this respect are mainly affected by the economic forces such as new structure of production and distribution systems. So, it is argued that, the level of transformation and restructuring in the economy and the competitive advantage of cities while attracting global capital, knowledge and people differentiated the urbanization pattern and spatial formation in cities. While this reorganization takes place in cities under the impact of globalisation and economic restructuring, as mentioned, some places become urban shrinkage areas as they lose their function (Adıkutlu, 2018). This resulted as a need for regeneration in the urban space under new decision-making processes where Harvey (1989) defined as urban entrepreneurialism. This new form of decision-making system has also resulted from the changes in the economic structure. Consequently, managerial ways of decision-making processes transform into entrepreneur ways while seeking global capital. In this urban decision-making approach (local) governments act like entrepreneurs to

attract global capital and investments and another measure for increasing the competitive advantage of cities and support development (Adıkutlu, 2018).

In the context of economic restructuring and globalisation, urban regeneration policies and projects developed as an instrument for improving the competitive advantage of cities in inter urban competition (Neil, 2002). Especially in the cities where a need for the development of new forms of urban spaces arises as a result of globalisation and deindustrialization, urban regeneration policy started to be used as a tool for fulfilling this need.

In the literature there exist variety of definitions for urban regeneration. To start with, Roberts, Sykes and Granger (2016) define urban regeneration as a comprehensive vision and actions where finding solutions for urban problems, enabling economic, physical, environmental and social development in cities are sought in cities where there exists a need for improvement or a change (Roberts, Sykes, & Granger, 2016). Moreover, the concept is also defined as the transformation of any kind of places where any kind of deprivations experienced (Evans, 2005). Others define urban regeneration as a field of public policy (Couch, Fraser, & Percy, 2003). This perspective highlighted the responsibilities or aims of policy as sustaining economic growth, restoration of social functions, creating a socially inclusive environment while contributing to environmental quality. The argument behind this approach is that the economic restructuring and globalisation resulted in a decline of economic activity, social dysfunction, exclusion and loss of environmental quality (Adıkutlu, 2018). All these definitions emphasize that urban regeneration, by providing physical transformation, also seeks for providing social inclusiveness, increased economic competitiveness and development. So, urban regeneration can be acknowledged as a comprehensive policy including social, economic and physical regeneration when there is a need or an opportunity for a change and improvement exist (Adıkutlu, 2018).

Urban regeneration, as a comprehensive urban policy, is described as having 4 targets as seen in Figure 2.9 (Hall & Barrett, 2012).

Four Goals of Urban Regeneration
• ***Improvements to the physical environment (which have more recently come to focus on the promotion of environmental sustainability);***
• ***Improvements to the quality of life of certain populations (through improvements to their living conditions or by improving local cultural activities or facilities);***
• ***Improvements to the social welfare of certain populations (by improving the provision of basic welfare services);***
• ***Enhancement of the economic prospects of certain populations (either through job creation or through education or reskilling programmes***

Figure 2.9. Four Goals of Urban Regeneration (Hall & Barrett, 2012)

Further, there exist different approaches and policies in urban regeneration as there are a variety of agendas or motivations of developing an urban regeneration policy or project. Some examples of urban regeneration approaches are explained below.

A well-known approach in urban regeneration is "property-led development" or "property-led regeneration". Turok (1992) defined this method as "assembly of finance, land, building materials and labour to produce or improve buildings for occupation and investment purposes." (Turok, 1992, 362).

In addition to property-led development there exist culture-led regeneration approach. In this approach the driver of regeneration policy is culture. Adıkutlu (2018) defines the approach as "an approach of urban regeneration where local culture is used as a tool for development, reproduced while rehabilitating neighbourhoods and refunctioning abandoned areas in post-industrial zones to create places of attraction for global people, capital, knowledge"(Adıkutlu, 2018, 17).

There are also other ways of developing urban regeneration policy. For instance, community-based regeneration focuses on "quality of life" concept and developed policies and projects aiming to uplift the social conditions in addition to physical

transformation. In this manner, urban regeneration accepted as a process for sustaining social development while improving urban spaces (Deakin, 2009, 95).

Besides, urban regeneration can be part of different urban development models. One example is Transit-oriented Development (TOD) which incorporates suburban renewal, city revitalization, walkable neighbourhoods and regional planning and implanted by regeneration of places around transport development (Transit Oriented Development Institute, 2018).

Last but not least, urban regeneration is also seen as a window of opportunity while managing the disaster risks and vulnerabilities in cities. As this thesis is focusing on urban regeneration in the context of disasters, a detailed explanation of this approach is covered in the following sections including examples from the world.

2.1.4.2. Understanding the Connection Between Urban Regeneration Concept and Resilience to Disasters

One of the problematic field in cities that are prone to disaster risks is the overgrowth of cities while transforming urban areas under the impacts of economic restructuring with neoliberal policies (Keskinok, 2014). In this respect, the relationship between the built environment, planning and disasters can be categorized in three levels as; *i*) at the regional level; urbanization policies and the decisions regarding land-uses at the regional level, ii) at the city level; urban plans, proper land uses, zoning in the urban plans, limitation to the densities, iii) at the building level, building and construction inspections, increased building base design and engineering services (Keskinok, 2001). While dealing with these multi-level problematic relationships urban regeneration can be a tool for problem solving with giving references to regional, city and building base levels as a both pre-disaster risk reduction and mitigation and post disaster recovery approach. Yet, Balamir (2014) highlighted the fact that as a mitigative approach urban regeneration should target multi-aspects of problems while aiming disaster resilience such as; problems due to overgrowth of cities, low quality settlements and buildings, settlements in high risk areas (Balamir, 2014).

There exist two-folded relationship between urban regeneration and natural disasters in cities (Xiang, Wang, & Deng, 2017). From one perspective after facing with increased challenges in cities fast urban regeneration implementations resulted in the loss of green spaces, deterioration of nature and environment in cities which increase the natural disaster risks and vulnerabilities. On the other hand urban regeneration policy which includes nature-based strategies (NBS), such as preserving natural resources, developing measures for vulnerable areas, could positively contribute to sustainable development of cities (Xiang et al., 2017).

Also, when the different disaster management approaches concerned, the literature proves urban regeneration can be used as a tool for both pre-disaster mitigation action and disaster risk reduction or post-disaster recovery and rehabilitation tool. The different types of disaster management approaches were identified from different urban regeneration or renewal projects from USA, China, Nepal and Taiwan. The analysis of the cases is covered in the following section.

2.1.4.2.1. Examples of Urban Regeneration Projects Targeting Disaster Risk Management

In this section the international cases about urban regeneration and disaster risk management were analysed. Based on the literature review in this area, there are several examples where urban regeneration is used as a pre-disaster management method such as increasing the preparedness of a disaster-prone area or mitigating and risk reducing in areas. Also, in some cases, urban regeneration is used as a tool for post-disaster recovery approach for rebuilding back better in cities. In this respect, four cases were selected for reflecting both pre-disaster and post-disaster management approaches within the context of urban regeneration.

A case from China

The research of Xiang et. al (2017), is based on urban regeneration projects in Chongqing metropolitan area in China. Although these projects are not direct examples of urban regeneration in the context of disaster, the evidence that is found

in this research and the model described as a policy suggestion could be an example to help to describe the relationship between urban regeneration and disaster.

In the case of Chongqing, several urban regeneration projects were developed by local government aiming to boost regional economic development and to target different things such as; developing new urban areas, renewal of old town centres, conservation of historical and cultural assets. However, Xiang et. al (2017) stated that they are common in disrupting natural ecosystem by destroying urban green lands, creating pressure on natural vegetation areas, decreasing amount of the land covered with greenery hence increasing the risks of natural disasters to occur.

Based on the analysis of urban regeneration projects in Chongqing, several solutions and policy suggestions were raised. Firstly, the projects need to address assessments of vulnerabilities especially for natural disaster. Based on the results, Natura-Based strategies (NBS) should be developed that comprehensively targets social, economic and environmental factors. While implementing the NBS in urban regeneration projects, there should be an effective operation and control mechanisms that creates planning and policy guidelines, financial assistance and ensuring social inclusion. In terms of environmental measures, there should be a mechanism for assuring balanced and efficient use of land and natural resources while implementing urban regeneration projects. There are plenty of measures that can provide a balanced and efficient use of resources. For instance, high-density development or development of open public spaces should be supported in suitable areas like valleys. The restrictions about limiting the settlements in vulnerable places such as rivers and stream beds controlled strictly. Also, the direct impacts of urban regeneration projects like polluting the environment, water resources around minimized with proper environmental impact assessments.

A Case from Taiwan: Taipei, Kaohsiung City

Taiwan is one of the most vulnerable countries to natural hazards where more than 73% of land and people facing multiple hazards (Wei-Hsuan & Chun-Ta, 2014). As a

risk management and reduction method and for sustaining local development, city government in Kaohsiung City developed and urban renewal approach as a solution.

The project in Taiwan developed an urban renewal model in hazard-prone areas. These projects include strengthening of the buildings against seismic risks, improvements in the infrastructure and increasing the population density within newly-built areas.

However, this urban renewal policy is criticized from several perspectives. First of all the tools implemented in the projects neglects multi-hazards and rather focusing on a selected hazard type such as improving the land for earthquakes yet neglecting the flood risk (Wei-Hsuan & Chun-Ta, 2014). The second criticism is based on the density decisions. Because of the increased density of both people and buildings, the areas became more vulnerable to hazards. Wei-Hsuan and Chun-ta (2014) exemplify as, increased density resulted as floods in neighbourhoods as there exist more people, less permeable surfaces leading to increased runoff.

Kathmandu, Nepal

The capital city of Nepal, known with high levels of seismic hazard and vulnerability related to earthquakes. In order to manage the disaster risks related to seismic hazards, the National Society for Earthquake Technology developed urban regeneration policy in the historical town centre in Kathmandu. This conceptual project is based on a plan developed for the historical centre and has a pilot project area selected from a high density area (Sangachhe, Shrestha, Parajuli, & Dixit, 2012). (See Figure 2.10.)

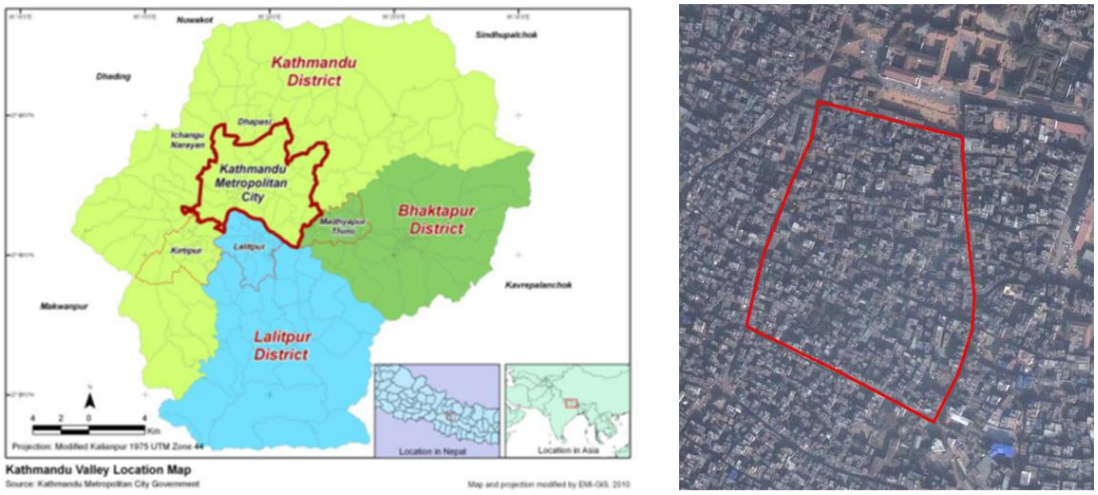

Figure 2.10. Kathmandu City Centre and Pilot Project Site (Sangachhe et al., 2012)

The urban regeneration model developed to provide sustainable urban regeneration, economic development and disaster risk reduction in heritage site in the historic city centre. In order to achieve the targets, the model includes several objectives such as; adaptation of a suitable methodology in urban regeneration, assessing qualitatively the city centre of Kathmandu for pilot project's site selection, developing regeneration options for pilot project, developing a plan for urban regeneration site, involvement of local authorities and community participation while implementing risk reduction measures. In this respect, the pilot project includes, regeneration of illegally built buildings, regenerating the housing zones where the ground conditions are inappropriate and contain risks, the transformation of commercial sites where the sector lost its function in the city centre and regeneration of historical places where the authenticity.

The Kathmandu Case contributes to the literature with several aspects. Firstly, it includes some site-specific solutions which increases the flexibility in projects. Additionally, the model tries to meet the demands in a multidimensional approach such as developing different tools for commercial, housing and historical sites.

New Orleans, USA

The Hurricane Katrina's impacts on the city of New Orleans known as one of the most tremendous disasters in the 20th century (Scoppetta, 2016). After the disaster, the recovery and reconstruction process began in the city of New Orleans. In the context of the post-disaster policy, several urban regeneration projects were developed.

The urban regeneration projects involve regeneration of public housing areas and developing of mixed-use properties instead. By the subsidies provided by federal state partnering with several housing authorities, 100,000 units demolished, and 60,000 new units were built.

As a result, 60% of the tenants left the project site due to several reasons. As criticized by Scoppetta (2016), the project resulted as gentrification of old public housing sites leaving its places to privatized housing development. In addition from the perspective of disaster risk management and resilience, the project directly and indirectly decreased the resilience of community with having no or limited participation in the decision-making process (Scoppetta, 2016).

Evaluation of the international cases

Upon these different cases reviewed, there exists literature about urban resilience and disaster risk reduction, but it is much more concentrated on the local government level and mostly about the management of cities. And when the different cases of urban regeneration and disaster risk management concerned, most of the American cities and European countries had urban regeneration projects in post-disaster planning period which can be accepted as a part of "reconstruction planning" as seen in New Orleans case. Unlike the American case in Asia there exist several examples of using urban regeneration as a mitigation method. Several Asian countries like Taiwan and Nepal have micro scale Urban Renewal projects in areas facing natural disaster risks. All of the projects include several strengths and some failures in implementing urban regeneration in seeking community resilience.

2.2. Developing a Framework of Analysis

The literature about the resilience and disasters reflect the different conceptual, theoretical and analytical frameworks in urban resilience and disasters studies. Based on those, a framework which helps to connect the concepts, arguments and evidence in this research is formulated. This framework defines 3 steps of analysis. 1st step is to identify the relationship between urban regeneration policies and the resilience policy's intervention mechanisms by using the *"3P-T&3D Analytical Framework*" (Béné et al., 2012). Secondly, those policies will be analysed in terms of their ways of contributing to the areas defined; social dynamics, built environment, governance and metabolic (production) flows, in urban resilience concept by Resilience Alliance (Resilience Alliance, 2007). The final step of this analysis is to discuss the impact of urban regeneration policies and projects in terms of their contribution to urban resilience to disasters in cities by using the "community resilience model" and adapting and coping capacity features (Cutter et al., 2008; Parsons et al., 2016).

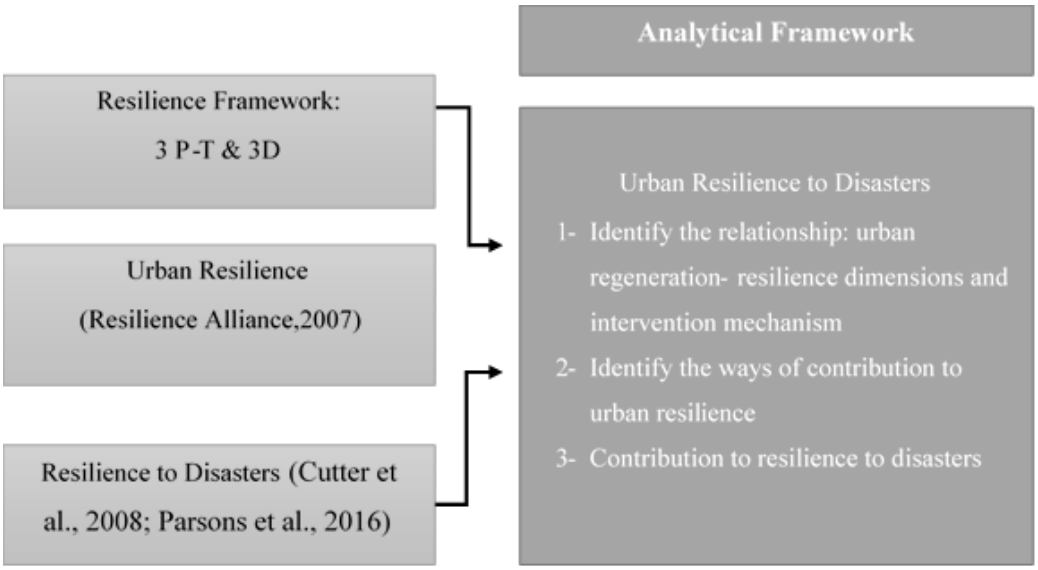

Figure 2.11. The Framework of Analysis

2.3. Concluding Remarks

This chapter provides theoretical framework about the urban regeneration policies in the context of disaster resilience. For this purpose, firstly the resilience concept is evaluated with respect to the evolution of the concept, the components and its system. It is emphasized by several researches that the main elements of resilience are adaptive, coping and transformative capacity of complex systems. And the **resilience is a way of thinking** which aims to not only have the capacities but also improve these capacities by learning while facing sudden or expected disturbances.

Based on this research about resilience, before drawing the connections between resilience and disasters, first, the urban resilience concept and its four dimensions about metabolic flows, governance networks, social dynamics and built environment, are explained to draw the framework about resilience in cities. In this respect, **urban resilience** is defined as **the capabilities in all dimensions within the urban system to keep up or restore the functions after facing any kind of disturbances for providing adaptation to change and building transformation capacity to enhancing future adaptive capacity**.

For drawing the framework of disasters and urban resilience the disaster risk management literature also reviewed. This review shows, there exist different disaster management approaches and the literature about disaster management evolves with the help of international conferences such as World Conferences on Disaster Reduction took place in Yokohama in 1994 and 10 years after in Kobe Hyogo Framework and the Sendai Framework for Disaster Risk Reduction (2015-2030). The development of disaster management reflects the emerging concepts such as disaster risk reduction and mitigation planning and other measures targeting not only post disaster actions but also pre-disaster approaches to achieve disaster resilience and sustainable development. From this point, the relationship between urban resilience and disasters is also explained. As in the literature, **disaster resilience or (urban) resilience to disasters** is about, **capability of a system or a community to prevent,**

absorb, adapt or recover from the impacts of a disaster while ensuring to preserve, restore or improve its structures and functions (Cutter, 2014). The components of this system or community which also creates the adaptive, coping and transformative capacity are described as; resilience of ecological, social, economic, institutional and physical (built environment).

Finally, the development of the concept of urban regeneration is discussed with respect to its contribution to and relationship with the disaster context. For these purposes also, the international cases are analysed. Concluding from the findings of the literature, there exist an increasing emphasis on **urban policies** and also u**rban regeneration as a way of pre-disaster mitigation** and risk reduction approach and post disaster recovery and reconstruction mechanisms.

CHAPTER 3

THE TURKISH URBAN REGENERATION EXPERIENCES: THE CASE OF LAW NO.6306

3.1. Putting the Case Study in a Context

In this chapter, an urban regeneration Law in Turkey, *Law no.6306 Transformation of Areas under Disaster Risk*, will be analysed as empirical evidence for describing the relationship between urban regeneration policies and disaster resilience in cities. The first two parts provide an outlook of Turkey's urbanization background, the economic and spatial development in cities and the development of disaster management system in Turkey to help explaining the policies and projects developed in the context of Law no.6306. In the third part, the analysis and the discussion of research findings about the law no.6306 are presented. The findings are analysed with reference to the theoretical information and framework of analysis provided in the Chapter-2.

3.1.1. The Urbanization Context in Turkey

In this section the urbanization experience in Turkey will be discussed for providing a contextual background so that one can put the urban regeneration policies in a context and develop a deeper analysis by knowing the layers within the cities and the subject of regeneration. The discussions will be made from a political economy perspective which provides a theoretical framework for understanding the economic activities within cities and social structure of the community and reflection of these into the spatial organization with respect to the capital accumulation, the role of cities in global system (Şengül, 2012; Tekeli, 2011b). The analysis of urbanization of Turkey is divided into different periods that reflects the breakpoints and the main paradigm shifts in the economic activities and hence urbanization patterns. According to Şengül (2012), the periodisation could be divided into 3 as follows;

1. Urbanisation of the state: 1923-50.

2. Urbanisation of labour power: 1950-80.

3. Urbanisation of capital: 1980 onwards (Şengül, 2012).

However, in this research, there is a 4th period which is updating the periodisation of Şengül's work to cover the urbanization period beginning with 2000s and yet within this thesis there will be no discussions about the conceptualization of the urbanization period of this latest layer.

Urbanisation of the state: 1923-50.

Understanding the urbanization pattern in the 1923-1950 period requires knowledge of the cities and urban development in the Ottoman period prior to the establishment of the Republic of Turkey. So, before moving on the explanation of the urbanization of the Turkish state a summary of the economic, social and spatial organization in Ottoman Empire in 16th and 19th century will be covered.

In the Ottoman Empire beginning from 16th century, the economic structure helped creating the social structure and differentiated groups in the community. Different forms of production systems and control mechanisms of surplus value created this. And this structure of the community reflected to the spatial organization in the urban and rural areas. In this century urban centres grew with highly centralized powers in terms of controlling the surplus value of the main production sectors which was agricultural production. The urbanisation within this century reflected the heterogeneity in the social structure which differentiates in horizontal with nations and in vertical with the levels of relationships with the emperor and hence the reputation within the society. When the spatial organization analysed, it can be said that this heterogeneity in the society reflected with creation of neighbourhoods based on the social structures within the fortress or out of the fortress. The highest-level city grew with the administrative power and the locational advantage of closeness to the ports

help development of trade activities while controlling the surplus value of agricultural production the Empire (Tekeli, 2011b).

With the development of the industry around the world in 19th century, some parts of the world like Europe accomplished the industrialisation hence looking for markets. Others like Ottoman Empire with lagging behind of industrialisation, naturally became the market of the industrialized ones. This was resulted as a fall in the production activities within cities so that cities in Anatolia was deprived of the production activities and the specialized roles like being a trade centre. This structure was replaced by the new cities emerging around the new transportation routes which was the tree-like railway routes. The railway routes were developed by the foreign countries which were using the empire as their open-market. Also, this resulted as regional segregation, a specific foreign country directed each region's development. The routes were only connecting several cities to the ports but not increasing the accessibility within the country which resulted as the unequal development of cities around breakpoints and the port-cities but under-development of the Anatolian cities. One could also observe this uneven development within the cities. These were resulted as increased inequalities and differences and hence disconnection of the cities like İstanbul and İzmir where market economy was developed from rest of the Anatolia where feudal structure conserved (Tekeli, 1975).

In 1923, with the establishment of the Republic of Turkey after the Independence War, a new structuring period started. The main characteristics of this period is based on implementing set of reforms as a reaction to the Ottoman order which was highly under the impact of imperial countries and conservative feudal order. Instead of these, several national objectives were set as modernization, creation of Nation-State and new identity, removal of the impacts of imperialist countries, removal of Ottoman order, creation and protection of national industries and supporting the development of Anatolia for reducing the gap between Istanbul (Tekeli, 1975).

First step in achieving the targets was changing the capital of the country from Istanbul to Ankara which reflects the 'heart' of the Anatolia in physical and metaphoric terms. This decision was supported by creation of sub-centres in other Anatolian cities with separate roles. In creating this specialization, public investments were made for the development of public industries in small towns.

Another significant move of this period is to construct new transportation facilities. For this reason, a railway route was built in east-west direction for connecting the Anatolia and supporting this with construction of highways.

The urbanization moves in this period supported by planning activities and establishment of local governments reflected nation-state creation, the state's centralized power. The very first urban plans were prepared for Ankara as a model and this was disseminated to other cities for regulating the urban development (Şengül, 2012).

Urbanisation of labour power: 1950-80.

The contemporary situation of the Turkish cities shaped beginning from the 1950s. Following the world's political and economic order have been reorganized after the 2nd World War, Turkey has also affected from the process where the economic restructuring occurs with import substation policies that have been dominated the entire system. This led especially the agricultural production in rural areas to decrease where people began to migrate to big cities as a result. Cities that newly planned and built by the nation state until 1950s now the target of newcomers from the rural parts of the country. Ankara and İstanbul are the two major cities that have highly affected from the migration movement where economic activities of the new republic agglomerate and also the accessibility of this cities was high as a result of the transportation investments up to these years. The increasing urban population created higher demands for all type of services and housing in the big cities. Yet none of the cities had the capacity to invest to new urban services or housing construction (Uzun, 2005). This scarcity of resources and capacities resulted in formation of new types of

property relations. Balamir (1996), categorizes these new forms of relations as; "process of appropriation, process of apportionment (shared ownership) and process of appurtenance". The new ways of interpreting to the urbanization process in cities affected the process in different dimensions. The appropriation was entirely illegal process of property development where new buildings, squatter houses, were constructed on the unplanned edges and parts of cities, on the public lands or on inappropriate areas for settlement. The second type was the result of a legal process where the agricultural land was aimed to preserved from division resulted as a shared ownership pattern to be born. And the third type was the process of apartment development where people became share holder of a certain property which accelerates the construction of apartment buildings (Balamir, 1996).

One of the significant examples of this type of urbanization was observed in Ankara. Ankara as the capital city, where all the public buildings settled, inhabits the working population. The newcomers to Ankara illegally settled to the edges of the city where the planned city has begun to dissolve. As there exist no infrastructural and public services to these areas, migrated population began to create their own in those areas as they built their own buildings that are called as squatter houses while they are named as "gecekondu" in Turkish, known as "built at one night". The new rural population on the other hand were seen as a huge potential for labour power in this city where Şengül emphasizes this period as urbanization of labour as Ankara is just one example what urban areas passed through in these years (Şengül, 2012).

Table 3.1. *The share of Squatter Houses and Population*

Year	*Total Urban Population*	*Gecekondu Population (thousand)*	*%*	*Total Housing Units in Cities (thousand)*	*Number of Gecekondu (thousand)*	*%*
1955	5.324.397	250	4.69	1.050	50	4.76
1960	7.307.816	1.200	16.62	1.440	240	16.67
1965	9.395.159	2.150	22.88	1.880	430	22.87
1967	10.437.233	2.250	21.56	2.100	450	21.43
1970	12.734.761	3.000	23.55	2.800	600	21.43
1980	20.330.065	4.750	23.36	4.500	950	21.11

Source: (Şengül, 2003)

As can be seen from the Table 3.1. beginning from 1950s until 1980s the number of illegal housing units and the population living in these areas had an increasing rate. The newcomers had changed many systems in cities economically, socially and politically such as development of new forms of transportation, new forms of local networks. As shown in the Table 3.1., the population living in squatter houses reached to a quarter of the total population at the beginning of the 1960s. This forced the central and local governments to change the way of seeing the context. Their approach changed from ‘being a problem’ to ‘being a potential’ for gaining local political power. In order to use this window of opportunity, the local governments develop several tools for changing the illegal status of the settlements and people living in there. This resulted as a need for new laws and regulations to control the sprawl of the cities and change the status of illegal settlements in big cities. So, the very first law of urban regeneration in Turkey born in these years as law no 775 "Gecekondu Kanunu" in 1966 which will be described in detail in section 4.2.1. Supporting this regeneration process, Turkish State also enacted the Flat Ownership Law in 1966 to organize and legalize the ownership pattern and started the process of appurtenance which changed the ownership patterns entirely.

So, when the urban areas and urbanization process concerned within this period, it can be said that the cities were facing an illegally construction phase, opened the areas

which are not suitable for settlements, the vacant public lands and areas without the supply of any services or infrastructure hence resulted as a sprawl. And as a solution for this, the law no.775, resulted in legalization of the squatter houses supported by a process of appurtenance which created a new ownership pattern in Turkish cities.

Urbanisation of capital: 1980-2000

Beginning from 1980s, the cities globally experienced a re-structuring and transformation process due to the economic restructuring and globalization. The industrial production and places of this type of economic activity started to leave the cities. Replacing this, the tertiary sector, mainly finance system, developed globally, created a need for new urban spaces reflecting the spatial patterns of this new system. Additionally, in a globalised economic system, the boundaries lost its meaning, open where cities exceed the national boundaries, globally compete for capturing global capital, people and knowledge. This process was supported by privatization and deregulation and devolution of several responsibilities of states to lower levels of governments and to newly formed institutions (McCarney, 1996).

In January 1980 Turkey's also began to unblock the limitations upon the market and opened up to global market under neoliberal economic policies with disappear of priorities like social policies as providing housing for poor and low-income people (Balaban, 2016; Çoban, 2012). Also, the State developed several tools for restructuring the housing system such as development of new finance system for mass housing projects. For this reason, The Mass Housing Fund was created by selling or privatization of State-owned assets and from several taxes. And at the beginning of this period as a part of this housing policy, Housing Development Administration (hereafter TOKI) was established with responsibilities of creating, regulating, planning and financing the mass housing projects (Balaban, 2013).

On the other hand, with several changes in construction law no.3194, which defines the responsibilities of institutions about urban planning and design several responsibilities of central government transferred to local governments. More, the new

Municipality Laws also define new responsibilities as creating development and regeneration zones and creating projects for these zones by local governments.

On the other hand, within the new regulations, local governments especially in the metropolitan cities, have been acting like entrepreneurs seeking accumulation of global capital to meet the new demands of the economy and new consumption patterns. Urban regeneration concept became a part of Turkish urban policy in the early 1990s for addressing urban problems associated with globalisation (Akkar Ercan, 2011). Urban policies focused on a revalorization process through the regeneration of old industrial areas, deteriorated urban landscapes and the rehabilitation or revitalization of neighbourhoods (Bezmez, 2008).

The urban regeneration projects were developed by municipalities and TOKI in the light of new responsibilities transferred from the State by laws. These projects developed in the big cities primarily in areas where several squatter settlements (Gecekondu) were failed to regenerate in the previous periods and other urban shrinkage areas. Yet there is a difference between this period's urban regeneration with the previous periods. Before, the illegal houses were transformed with participation of the owners and private contractors in a process of appurtenance. However, in the new form of urban regeneration projects, the land is transferred to large scale construction firms for the development of large-scale projects which were mostly not affordable and hence force the owners or occupiers of the area to leave and settle in the periphery of cities. This regenerated areas mostly welcome the new middle classes, that is created as a result of economic restructuring, working in the tertiary sectors (Şengül, 2012).

So, in this period, one can observe a change in economic activities from import-substitution to export oriented activities. This was resulted in increased investments to the built environment rather than investing in industries for increasing the competitiveness of cities within the globalized system. The property-led developments in this context, created new forms of urban regeneration policies which changed the urbanization pattern and the demographic distribution in cities.

Urbanisation after 2000s: Scaling-up and Re-centralization

In 2000s, in cities, where the deconstruction with the industrial revolution took place, another reconstruction period is observed featuring the rise of the places belongs to global urban networks and the transformation of places into spaces of flow with various levels of flows different from the previous period (Tekeli, 2011a). Urban spaces were used and managed by urban institutions where a search for local identity in a global system is still an ongoing process in this period while inequalities in cities are still rising. But with the crisis of financial system at the beginning of 2000s and its being not addressing social problems in cities, resulted as a need for re-centralization for addressing multi-sectoriality and multiple aspects and scale of the problems in cities (Fiori & Brandao, 2010).

In this respect when the Turkish cities considered, even though the rise and development of the financial system hence the crisis related with it not experienced in full and the transformation of the large cities like İstanbul into a global city was not fulfilled like the other global cities, other urban problems developed in the previous layers and newly emerging ones can be observed. And this period, experienced as another urbanization period in Turkey as well.

When the context in Turkish cities examined, there exist a variety of urban problems which are highlighted in the Turkey's National Report for Habitat-III Conference. First, as seen in Figure 3.1., there exist a rapid urbanization in Turkey since 1985 and this reached to 75% levels at the beginning of 2000s and reached to 92% levels after 2010. With the rapid urbanization and the expansion and even sprawl of urban areas various problems occurred related with urban demography, urban land and planning, environment, urban economy and urban governance such as addressing climate change and challenges related with disaster risk reduction (CSB, 2014).

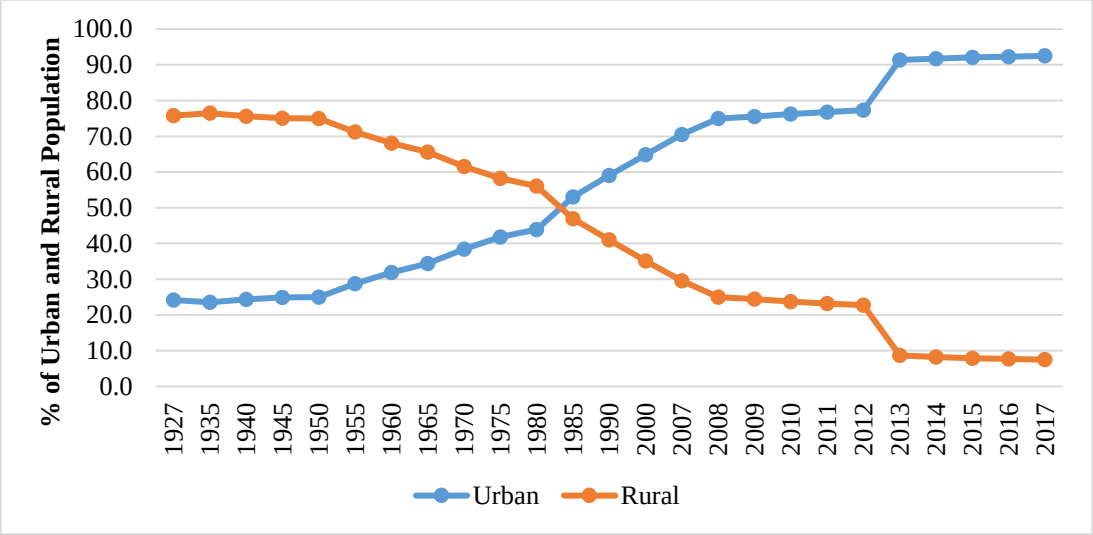

Figure 3.1 Population in urban and rural areas in Turkey between 1927-2017 (TurkStat, 2018)

The multi-sectorial and scaled up problems due to increased rates of urbanization, required scale-up solutions responding the needs in each sector. As a result of this, in 2011, the Ministry of Environment and Urbanisation , was established aiming development and implementation of new spatial development approach throughout the country, developing the needed institutional capacity, formulating a comprehensive framework for urban planning, developing policies, guideline and strategies for solving the issues related with rapid urbanization in Turkish cities, preparation of national and regional level spatial plans for guiding the development of housing and other land uses in cities and also in rural areas.

Following this in 2012, within the multi-sectorial and complex challenges in cities, setting up disaster resilient cities was determined as one of the priorities of the Ministry of Environment and Urbanisation as Turkey is a disaster-prone country. For this reason, the law no.6306 “Transformation of Areas under Disaster Risk” was enacted where the aim of the law was highlighted by the Ministry of Environment and Urbanisation as “to solve the problem of irregular urbanization caused by rapid

growth, and to build resilient cities." (CSB, 2014, p.2). The law and policies regarding disaster resilience will be explained in detail in following section.

Another change within the Turkish urban policy and planning that shape the urbanization pattern in 2000s, was the changes in the definition and number of "Metropolitan Municipality" by the law no.6360 enacted in 2014. One of the most significant changes within the context of this law is enlarging the boundaries of existing 16 metropolitan municipalities to the boundaries of cities and designating 14 new metropolitan municipalities. With this change the legal personality of the villages and special provincial administration (*il özel idaresi*) were abandoned and the villages become neighbourhoods of the metropolitan cities. Also, there exist a new legal body defined as Directorate of Investment Monitoring and Coordination (*Yatırım İzleme ve Koordinasyon Başkanlığı)* under the authority of Governor in metropolitan municipalities. This law is significant with changing the service area of metropolitan municipalities including the planning activities. Also, from the perspective of local participation, proximity and subsidiarity of local services the law defines more centralized system lessening the power of district municipalities (Koyuncu & Köroğlu, 2012; SPO, 2012)

3.1.2. The Policy Context of Urban Regeneration and Disaster Risk Management in Turkey

In this section, within the framework of the urbanization experience of Turkey, the urban policy context in Turkey will be analysed focusing on urban regeneration policies and disaster management policies to put the case study of the law no.6306 in a policy context.

In explaining the urban regeneration policies, primarily the development of the concept of urban regeneration in Turkey will be discussed to create a contextual understanding of the policies developed. And while discussing the disaster risk management policies in Turkey, firstly, a brief explanation of the disaster risks in

Turkey will be carried. This will be followed by explanation of development of legal and institutional framework in disaster risk management of Turkey.

3.1.2.1. The Urban Regeneration Policy Context in Turkey

The urban regeneration discourse was come into the agenda in 1960s, as mentioned in the previous part of this chapter, focusing on the transforming the areas where squatter settlements were developed, which is called "*Gecekondu".* The development of urban regeneration concept was followed by series of laws and regulations after 1960s supplementing the concept with mass housing policies and projects, but mainly focusing on the solving the illegal housing problem. However, in 2012 a new agenda was set for urban regeneration policies as to target the disaster risk reduction in cities for achieving urban disaster resilience. This transformation process of urban regeneration concept in Turkey is explained by the legal framework covering laws; Law no. 775, Mass Housing Law (no. 2985), Law no.5366, Law no.5393, Law no. 5104 and finally law no.6306

In the law no.775, the understanding of intervention to urban area by "transformation" tool was; to define and describe the lands as *gecekondu* regions, reclamation (*islah*) areas/regions and prevention areas/regions (*önleme*) where the law defines the resettlement of these people to the prevention areas known as "*tasfiye*". The responsible body of this law was the Ministry of Public Works and Settlement (*Bayındırlık ve İskan Bakanlığı*) until the regulations in 2007. Now and then TOKI is the responsible institution in implementing urban regeneration in Gecekondu sites with this law. A well-known project developed with this law is regeneration of the Gecekondu site in Dikmen neighbourhood Ankara in 1989.

In 2000s, a new regeneration period began in Turkish cities with the regulations in the existing laws and development of new laws. One of the significant legal arrangement was the law no.5104 in 2004. This law was developed for a specific regeneration project in the Northern part of Ankara city. Yet the law developed a new model for regeneration interventions. All of the power regarding the regeneration process is

given to the Metropolitan Municipality of Ankara including the expropriation of the lands within the project site. Notably, the extent of expropriation power within this law cover the expropriation of the private properties not only the lands for public benefit.

Following in 2005 there existed several arrangements in the 2985 Mass Housing Law with the law 5162 following the enactment of the Municipality law no. 5393 and the law no.5366. With these developments, the scope of urban regeneration policies enlarged to all country with new definitions and new targets set within these laws. The changes in Mass Housing Law defines increased powers for the TOKI, preparing plans in different scales and types, contracting with real person(s), beside its very principal aim of providing social housing now TOKI can develop projects for gaining profits as a way of cross financing social housing projects with low profits.

The law no.5366, define 'renewal sites' for the urban renewal projects in heritage sites and this decision is made by the Council of Ministers upon the request of the related municipality until 2012, from 2012 to 2018 upon proposal of the Ministry of Environment and Urbanization and after the Presidential Elections in 2018, the decision is made by the President upon the request of related municipality.

Furthermore, the Municipality Law also defines urban regeneration and development site concept within the article 73. This law also enlarges the scope of urban regeneration concept in Turkey from Gecekondu sites to any sites inside of the Municipality's boundaries with or without development on it, to develop new residential, commercial, industrial sites or to conserve and restore the historical sites and to conserve the cultural heritage. Also, with this law the authority for developing regeneration project is given to the municipalities. Yet in the metropolitan areas, the metropolitan municipality can use this power weakening the power of related district municipality.

Seven years later in 2012, a new law was enacted for shifting the scope and realm of urban regeneration policies in Turkey. This Law is Law no.6306 Transformation of Areas under Disaster Risk. Yet the detailly description and analysis of this law is

covered in section 3.2. Now the contextual discussions about Turkey's cities is followed by the explanation of the disaster management system.

3.1.2.2. The Policy Context of Disaster Management in Turkey

Turkey is a disaster-prone country covering different risk sectors and experienced a variety of disasters. As seen in Figure 3.2. in terms of natural disasters, earthquakes and floods are experienced at most according to the data of International Disaster Database (CRED Em-Dat, 2018). These disasters affected near 9 Million people including deaths, injuries and loss of assets and total cost of disasters is calculated as 27.510.100 $ (CRED Em-Dat, 2018). Also, in Figure 3.3 the spatial distribution of the disasters covering landslide, flood, avalanche and rockfalls can be seen which reflects the high coverage area of natural hazards in the country.

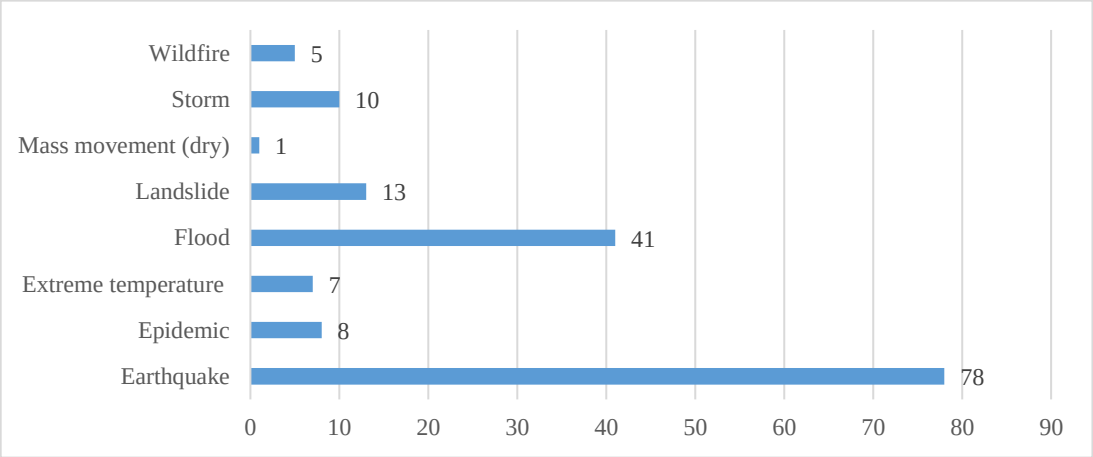

Figure 3.2. Number of Natural Disasters in Turkey between 1900-2018 (Em-Dat, 2018)

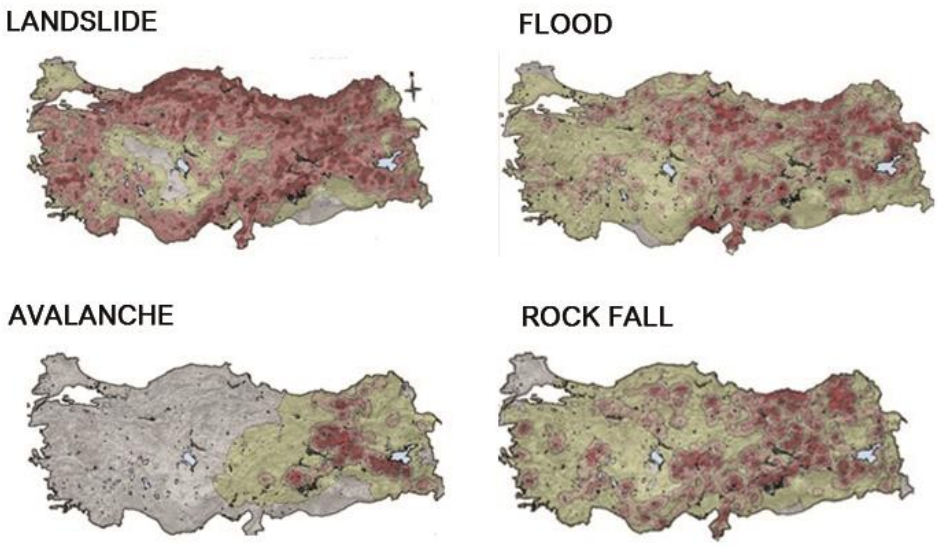

Figure 3.3. Disaster Profile of Turkey (AFAD,2014)

Further, as shown in Figure 3.4., the majority of the country is prone to earthquake hazard and makes the earthquake risks the top priority of the disaster risk management policy of the country (Şenol Balaban, 2019)

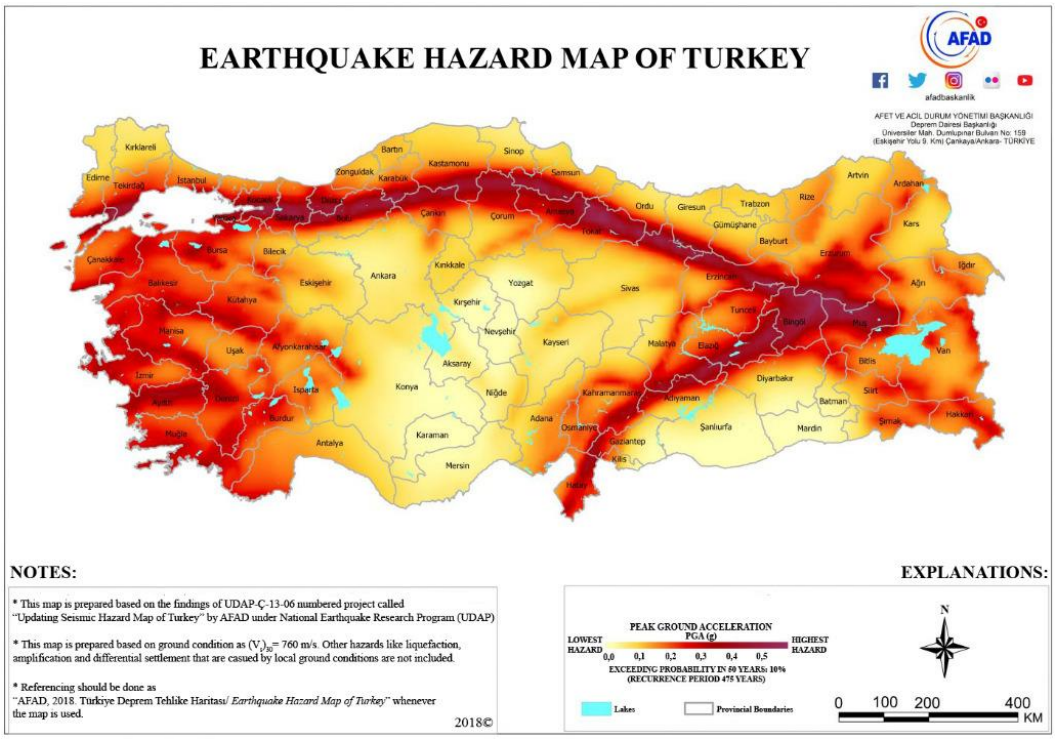

Figure 3.4. Earthquake Hazard Map of Turkey (Senol Balaban, 2019)

Beside the natural disaster profile of Turkey, at the city-level, there are several risk sectors originated from the urbanization background of the country. According to Balamir (2004), the urbanization pattern of cities and the reinforced structures constructed in high rates without having technical consultancy resulted in creation of a risk sector. Also the urban development without allocating the required amount of open spaces, construction of infrastructure without a plan, the location of emergency facilities, the location of industries and ineffectuality of central and local administrations (Balamir, 2004). As seen the risk sectors are identified as; risks due to the macro-form, the urban land-use decisions, building stocks, hazardous land-uses and related with emergency facilities in Turkish cities.

Further, it is essential to analyse the development and current context of the disaster risk management system in Turkey taking the disaster profile and risks in the country into consideration.

The disaster risk management system of Turkey was established after the Erzincan earthquake in 1939. Beginning in 1944, based on the experiences of the Erzincan earthquake, a post-disaster management system for supplying and allocating the basic needs such as shelter and food for the people was developed (Karancı, 2013). This system was based on the Law no. 4623 enacted in 1944 for describing the measures of pre and post-earthquake period yet not including the reconstruction measures. Following this law, several laws and regulations were enacted such as Development Law and Civil Defence Law. The Disaster Law no.7269 which is still in enforcement today was enacted in 1959 for overcoming the missing measures of the previous regulations and for describing a comprehensive disaster risk management system.

Until the Marmara Earthquake in 1999, most of the disaster management measures covered post-disaster approaches and there exist no regulations for risk analysis or risk mitigation approaches (Sonmez Saner, 2015). After the Marmara earthquake, a revision was made in disaster management system, legislation and administration formation (The World Bank, 2012). Disaster and Emergency Management Presidency (hereafter AFAD) established under Prime Minister's Office, the Civil Defence Units in selected cities were established for the search-and-rescue responsibility, resulting from this restructuring period (The World Bank, 2012). This new understanding of developing a comprehensive system covering pre, post and response measures altogether, help developing several new regulations, strategy documents. Some of them can be listed as, The Decree on Building Construction for the building-codes, the National Earthquake Strategy and Action Plan covering preparedness actions, the Istanbul Seismic Risk Mitigation and Emergency Preparedness Project, the Integrated Urban Development Strategy Action Plan *(KENTGES)* (The World Bank, 2012). This centralized disaster management system is aiming sustaining coordination of mitigation, response and recovery approaches (Karancı, 2013).

3.2. Analysis of the Law no.6306 with the Urban Resilience to Disasters Framework

The section 3.2. covers the analysis of the case study. Before moving on the analysis of the Law no.6306, the background of the law covered in section 3.2.1. to explain the reasons and objectives of the law with respect to the urbanization and disaster context provided in previous sections. Following this outlook, the analysis and discussions of the case is covered in 3 dimensions as; policy analysis, institutional analysis and analysis of selected implementations which are "risky area" implementations of the law.

3.2.1. Background of the Law no.6306

Turkish cities are prone to a variety of risks and disasters due to its geological location, topographic and metallurgical characteristics and have been experiencing natural disasters especially earthquakes (Sonmez Saner, 2015).

When the disaster history considered, Sonmez Saner (2013) highlighted the fact that 92% of the country's land located in the earthquake zones where 98% of the total population are living in the earthquake zones, including the 69,7 % are living in the 1st and 2nd earthquake zones (Sonmez Saner, 2013). Natural and man-made hazards and different risk sectors in cities also increasing by the impact of climate change and resulted as increasing of physical, social and economic vulnerabilities which create the high levels of risks in cities (Şenol Balaban, 2016). The increased vulnerabilities could lead to increasing numbers of losses both in terms of lives and assets.

In addition to the natural hazards and disasters in Turkey, there exist city-level risks in variety of sectors as explained in the previous section. Within these risk sectors, the risks due to urbanization pattern, due to the urban planning history and the building profile in Turkey also affect creation of vulnerabilities in cities. As stated by the Ministry of Environment and Urbanisation, the half of the building stock constructed until the enactment of legislations regarding the building codes for earthquakes

resistance in 2001, are creating several risk factors in cities due to its urbanization process and construction performance.

When the urbanization processes in Turkey recalled, beginning with 1950s the development of squatter settlements resulted from the increased rates of migration from rural areas to cities created urban sprawl, land and service scarcity in newly created 'urban' parts. Following this the regeneration of these areas, implementing the appurtenance processes created new forms of ownership patterns and urban forms and cities developed without a comprehensive planning manner. The regeneration processes supported by several amnesty laws (Balaban, 2013). By implementing this type of property development in cities, the apartment type housing development, the construction rate was increased resulted in increased building densities on unorganized urban lands which were vacant public lands or unsuitable areas for settling. The increased rates of apartment development with the help of appurtenance methods can be observed in the construction permit statistics as in Figure 3.5. This process due to appurtenance, resulted as low quality settlements without proper land and infrastructure development, overgrowth with high risk factors, limited administrative capacity and inequality in terms of social distribution (Balamir, 2014).

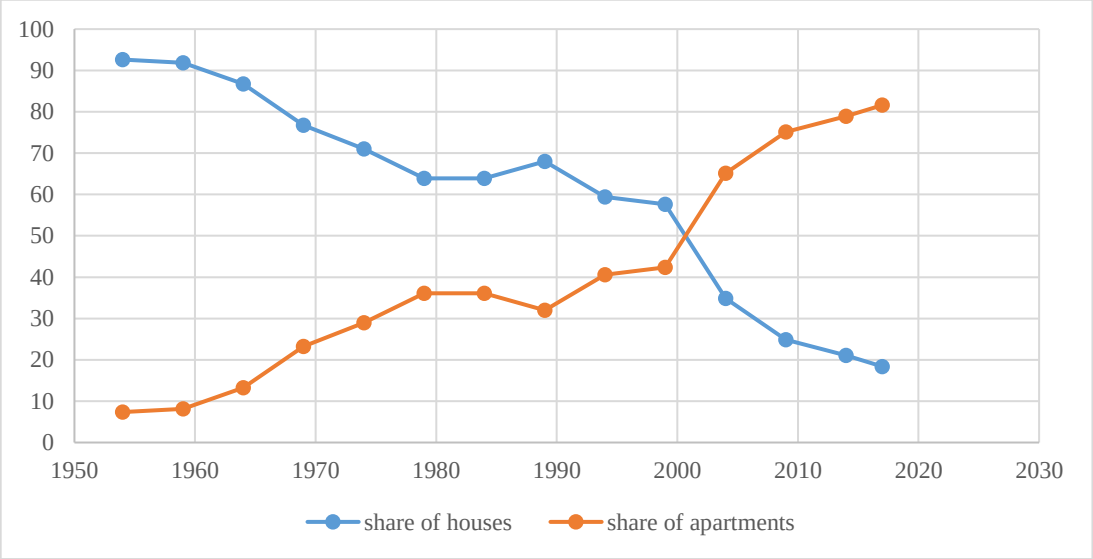

Figure 3.5. Shares of Houses and Apartments according to Construction Permits between 1954-2017 (TurkStat, 2018)

In 1980s, the cities in Turkey was mainly characterized by the apartments developed in urban regeneration areas which was previously squatter settlements. But with the continuous urbanization rates in 1980s as seen in Figure 3.6. required larger scale solutions which were supplied by the development of mass housing projects and housing cooperatives in Turkey, yet the development of squatter settlements was still an ongoing process in cities due to scarcities in housing provision. This development was complemented by the development of larger scale urban regeneration projects under the impact of globalisation and deindustrialisation in bigger cities.

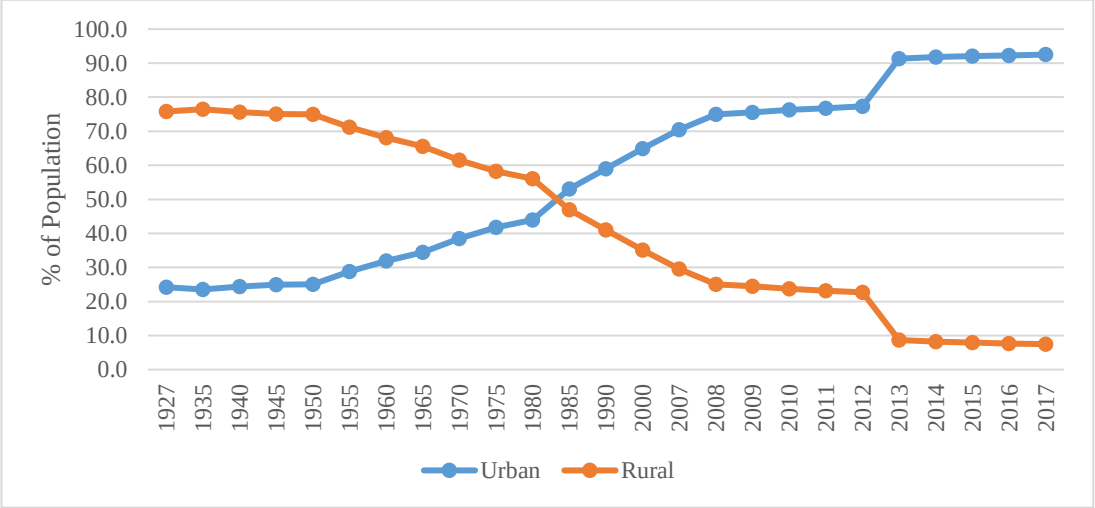

Figure 3.6. Percentage of Urban and Rural Population in Turkey between 1927-2017 (TurkStat, 2018)

In 1990s, Marmara Earthquake was accepted as a milestone in both disaster management and urban development in cities in Turkey. Beginning from 2000s, several measures were implemented for disaster risk management in cities. Yet majority of them covers building base solutions and legislations such as Earthquake Regulations, The Law for Building Audits, Compulsory Insurance for Earthquake.

Even though such improvements in the building stock contributes to the disaster resilience in cities, they still lack a comprehensive solution which need to cover the need of improvements in the infrastructure, social and economic scarcities existed as a result of urbanization patterns, hence accepted as deficient solution in achieving resilience.

In terms of area-based solutions, beginning from 2000s, the urban regeneration projects developed by the Municipality Law no.5393, was mainly targeting the new developments in the vacant lands instead of regeneration of the areas where the city-level risks exist.

Further, the urban regeneration projects developed by the municipalities and by TOKİ, was mainly focused on areas where feasible resources exist for the finance of the

project such as city centres where the land rents are higher, leaving the unfeasible shrinkage areas untouched.

For these reasons, a new framework for urban regeneration, was developed by the Ministry of Environment and Urbanisation in 2012, to overcome the city-level risks, to sustain the renewal of the areas, to solve the issues related with the urban sprawl resulting from past urbanization experiences, to create safe and disaster resilient living areas (CSB, 2014).

The aim of the law is defined in the Law document as; to designate the principles and procedures of rehabilitation, prevention areas and renewal for achieving safe and healthy living environments convenient with science and art norms and standards, within the areas under disaster risk and in the plots and lands where risky buildings were constructed.

In achieving this target, three implementation tools are defined in the law as;

1. Implementations in risky areas,
2. Implementations for risky buildings and
3. Implementations in reserve area for constructions.

The development of the law and regulation and the tools defined in the law is analysed in a time sequence to show the changes occurred within time. (See Figure 3.7.)

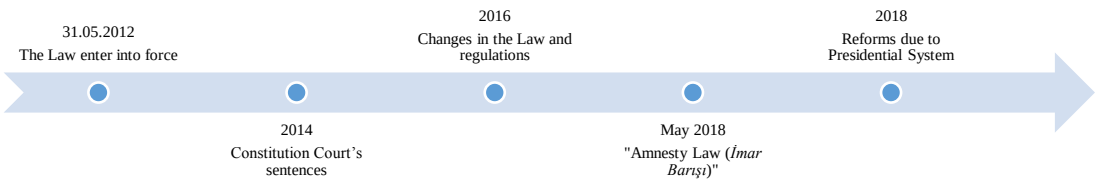

Figure 3.7. Timeline of the development/changes of the Law No.6306 (by author)

The law was enacted in 16/05/2012 and according to the first version of the law and its regulation, definitions are;

- *The Ministry*: Ministry of Environment and Urbanization,
- *Administration:* Municipalities in the adjacent areas, in the outside of adjacent areas Provincial Administrations (*İl Özel İdaresi*), in the metropolitan cities the metropolitan municipality and if it authorized by the Ministry the district municipality,
- *Reserve Area:* The areas which will be used for development in accordance with this law that is designated by the Ministry, upon the proposal of the *Administration* or TOKI or on its own motion, with taking the official opinion of the Ministry of Finance,
- *Risky Area:* Areas under disaster risk that can cause deaths and losses due to ground conditions or conditions of the buildings within the area, are designated by the Council of Ministers and proposed by the *Ministry* based on the proposal of the *Ministry or Administration* and taking the official opinion of the Disaster and Emergency Management Presidency (AFAD),
- *Risky Building:* Buildings within or outside of the *Risky area,* where the risks due to fulfil its lifespan (*ekonomik ömrünü tamamlamış*) or carrying the risk of collapse or heavy damage is determined by scientific and technical data,
- *Related Institution: The Ministry, Administration or TOKI* that is responsible for implementation of regeneration project in the *Implementation Area*
- *Implementation Area:* The Risky Area designated by the Council of Ministers, Reserve Area designated by the Ministry or the area including the Risky Building(s) (Official Gazette, 2012).

In addition to these, the law contains measures under the "implementation section" related with property registration and transfer processes, evacuation and demolishment processes. and in the 3rd section there exist measures related with the revenues from the projects and other provisions. When these measures evaluated,

- ***Property registration and transfer processes define;***

  This part defines the risky conditions of risky building designation and the registration of this status to the deed of the property giving reference to the law's regulation.

  For the transferal of the properties, properties in the risky area or reserve area which is owned by the treasury, with having the positive opinion of the Ministry of Finance, can be devoted to the Ministry of Environment and Urbanisation. More, Ministry can use this property or can transfer it to TOKI or related administration free of charge.

- ***Revenues from the projects***

  This section describes the content of all revenues that can be registered as special income for spending in any purpose in this law.

The law and its regulation also define a specific planning procedure. Within the context of this law, the aim of the planning of the implementation areas is;

- Disaster risk reduction,
- Rehabilitation, protection and development of the physical environment (built environment),
- Sustaining social and economic development,
- Increasing the quality of life with climate sensitive and energy efficient urban design

the Ministry of Environment and Urbanisation has the power of preparing and approving the plans on its own motion or asking from related authorities to prepare the plans in every types and scales. Also, the Ministry of Environment and Urbanisation has the authority of developing the planning and design standards and implementing these standards in the planning decisions or within the urban design projects for the implementation areas or for the areas within the context of other special laws.

While approving the plan proposals, the Ministry of Environment and Urbanisation is responsible from determining the planning principals, subjects of analysis. Within this framework, the Ministry of Environment and Urbanisation evaluates the plan proposals and assess the impacts of the plans to the integrity of the cities, the level of integration with the urban transportation system, fulfilling the need of social and technical infrastructure and integration with the spatial development pattern of the city as a whole.

In 2014, there has been several changes in the law due to the Constitution Court's sentence of annulment of several articles in the law. When these decisions analysed one by one;

- First amendment is about the expenses of risky building designation procedure. The Constitution Court cancelled the article ordering that the property owners parallel with their shares in the property must pay the expenses in circumstances when the Ministry of Environment and Urbanisation of related administration do the risk area designation on their own motion.
- Second cancellation is about the land owned by public institutions. The Court decided to cancel the article where the land can be transferred to the possession of the Ministry of Environment and Urbanisation or with the request of the Ministry of Environment and Urbanisation transferred to TOKI or municipality free of charge.
- Third annulment is about the procedures regarding the buildings or structures located in the risky area yet do not carry any risks. In the first version, the law ruled as; these buildings or structures, if considered as necessary by the Ministry, are also subject to the procedures same as the risky area.
- Further, the decision about temporarily impeding any urban development and construction processes in the risky area, reserve area or in the plots of risky buildings. This article was cancelled by the Court yet modified in the amendments in 2016.

- The article that restraining the “stay of execution” decisions when there exists a legal action file against the decisions made by the law, was cancelled.
- The sentence which rule as; when the addresses notified as in address-based population registration system, it is assumed to be notified, was also cancelled.
- In the first version, the plans made in the context of this law were not subjected to any restrictions defined in law no. 3194 or any other special laws. The Court also called of this sentence.
- Also, the first version of the law describes this law as superior to many laws when there exists incompatibility between the laws, yet the Court cancelled the article related with this decision.

Moreover, several significant changes were made to the law and its bylaw in 2016. First of all, an annex article is added to the law covering new justifications of risky area decisions. The Annex Article I describe that risky area can be designated in areas;

- Where there exists a disturbance in public order resulted in damages in built environment and infrastructure;
- The 65% of the buildings in an area is illegal if buildings constructed contradictory to the urban development plans, the laws and/or not having the construction permit.

Also, in this article, it is ruled that one can sue the risky area decision after the its declaration in the Official Gazette however cannot sue the implementation procedures.

In the regulation of the law, the previous cancellation of the Constitutional Court about the restrictions on temporarily impeding any urban development and construction processes in the risky area, reserve area or in the plots of risky buildings changed by defining time limit of two years with having an option to extending this period additional one year (Official Gazette, 2016).

In terms of reserve area designation procedure, “the technical report based on observational information” and “all additional documents and information asked by

the Ministry of Environment and Urbanisation" are added to the proposal file (Official Gazette, 2016).

In terms of risky area proposal, the legal or real person(s) who owned a property in the area can also apply with the proposal file to the Ministry of Environment and Urbanisation or related administration.

In the licensed agencies for determination of risky buildings, the amendments added new criteria related to the qualifications of the technical staff in the agencies.

Another significant change is about the risky area implementations. Now that like the risky buildings, if the majority (2/3) of the property owners negotiate on the regeneration project in a building block, the project can be implemented by selling of the property rights of the minority 1/3 to the majority of to the Ministry of Environment and Urbanisation by several methods such as veiling.

In terms of planning process in the regeneration projects, the Ministry of Environment and Urbanisation has also right to prepare urban design projects.

In terms of housing benefits, the tenants and/or owners of the illegal housing (Gecekondu) also have the right to receive the housing benefits like the property owners.

Another circumstance that have an impact on both urbanization and urban regeneration policies in Turkey is the latest regulatory changes enacted in May 2018 with the law 7143 in the Development Act no.3194 *(İmar Kanunu)* (Official Gazette, 2018). Even though the changes are announced with a different concept as *"İmar Barışı"* which means making peace within the illegal developments, this process is commonly seen as a new amnesty law for the illegally built properties. According to this amendment, aiming preparedness to the disaster risks, all the properties without construction permit or the ones with the permit but having parts contradictorily built to the permit with the condition of constructed before 31/12/2017, will be given a Registry Certificate by the Ministry of Environment and Urbanization or the agencies

and institutions delegated by the Ministry after the payment of required amount until 31/12/2018 (Official Gazette, 2018). By this Certificate any municipal services such as water, electricity and natural gas can be supplied to properties. There exist several exceptional circumstances defined such as;

- Even a condominium is achieved with the certificate, the Annex Article-I of law no.6306 is still applicable
- If the building is built on properties of the Treasury, these are assigned to the Ministry and can be sold to the holders of the Registry Certificate.
- The Registry Certificate is valid until the reconstruction of the building or until any urban regeneration implementation and the responsibility of ensuring the earthquake resistance of the building is the owners.

The final change to the law is with the Presidential Elections in 2018. With this election the decision-making process in the law changes similar with many other laws and regulations in the Turkish governance system. One significant change is the new process define in risky area decision-making. In the new version the law defines risky area as; the risky areas are designated by the President. However, these final changes are not analysed within the context of this research.

3.2.2. Policy Analysis

The initial aim of the policy analysis is to describe the policies and their relationship with resilience concept. In describing, the goal is to find answers to the questions of;

- What is included in terms of urban resilience and urban resilience to disasters?
- How we can categorize these measures in terms of disaster risk management?

By discussing these, second step of the analysis is to identify the impacts of the policies on urban resilience to disasters. This will be followed by the identification of strengths or challenges in implying urban regeneration policies in the context of disaster resilience in cities.

As highlighted previously, the aim of the law is providing life safety. Based on this principle there are various policies defined as risky area, risky building, reserve area and the negotiation methods and financial instruments related with these 3 types of intervention mechanisms. The analysis starts with risk building method and followed by risky area and reserve area. Upon the explanation of these, the negotiation approach defined in the law and the financial instruments will be examined. Furthermore, the intervention mechanisms will be evaluated by 3P&T-D Framework with identifying the short and long-term policies.

In addition to the identification of resilience dimensions, the discussions about policies and their impact on disaster resilience will be covered at the end with highlighting the strengths and challenges of the law.

3.2.2.1. Risky Building

As covered in the previous part, the law defines a building-base implementation method named as "risky building". According to the law, the buildings proved to be risky by scientific data will be demolished to provide life safety (see the procedure in Figure 3.8). In this procedure, by the risk building can be determined either by the request of the owners, related NGOs, public agencies and institutions or by the motion of the Ministry. In this process, the technical support is provided by the bodies licensed by the Ministry. So, the qualifications and the technical capacity of the bodies responsible for determination of the risk building was in the responsibility of the Ministry itself. The main principle in determination of risk building is stated as "*Principally the owners have the authority"* for starting the risky building determination application rather than other institutions or the Ministry of Environment and Urbanisation.

Other essential characteristics of the risk building determination process is that, unlike other intervention mechanisms, the law and its regulation define several time limits in implementing the risk building procedure. The time limits is analysed in comparison with other intervention procedures in the final part of this section.

Another significant characteristic of risky building implementation is, the procedure is based on negotiation of the majority (2/3) of owners in the building . And also the law defines the procedure of sales and transfer of the property rights for the 1/3 minority.

Another measure is about the objections to the procedure. If there exist any objection to the risky area determination, there exist room for obhecting to the decision and having technical opinion from the technical committee which is composed of representatives from university and the Ministry of Environment and Urbanisation. This provide room for monitoring and evaluating the decision-making procedure in risky building interventions.

As a part of risky building procedure, starting from the agreement and evacuation day, if there exist an application regards to, the owners and tenants of the building can have housing benefits (*kira yardımı*), for up to 18 months. This shows the expected timing of the reconstruction of risky building procedure.

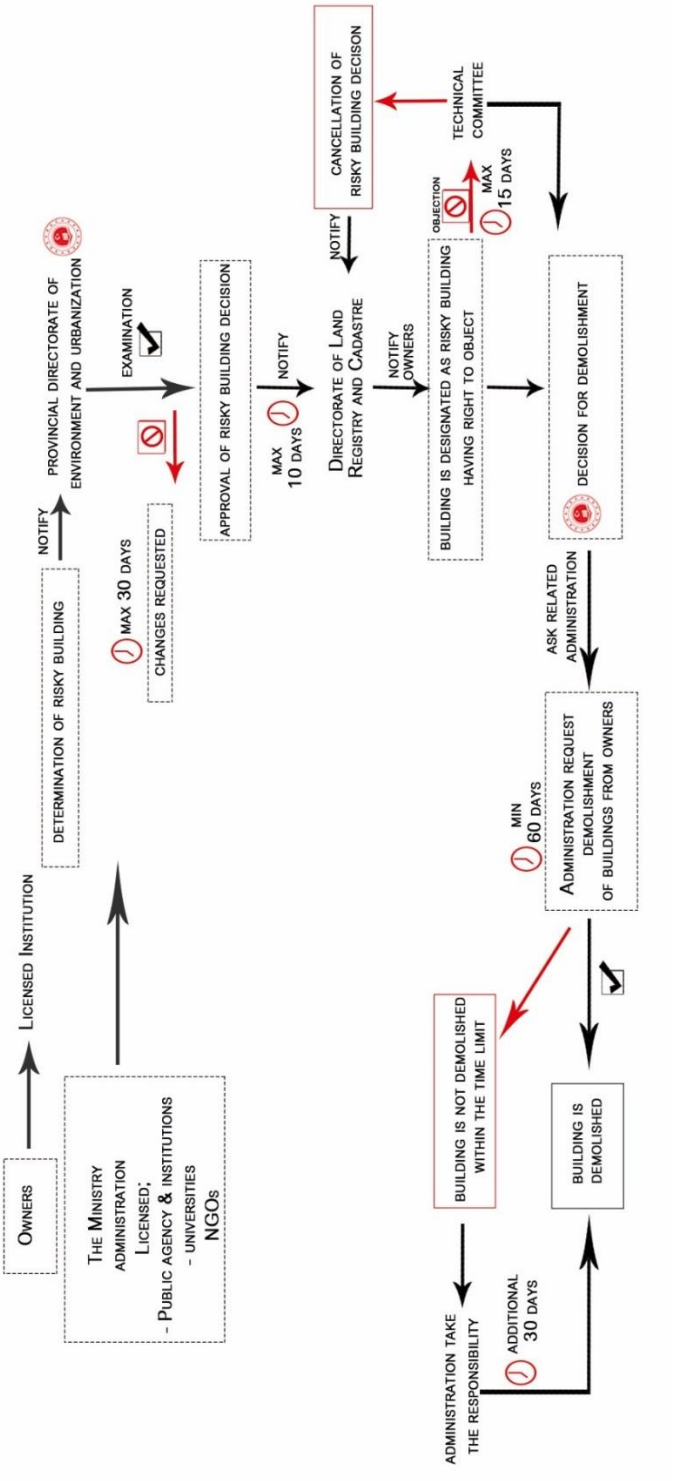

Figure 3.8. Decision making and demolishment process of Risky Buildings (By author)

3.2.2.2. Reserve Area

In the law 6306 there exist another intervention mechanism defined as reserve area. The main purpose of this method is providing the needed land in line with aim of the law, for development of healthy and safe living areas, complimenting the risky area and risky building implementations. Yet the reserve areas can also be used for, new development area and for income generation purposes for the Ministry of Environment and Urbanization.

Unlike the other types of interventions, the Ministry with having the positive opinion of the Ministry of Finance make the decision about the reserve area. Beside the Ministry's own motion, decision about the reserve area can be made upon the request of the real or legal person(s), TOKI, the municipalities (see Figure 3.9).

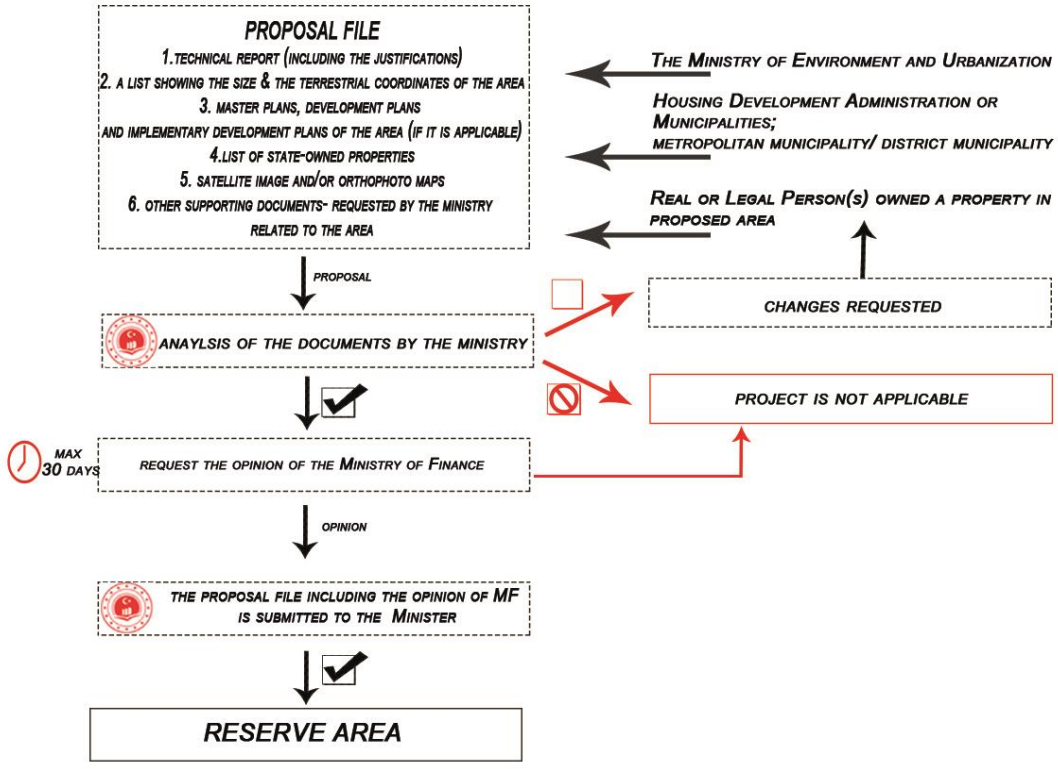

Figure 3.9. Decision-Making Process of Reserve Area (By Author)

3.2.2.3. Risky Area

The third intervention mechanism in the law is, designating an area as “risky area”. The designation can be done due to 4 reasons as shown in Figure 3.10 where the justifications and the technical information about them needed to be covered in the technical report in the proposal file.

The ground conditions mainly cover the technical information about the hazards and disaster risks occurred in an area such as of seismicity, land slide, flood, avalanche or rock falling.

When an area designated as risky area due to the conditions of the buildings and structures above, in the technical report, there needed to be scientific data and reports proving the risk levels of the buildings or the inadequate conditions of the infrastructure or the other risk sectors in the built environment such as low accessibility due to settlement pattern and roads which have a negative impact on emergency accessibility.

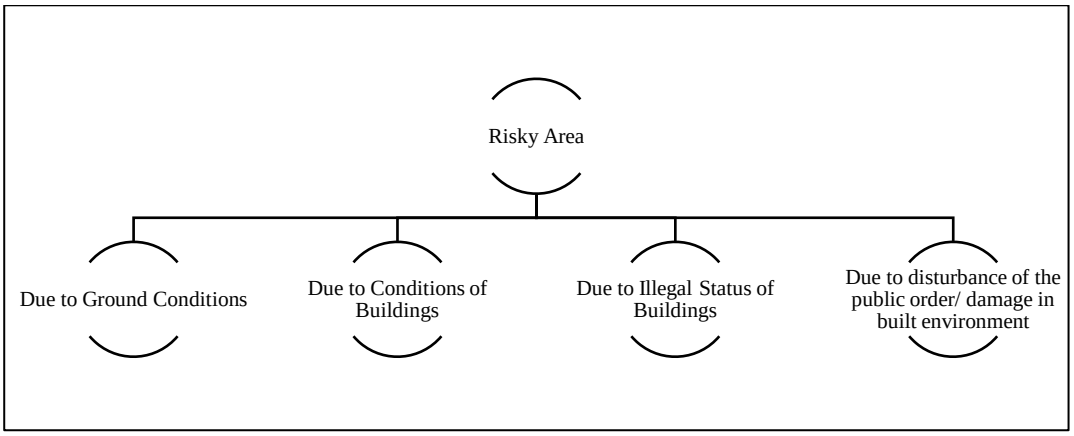

Figure 3.10. Justifications of Risky Area Decision

By the amendments to the law and regulation in 2016, the illegality of 65% of the buildings in an area, also accepted as a reason for risky area designation. This illegality concept covers the all buildings constructed contradictory to the urban implementation and development plans, the laws and/or not having the construction permit. By this change, it can be said that the scope of the law is enlarged and provide an opportunity for addressing city level risks peculiar to Turkish cities. For example, with this article, the areas where apartments were developed with insufficient infrastructure as a result of regeneration of Gecekondu areas in 1960s can be targeted. This approach which provide a room for additional risk sectors could contribute to the comprehensive risk assessment in cities. Yet there exist no specific risk assessment methods defined in the law or regulation. For this reason, the implementation approaches, and institutional relationships are analysed in the following sections.

Also, in terms of decision-making process, the assessment of the risks and the methods of doing this is not defined in the law. The law and regulation only define a requirement of a technical report justifying the risks in an area. And although the law involves the Disaster and Emergency Management Presidency by requesting the official opinion, there is no regulation about the extent of involvement of this institution besides providing an opinion about the risks in area. As the decision-making process in this phase is dependent on the opinions and decisions of the related institutions, to understand the content of decisions-made the institutional analysis is conducted and will be represented in the following section.

Another point to raise is about the time extent of risky area designation procedure. As seen in Figure 3.11, there is no time limit defined in the procedure beside the opinion provision phase of AFAD.

When the, implementation process evaluated, as seen in Figure 3.12, there exist two circumstances after the declaration of the risky area.

In a normal procedure, after the designation next step is to determination of the responsible authority. As defined in the law section two article 6 (12), the Ministry

has the authority to decide the responsible authorities whether municipality, special provincial administration or TOKI to implement the urban regeneration project in the context of the law. Also, the Ministry itself can be responsible for implantation of an urban regeneration project. After determination of the responsible authority and the extent of the responsibilities by the Ministry the plan preparation process starts. If the Ministry transfer the authority to preparation of the plans and urban design projects, the responsible authority prepares a plan proposal and apply to the Ministry for the approval of the plans. Yet in some circumstances the Ministry can also transfer the authority to approve plans to the related institutions as well as reflected in the regulation's section six. Simultaneously or following the plan preparation, the valuation of the properties in the implementation area starts. Based on the approved plan and valuation, an urban regeneration model and project are developed which are used in the negotiations with the parties involved. The negotiations are launched upon the agreement model developed by the responsible authority. The law describes the agreement conditions as achieving the agreement of at least the majority (2/3) within the implementation area or in a stage within the project in its regulation's section Four Article 15. The property rights of the remaining are subject to sales with veiling principally to the rest of the owners in the project area. After the evacuation process starts within 15 days or the time limit set by the authority. From the day of the evacuation, the owners or tenants or owners of illegal houses can apply for the supporting measures including housing benefits, interest support or temporary housing.

In circumstances where the sales action cannot be completed, the Ministry could purchase them so that project can be implemented. On the other hand, if the negotiations cannot complete upon the proposed agreement model, the process is blocked. One option in this situation to development of a new agreement model or new regeneration project.

After designation of a risky area, another process observed within the extent of the law is the problematic process due to legal actions against the designation. In this

circumstance, as defined in Section Two Article 6 (9), one can file a suit against the designation of risky area in 30 days from announcement in Official Gazette. Resulting from this lawsuit, there exist two options as declaration of “stay of execution” in the risky area or rejection of the lawsuit. And the “stay of execution” decision resulted as cancellation of risky area decision.

Another subject of legal action is against the plans approved for the urban regeneration project which can also resulted as stay of execution and cancellation of the plan at the end.

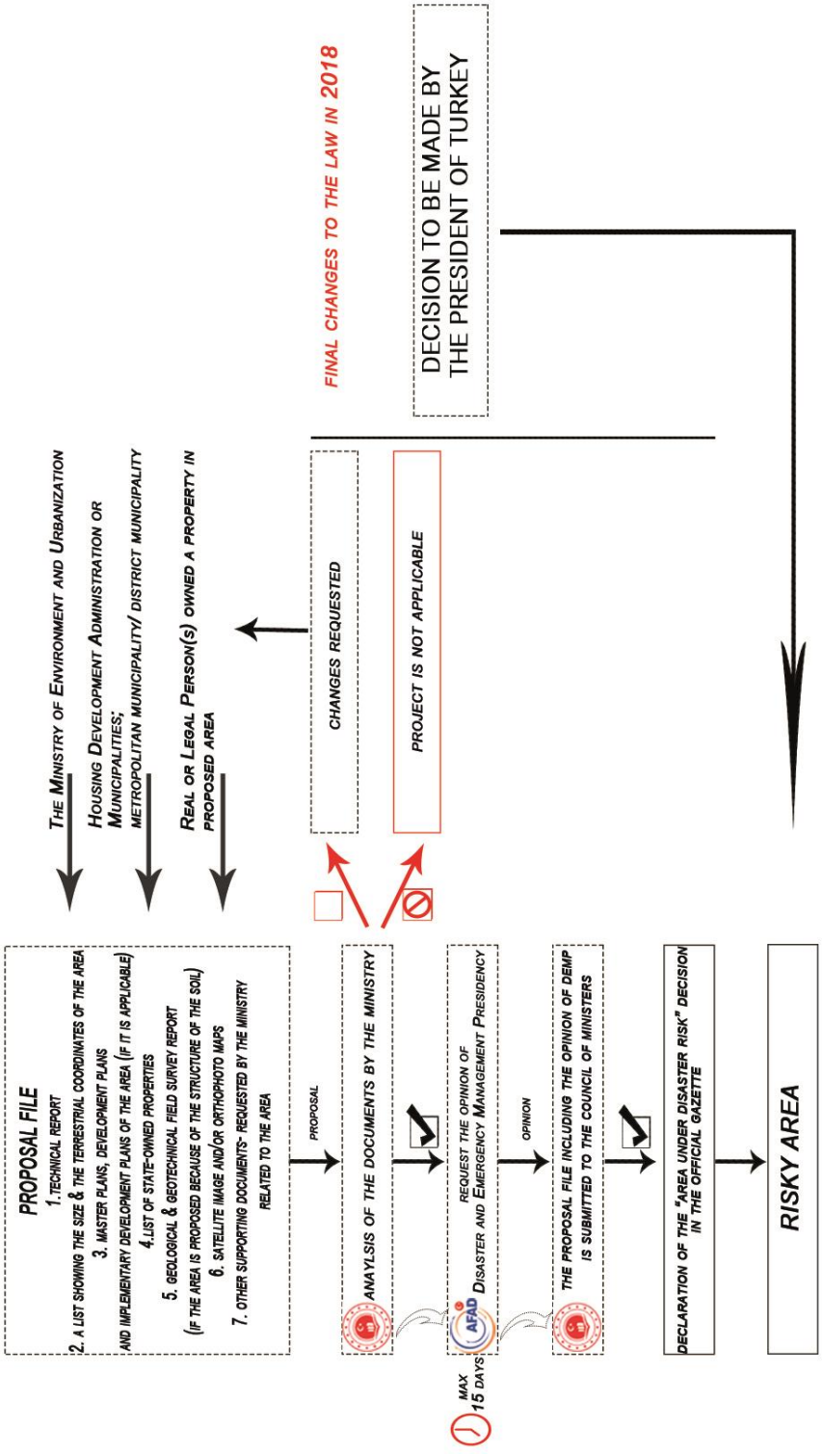

Figure 3.11. Decision Making Process for Designation of "Risky Area" (by author)

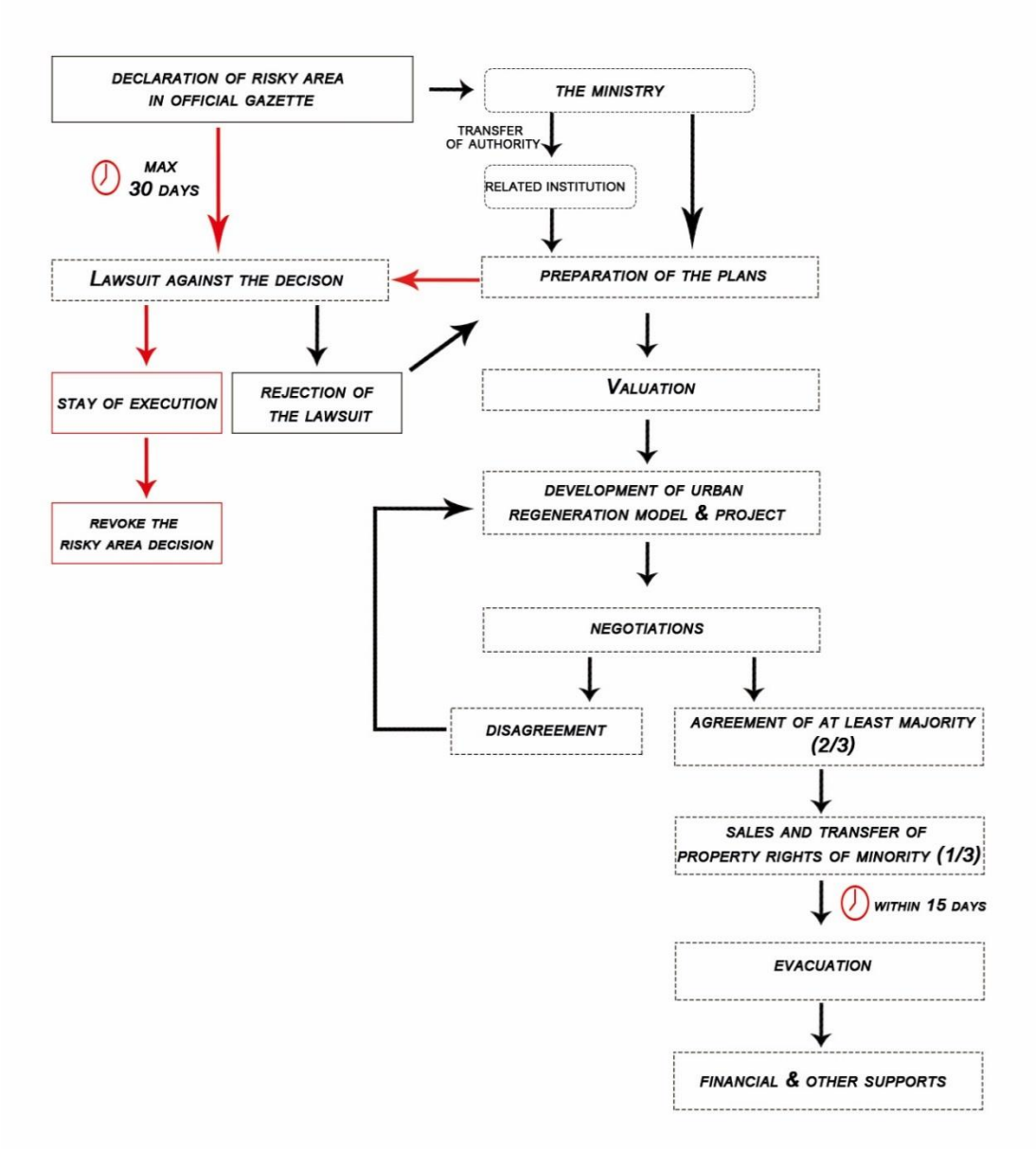

Figure 3.12. Implementation Process of Risky Area (by author)

3.2.2.4. Financial Instruments and other Supports

Within the law and regulation, there exist two financial instruments in urban regeneration projects as housing benefits and interest support/ reducing the interest rates of the credits that is used for the implementations within the law.

Both housing benefits and interest support are provided from the private account for the Urban regeneration projects *(Dönüşüm Projeleri Özel Hesabı)*. Also, these financial supports can be provided by the budget of the related institution like the municipality.

The interest support covers the (mortgage) credits given by the Private or Public Banks that sign a contract with the Ministry. It is not possible for one to get both financial support in an urban generation project.

On the other hand, one can apply for credits for using in the procedure of determination of risky building and also for the demolishment phase for the risky buildings and for the buildings in the risky areas.

Another supporting measure is, the Ministry can provide temporary residential or commercial units for the risky buildings and risky area implementations beginning from evacuation until a designated date.

One other supporting measure is the residential certificates given by the Ministry to the property owners, tenants or limited property owners in the risky buildings or in risky areas. This certificate can provide property right in residential, commercial or land or credits from private account of urban regeneration.

The last measure is about incentives defined in the law. Within the context of this law, there are several tax exemptions and reductions defined as a supporting measure to the constructors and property owners(Oy & Nazik, 2016).

For the housing benefits there exist time limitation of maximum 18 months for the risky buildings and 36 months for the risky areas. And property owners, tenants,

occupants of illegal housing or one who have limited property right can apply for housing benefits.

3.2.2.5. Negotiations and Agreements

All the implementations in the law is depending on the principle of negotiation of parties involved.

For the risky buildings, both the decision making, and implementation phase is carried out with the agreement of the property owners where there exist a room for objecting the risky building decision. If there exist an objection against the decision, a technical committee is responsible for prove or disprove the risk in the building.

In the evacuation, demolishment and redevelopment phases the related institution asked from the owners to evacuate and demolish the building by themselves in the designated time limit.

For the development project, for the project to be implemented there must be agreement of the majority of the owners. And for the minority (1/3) the property rights can be sold to majority of in circumstances that no one is willing to buy, the Ministry can buy the rights from current market value.

For the risky area implementations, there is also principle of negotiation of community involved in the project. For this reason, the law defines the condition of agreement of majority for a project to be implemented. Again, the rights of the minority could be sold to majority or the Ministry by veiling.

According to the Ministry is the principal responsible institution in risky area implementations. However, there is also a possibility of transferring the authority for responsibilities of the development, negotiation and implementation phases of projects to the local governments. The process about the transferring the authority is not defined in the law or in the regulation so the institutional dimension in this process is analysed based on the interviews conducted and represented in the following section.

3.2.2.6. Evaluation of the Policies

In analysing the all the measures defined in the law, first step is to identify short-term and long-term interventions which show whether the policy targets reducing the impact of vulnerability in short term or addressing structural causes of vulnerability in longer term. For this purpose, the time limits defined in the law were analysed. As shown in Table 3.2, there exist a variety of time limits in decision making process of risky buildings. For the risky areas and reserve area there exist only time limit for requesting the official opinion of related institutions, for the evacuation and negotiation phases and in some circumstances in the planning procedure.

Table 3.2 *The time limits defined in the Law and its Regulation*

Procedure	Responsible body	Law (L) or Regulation (R)
Objection to risky building designation within **15 days**	Owners	L 3(1), R (5)(6)
Notification of risks building to related directorate of land registry within **10 days**	Provincial Directorate	L 2, R 7(4)
Minimum **60 days** for demolishment of risky buildings	Adm & Owners	L 3(1), R 7(5) R 8(1a)
In risky areas, within the **30 days** from the notification, there should be agreement of majority (2/3)	Owners	L 6(2)
Within the **30 days** from the notification, one can file a legal action against the administrative procedures	Owners	L 6(9)
The Ministry of Finance give its official opinion about Reserve area within **30 days**	The Ministry of Finance	R 4(3)
The report about risky building send to Provincial Directorate within **10 days**	Licensed Institution	R 7(4)
The property shares of the minority who disagree with the agreement are sold within **15 days.**	Minority who disagree	R 15(2)
According to the program determined by related administration, evacuation starts within **15 days**	Owners	R 17

The official opinion of the Metropolitan Municipality about the urban plan of District Municipality within **15 days**	The Metropolitan Municipality	R 18(3)
The Ministry of Culture and Tourism provide its official opinion about risky areas in the context of law no 5366 and 2863 within **30 days**	Ministry of Culture and Tourism	R18(5)
Demolition permit is given within **6 days** after the evacuation	Related Adm	R 8(2b)
For the demolishment of risky buildings additional and maximum **30 days** can be provided	Related Adm	R 8(2c)
The University representatives in the Technical Committee provide their opinion within **15 days**	Related University	R 9(3)
The members of the Technical Committee are renewed in every **2 years** in January	The Ministry	R 9(5)
The meeting day of the Technical Committee is declared at least **3 days** prior to the meeting	Provincial Directorate	R 10(3)
The owners must make decision about the urban regeneration project within **15 days** of the declaration of the proposal project	Owners	R 15 (2)
Owners, tenants, limited property owners, owners of the illegal housing can use the housing benefits up to **18 months** for risky buildings or up to **36 months** in risky areas	Owners	R 16(1)

Source: Duyguluer,2014 Reproduced by Author

The policies defined in this law can be seen as a way of mitigation disaster risks in cities targeting both natural disasters or other city-level risk sectors due to urbanization. By implementing this law creation of safe and liveable spaces are aimed. The target and approaches in this law can be accept as a way for achieving disaster resilience by increasing the coping and adaptation capacities and reducing the vulnerabilities. Yet the law has limitations and neglecting several dimensions of disaster risk management.

3.2.2.6.1. Findings Regarding the Policy Analysis

One of the most significant characteristics of the law is, the decision-making process is highly centralized with giving the responsibility of designation, planning, project development, certifying, evacuation to the Ministry. Even the decision-making while transferring the authorities to the local governments or to the real person(s) is under the responsibility of the Ministry without defining any principles or rules in the law and its regulation. Yet there exist several articles highlight the principle of authorizing the local governments or principle of negotiation with the communities involved that create a possibility of increased participation or decentralization.

Another characteristic of this law is like the previous regulations about urban regeneration in Turkey, there exist a zoning approach with defining "risky areas" and "reserve areas" like the reclamation (*islah*) areas/regions and prevention areas/regions in the law 775. However, the zoning within this law resulted as defining some strict intervention mechanisms special to the risky areas or reserve area neglecting the needs arise from other characteristics. Likewise, when an area is designated as risky area or reserve area other qualifications of the area become less evident while developing the area.

In terms of planning procedure, even though there exist several principles defined in the regulation, the methods for implementing these principles are not defined but just giving the responsibility to the Ministry. This also resulted as centralization in planning terms loosen the power of local governments in terms of urban development. For understanding the planning procedure and the content of the plans prepared for implementation areas, sample projects will be evaluated in section 3.2.4.

In terms of disaster risk management, the law only has interventions about helping for stenting the physical structure and capacities in cities. For a comprehensive mitigation and preparedness, the law does not involve comprehensive risk assessment, mitigation planning, risk reduction methods or methods help increasing the preparedness of the communities.

When the interventions are analysed from the time limits set for risky buildings and risky area, as highlighted in the presentation about urban regeneration implementations in the context of the Law no.6306 by the Ministry (2018), 594.000 risky buildings were designated as risky buildings where 662.000 buildings are included in the 230-risky area designation. In total 4.152.000 people is covered within the risky buildings and risky area (CSB, 2018a). As reflected in the Table 3.3, regeneration of risky buildings is determined as a faster process than risky area implementations. This is due to the scale of the projects but also there exist a process defined for different circumstances in risky building process compared to risky area and reserve area projects. However risky building projects cover only regeneration or retrofitting of the building whereas risky area projects cover comprehensive regeneration of an area with development of social and technical infrastructure with area-based risk reduction measures within the extent of the plan prepared for the area.

Table 3.3. *Total Numbers of Buildings Designated and Demolished within the Risky Building and Risky Area Implementation*

	Determination	*Demolishment*	*Ratio*
Risky Building	594000	447000	75%
Risky Area	662000	75000	12%

Source: (CSB, 2018a)

Even though risky area projects are more comprehensive way of intervention compared to risky buildings, still in this approach the risk assessment and risk reduction measures and methods are not defined and not prioritized in the law. For understanding this phase of the risky area regeneration process, the implementations and institutions analysed in the following section.

The relationship between law and its intervention mechanisms can be categorized by the 3P&T-D Framework as described in chapter-2. This categorization will help identification and understanding the impacts of different intervention mechanisms

defined in the law. The law defines policies which can be categorized under all four types of intervention mechanisms. In terms of protective measures; the law defines the regeneration model with the negotiation requisite and also provides housing benefits while implementing the projects. The negotiation principle contributes to the adapting capacity with leaving room for participation in creation of resilient environments while housing benefits contributes to the coping capacity of communities. Negotiation principle can also be categorized as a preventive measure. Because it created opportunity for the people involved to negotiate and can disagree with a policy or a project proposed by any levels of governance. On the other hand, the regeneration at the building and area levels are preventive measures that contributes to the transforming capacity of cities. The law also has several promotive measures different from other urban regeneration policies and laws in Turkey. For instance, there exist credits provided for demolishment and evacuation in the risky area and risky building projects that could contribute to the coping capacity. In terms of adapting capacity, within the context of this law, there also defined housing benefits and temporary housings for the people in regeneration project. Also, for increasing the transformative capacity of people and communities the law also includes interest rate reductions in housing credits. Finally, there exist a private account provided just for the implementations and all measures within the context of this law which contributes to the coping capacity from the perspective of both the authorities and the community.

Table 3.4. *Evaluation of Interventions and Resilience Dimensions*

		Resilience		
		Coping	***Adapting***	***Transforming***
	Interventions			
Short Term (Reducing the impact of vulnerability)	**Protective**	X	X	
	Preventive		X	X
	Promotive	X	X	X
Long Term (Addressing structural causes of vulnerability)	**Transformative**	X		X

Further, if we recall the urban resilience dimensions defined in chapter-2, urban resilience is defined as a system combining dimensions of *metabolic flows, governance networks, social dynamics and built environment.* If the law and intervention mechanisms evaluated in targeting these dimensions; the focus of this law is increasing resilience of built environment with physical regeneration. Still, there exist several measures help enhancing the social and economic conditions in risky areas and reserve areas which can address the social dynamics and metabolic flows. For the governance network, as explained even though there exist a room for transferring the authorities to lower levels of governments, the decision-making

processes within the law is highly centralized. And in terms of community participation the law only defines a negotiation procedure based on already prepared projects and agreement model without the participation of communities.

When the policies analysed in terms of disaster resilience, the main purpose of the law can be categorized as a way of mitigation to disaster risks in cities. Also, the law supported this with several financial instruments to make the system sustainable and efficient and increasing the financial capacity which can help reducing vulnerabilities. Yet as described previously there exist no specific emphasis on risk assessment or risk reduction measures rather than physical transformation.

Moreover, even if the aim of the law and urban plans are described as ensuring disaster risk reduction and preparing cities for disasters in future there are no specific measures for risk reduction and preparedness like awareness raising or increasing the local understanding of risks in risky buildings or risky areas. Again, in order to understand the implementation phase in risky areas the roles and responsibilities of the institutions and sample projects is studied in section 3.2.3 and 3.2.4.

3.2.3. Institutional Analysis

The background information and the discussions on the policies show the essential role of the institutions defined in the law. For this reason, to understand their roles and impacts on the decision-making and implementation phase, a research was conducted about the responsible institutions of the law. This research includes the identification of the institutions and their role as they were defined in the law and to conduct interviews with identified institutions in risky area implementations.

For the identification of the institutions and other related bodies, the law and its regulation analysed, and they are determined as seen in Figure 3.13. The phases of decision-making can be categorized as four levels. The four categories are proposal stage, evaluation and risk assessment phase, requesting official opinion and the final decision stage. To start with the risky building implementations, any of the property owners, NGOs related with disasters, related administration, public agencies or

institutions can ask from licensed institutions to assess the risks in building. Also, the Ministry itself can or by the hand of provincial directorates asses the risks in a building. For the evaluation of the risk assessment results of licensed institutions, the related provincial directorate is responsible for analyse the results and notify the related directorate of land registry and cadastre. So, the related provincial directorate of environment and urbanization make the final decision.

In the reserve area decisions, the final decision is made by the minister of environment and urbanization with the positive opinion of the Ministry of Finance upon the proposal of TOKI, real or legal person(s) having property in the area or by the Ministry of Environment and Urbanization itself. As seen the Ministry of Environment and Urbanization is again the responsible body of the decision-making process.

For the risky area, the final decision of the Council of Ministers makes the designation or risky area. This very centralized decision-making process is made upon the request of the Ministry with having the opinion of AFAD. For the proposal file real or legal person(s) having property in the area, the municipalities or TOKI or the Ministry itself can prepare the proposal.

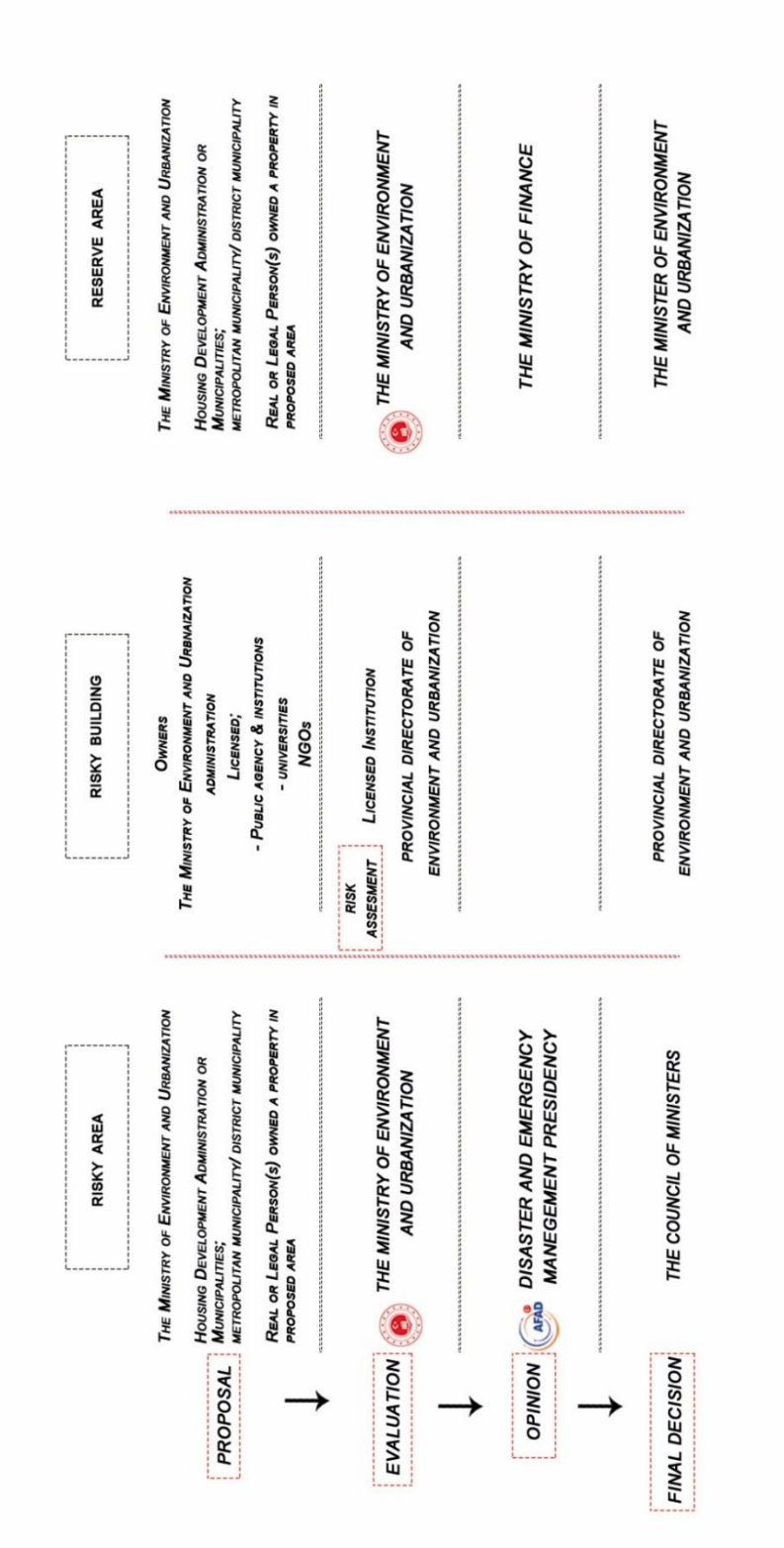

Figure 3.13. Decision Making Processes and Institutions in Law No. 6306 Interventions (by author)

The discussions about institutions cover three sections where the initial aim is to understand their role and impact in the decision-making process. In order to understand the roles, the focus of the analysis is risky areas where interviews were conducted with the Ministry and AFAD which are main enactors.

Decision-Making Process of Risky Areas

The Ministry of Environment and Urbanization

In the Ministry, Directorate General of Infrastructure and Urban Transformation Services are the responsible unit for all implementations of the law beside the plan preparation and approval (CSB, 2018c). Under this directorate general, there exist 8 main departments as seen in Figure 3.14. As shown in the official website of the Ministry, for the risky area implementations Department of Transformation Areas is the responsible unit. Based on this, the interviewees were selected from this department as 3 directors having backgrounds as urban planner, architect and mechanical engineer, 4 urban planners, 1 architect and 1 geology engineer.

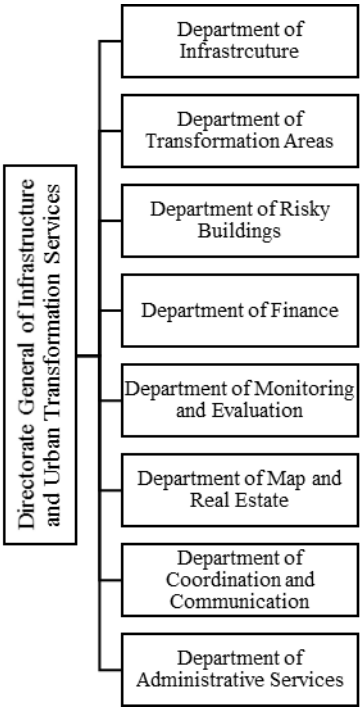

Figure 3.14. Organizational Scheme of Directorate General of Infrastructure and Urban Transformation Services

According to the directors in the Ministry, the municipalities are the responsible bodies for deciding the area for the proposal and the department in the Ministry is mainly responsible for controlling the proposal file. Most of the risk area decisions were made upon the proposal of the municipalities so far, the Ministry proposed only a few. The discussions about the capacity of the municipalities will be reflected in the section for municipalities. For the technical capacity of the Ministry there exist experts with a background of urban planning, architecture, geology engineering, geophysical engineering, civil engineering, topographical engineering and electrical engineering.

The capacity of the technical experts in the Ministry is developed and measured. For the measurements the selection process is made upon specific exams evaluating the technical capacity regards to the legal frameworks, urbanization, disaster management. Also, another method is electing experts in the provincial directorates who have experience in the field of urban regeneration and disasters.

For the development of the technical capacity there exist commissions for evaluation of the proposal files where people can learn from each other through others' experiences. In addition to this active learning method, there exist programmes for training of the experts once a year. However, as stated by the directors (2018) in the Ministry none of these programmes or knowledge sharing involves specific programmes or focus on disasters and disaster management rather than they concentrate on the enhancement of knowledge about urban regeneration and project management.

AFAD

The second group of interviews were conducted with Disaster and Emergency Management Presidency. Within this institution 2 interviews were conducted with directors.

In the planning and risk reduction department which is also responsible for the providing official opinions for risky areas, there exist with backgrounds in civil engineering, geology and geophysics engineering. This unit is responsible for providing the technical information about the risky area whether the area is designated as "disaster prone zone *(afete maruz bölge kararı*)" and the history of the disasters in the area. Beside these duties they do not provide any opinions about the urban regeneration project proposal. Also, the director in the AFAD (2018), stated the fact that if an area is already designated as "disaster prone zone" the area cannot be designated as "risky area".

Municipalities

For understanding the role and power of the local governments in the decision-making process and their capacity, the information is indirectly gathered from the interview results of the Ministry.

As stated by experts and directors in the Ministry (2018), the previous observations and experiences show that the municipalities who have experiences in urban

regeneration field have higher capacities in preparing risky area proposals. In addition, most of the municipalities prepare the risky area project proposal with service procurements from private planning offices. In terms of knowledge and awareness in disasters, most of the municipalities concentrates on the regeneration dimension rather than risk assessment and risk reduction (Anonymous city planners, 2018).

Further in the first years of the law, municipalities were more willing in designation of risky areas however as the project and implementation process teaches many challenges, lately they also start to act more selective (Anonymous director, 2018).

- Following, the diversity in the decision-making process is discussed with the interviewees to analyse the comprehensiveness of the policies in targeting different land uses and different risk sectors in cities.

In the decision-making process the law or its regulation for implementations do not define specific models or paths for different land-uses. Yet it defines 4 different justifications of risk in an area as expressed in the section 4.3.1. To understand whether the implementations are diverse in terms of covering different land-uses while evaluating the proposals, grasping the institutional behaviour is essential as the Ministry's provision is the decisive.

One of the key findings of the interviews is that even though the law, did not define a specific measure for concentrating on or prioritizing the residential areas, as stated by the director's and urban planners (2018), the priority in practice is residential areas due to the fact that protecting lives against disasters is the core objective of the risky area implementations.

On the other hand, several risky area proposals were made covering industrial areas or commercial land-uses or mix-used areas in cities. And even this diversity is not reflected in the law or regulation while evaluating the proposal files, the Ministry have the right to ask for further documents such as feasibility report which defines the regeneration model with respect to the alternative financing measures. For instance, if the proposed area is an industrial area where the current plans require for the relocation

of the industry to the organized industrial zones, or a need for designation of new working spaces within the area, the requirements and regulations need to be defined in the feasibility and technical report. Likewise, in the cases where the current use of the area cannot be regenerated within the area, the Ministry asks for the proposals of reserve area for sustaining the regeneration process of the risky area.

Risky Area Projects and Implementations

The second part of discussions is about the implementation phase of risky areas covering the project development, negotiations, the challenges and strengths of the projects developed and implemented since 2012. The analyses are based on four questions covering the existence of a regeneration model (feasibility, negotiations, project development, authority), if there exist model(s), the details of each step in a regeneration project, if there exist no specific model for urban regeneration projects the details of the road map of the Ministry and the challenges facing during the projects since 2012 and the strengths and facilities of the urban regeneration policies in the context of law no.6306.

The Ministryof Environment and Urbanization and Municipalities

An urban regeneration "model" is composed of all procedures and processes from the preparation phase to project development to implementation phase. From this perspective, within the context of law no.6306, there is no one definition or method for regeneration model. However, in the most cases the procedure and the approaches are similar in the similar sized cities or neighbourhoods. A way of analysing the regeneration model is studying the feasibility reports in the proposal files of risky areas.

The feasibility reports include urban development plan and urban design project proposals, agreement model with the agreement ratios, the financial instruments to be used in the project based on alternative regeneration scenarios with detailly explaining the expenditures and incomes. Yet there exist some differences in the scope of the reports from one project to another due to the technical capacity of the proposer, size

of the risky area, varying local dynamics, diverging rent of the land and ownership patterns. Hence it can be concluded that there exist no one model defined or implemented by the Ministry. But due to limited financial resources and the structure of the ownership patterns, most of the projects have similar model based on the principal of proposing one property in exchange of the current property. An example given by the Ministry shows; the mostly preferred model includes, entitling for the newly built property according to the agreement ratio such as a person having 100 m^2 property can be entitled for 50 m^2 of the new property in circumstances where the agreement ratio is 50%. And if the newly built property is 80 m^2 in total, this owner will have 50 m^2 of the property and need to pay for 30 m^2. The experts in the Ministry express that this model is the most preferred model by the community.

Another the model could diverge with on-site reservation projects or using a reserve area for transferring the risky area. In the risky areas due to conditions of the buildings, the principle is to regenerate the area onsite yet in areas with risky ground conditions the principal is to find a reserve area.

The model also differs according to the responsible authority. As explained in previous section, the law defines the Ministry as the main authority, yet the authority can be transferred to local governments or real or legal person(s) with the approval of The Ministry. In the decision-making process of this transferral, it is essential to identify the reasons. The experts and directors in the Ministry express that in the majority of the risky areas, the proposer municipality becomes the responsible authority for developing the regeneration model and for project implementation based on their demands regards to transferral of authority. While evaluating these requests from municipalities, the financial and technical capacities including the ability of municipality for completing a regeneration project or even the experience in urban regeneration projects are essential yet there exists no example for disapproving a request from a municipality.

The law and its risky area implementations have some strengths compared to other urban regeneration policies in Turkey. The experts and directors in the Ministry (2018), highlight the strengths of this law as; the enabling financial instruments like housing benefits and interest supports, the on-site regeneration with protecting the social structure as much as possible for the society. From the perspective of policy-makers and governments, the policy which enables the implementation with the agreement of majority 2/3 and bidding or expropriation of the 1/3 is an opportunity for them.

The challenges are mostly concentrating on five categories as; negotiations with the people, the lawsuits and the legal processes, the inadequacy in financial instruments, the non-existence of well-defined risk assessment procedure and the coordination and project management challenges during implementations.

In the negotiation procedures, head of the department (2018), explained two major factors resulting in lack of agreement on proposed project. One factor is due to the structure of the ownership pattern. Resulting from this, in some cases the process extents because it is not possible to access to, notify and invite all property owners even whom have less than 1 m^2 in the plot. Or in some cases it is not possible to meet the expectations of all parties and the procedure can last for long time period. For instance, the negotiations can extent up to 2 years in an area with 5000 population (1st anonymous urban planner,2018).

Another challenge in risky area projects is the lawsuits against the risky area decision and the process related with these. People who do not want to join the regeneration project, can sue the decision and the lawsuits can last years. One major problem is that after the designation of risky area, the Ministry or the responsible authority can restrict all actions including construction permits, planning implementations 2 years and an additional year extension which resulted in restricting all actions of people in an area. Also, if the Council of State decide to implement stay of execution, regeneration actions also restricted. Head of the Unit (2018), stated, this extensions in procedures

resulted in defectiveness in all process such as the owners can lose their right to have housing benefits as the benefits are given for a limited period.

The financial instruments defined in the law also stated to be challenging in risky area implementations. In the most cases experienced by the Ministry, residents in the risky area were willing to demand the exact size of their existing property after the regeneration. Also, the Ministry's principle in regeneration is to complete the project without charging the owners with a debt and the resources and budget of the private account of the Ministry are limited This resulted in disagreements and deficiencies in project financing. Moreover, these challenges in financing resulted in extensions in project period such as in cases where there need to be expropriation there need to be additional at least 1-3 months.

Furthermore, the absence of a well-defined technical risk assessment procedure is another problem in risky area implementations. As clarified by the director (2018), for the risky building designation, the law and regulation define a risk assessment procedure. However, for the risky areas, there exist no definition or rules about risk assessment. This ambiguity resulted in the lawsuits, declaration of cancellations or stay of executions. To overcome this in the risky area proposals due to the conditions of the buildings, the Ministry asks for the core sampling (risky area risk assessment method) method to be implemented as defined in the Annex-2 of the Regulation of the law 6306.

Lastly, there exist challenges due to lack of project cycle management approach. The tied coordination between the Ministry and the local governments in the proposal phase is loosen in most of the projects in the implementation stage. This resulted in defects in flow of information between the all parties involved; the Ministry of Environment and Urbanization, in most cases as a financial resource, the local government and the community involved. Lack of coordination between parties could block the feedback mechanism which resulted in disagreements, lawsuits, blocking the execution of the project.

Future of the Law and Implementations

Finally, the future of the policies, planned or possible amendments to the law, additional policy requirements were also analysed by the interviews.

The Ministry of Environment and Urbanization

According to the interviews, for the future of the law and implementations, there exist several suggestions and amendment preparations, mostly concentrating on enabling the project to sustain, overcome the challenges faced and be completed as fast as possible in a risky area. The planned and suggested amendments are grouped under three categories as; project cycle approach focusing on monitoring and evaluation procedures during and after implementation phase, the solutions in legal aspects and the sustainability of the projects focusing on construction phase.

First set of suggestions are about the need of monitoring the project development and implementation phase of risky areas. As stated previously, after the designation of risky areas there is no defined process for project development or implementation. But within time the Ministry developed an approach of transferring authority to local governments in order to decrease the centrality with subsidiarity principle and facilitate the process with the lowest levels of government. Yet as clarified by the experts in the Ministry, after the transferral of the authority to the municipalities, the Ministry do not involve in the process which some cases led to occurrence of problems, disagreements and deadlocks. As underlined, the existence of a monitoring system could help detecting the problems as fast as possible and overcoming the challenges. Also, a new system of mediating can support this system. The mediating system can be constructed with independent mediators whom can help solving the disagreements and lessen the strict legal processes.

Another suggestion for solving the disagreements is implementing a social research in the area before the designation of the risky area rather than starting negotiations after

the development of the regeneration project. The director at the Ministry (2018) stated, this pre-social research and negotiation method already experienced in a pilot project. With the learning outcomes from this project a new model for regeneration can be developed and enacted as a regulation. By these two suggestions the Ministry aims to provide solutions for the challenges faced both pre and during the implementation of the projects.

The project cycle approach with a new monitoring an evaluation system is also needed for the capacity assessment and development for the responsible authorities. With a defined system composed of criteria, the subjectivity during the decision-making processes in authority transferral can be overcome. This could also contribute to the feasibility of the projects as the technical and financial capacities of the responsible authorities are measured at the very beginning. However, this system needed to be developed with giving emphasis on the distribution of powers not leading to overcontrol of the Ministry.

Connected with the project cycle approach, for the sustainability of the projects in addition to the suggestions listed above, another recommendation and planned work of the Ministry is to develop an insurance system. This insurance system will cover construction completion certification which ensures the sustainability of the project by assuring the technical and financial capacities of private constructers.

Lastly, another work in progress is about solving the legal issues in the risky area implementations. For this purpose, a joint study is developed with the experts from Council of State to cancel the risky area decision only for the defendants' property. With this model, the project can be sustained so that others who agrees with the risky area decision can protect their rights.

AFAD

In terms of AFAD's perspective the law and its implementation mechanisms can also be used for the risk reduction and risk prevention applications and projects developed by their authority. A protocol can be developed together with the Ministry for

fastening the preventive implementations in disaster prone zones which were not designated as a risky area previously. The enabler tools such as expropriation mechanisms of this law could contribute to the develop projects for protecting the vulnerable groups in disaster and hazard prone areas.

3.2.4. Analysis of "Risky Area" Implementations

This section provides information and analysis about the "risky area" implementations to have a comprehensive idea of the implementation principles and methods. To conduct this analysis, the information gathered from the Ministry of Environment and Urbanization and the findings from the interviews were used.

According to data gathered from the Ministry, as of 01.10.2018 data, countrywide in 55 different cities, there exist 230 areas that declared as risky area. The sizes of risky areas vary between 0,5 hectares to 1291,5 hectares (CSB, 2018b). As seen in the Table 3.5 there exist 63 different risky areas in Istanbul, Ankara and Kütahya follow with 19 and 14 risky areas.

Table 3.5. *Number of Risky Areas Designated per city*

City	*Number of Risky Areas per city*
İstanbul	63
Ankara	19
Kütahya	14
Adana, İzmir, Kayseri, Kocaeli	8
Erzincan, Hatay	5
Antalya, Bursa, Gaziantep, Konya, Mardin, Şırnak	4
Adıyaman, Aydin, Erzurum, Eskişehir Giresun, Kahramanmaraş, Manisa, Ordu, Samsun, Trabzon	3
Afyonkarahisar, Burdur, Çankiri, Elaziğ, Sakarya, Sivas, Şanliurfa Tokat	2

Source: (CSB, 2018b)

When the distribution of the risky area designation per year analysed, as seen in Figure 3.15, 135 of the total 230 were designated in 2013. It can be said that the rate of declaration is highest in 2013, as the very first implementations were started in 2013 year after the enactment of the law. Also, as specified by the director in the Ministry (2018), the municipalities were more eager to involve in the urban regeneration projects at the very first years, as most of them were not aware of the scale and the challenges of procedures. In addition, it was highlighted by the experts and director in the Ministry that most of the municipalities did not have any experience in urban regeneration projects at the beginning and willing to join.

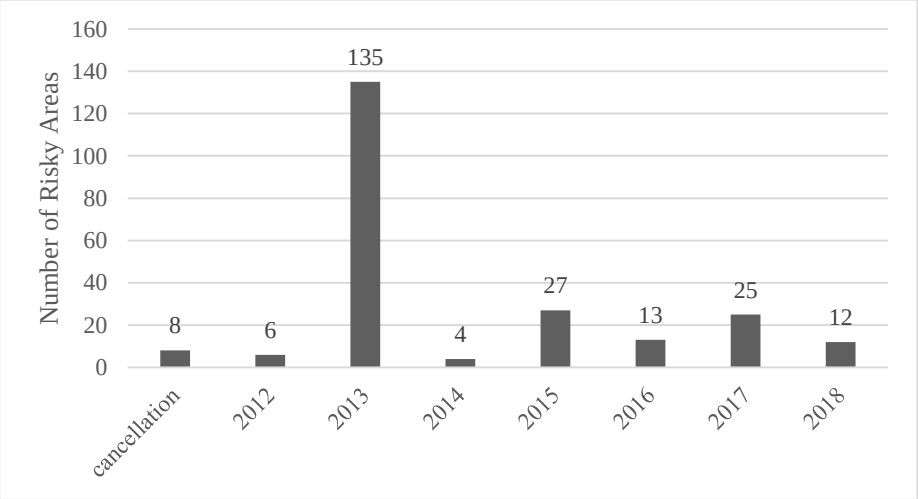

Figure 3.15. Number of Risky Areas Designated per year

The spatial distribution of risky areas per year, as seen in Figure 3.16, also supported the fact that in 2012 and 2013 the very first implementations were in the Metropolitan Municipalities such as Istanbul, Ankara, Izmir, Bursa, Aydın, Denizli, Erzurum, Eskişehir, Gaziantep, Samsun, Sakarya, Kocaeli, Trabzon. However, there also exist other cities not having the Metropolitan title such as Amasya, Aksaray, Niğde, Kütahya and others. Also, with the changes in the law in 2016, there exist two new justifications of risky areas as; *due to illegal status of the buildings* and *Due to*

disturbance of the public order/ damage in built environment. As seen in Figure 3.16, in 2016 the risky areas spatially concentrated in the Southeast Anatolia region where the justifications of risky area decisions are risks due to disturbances in the public order and damages occurred in the built environment (CSB,2018b).

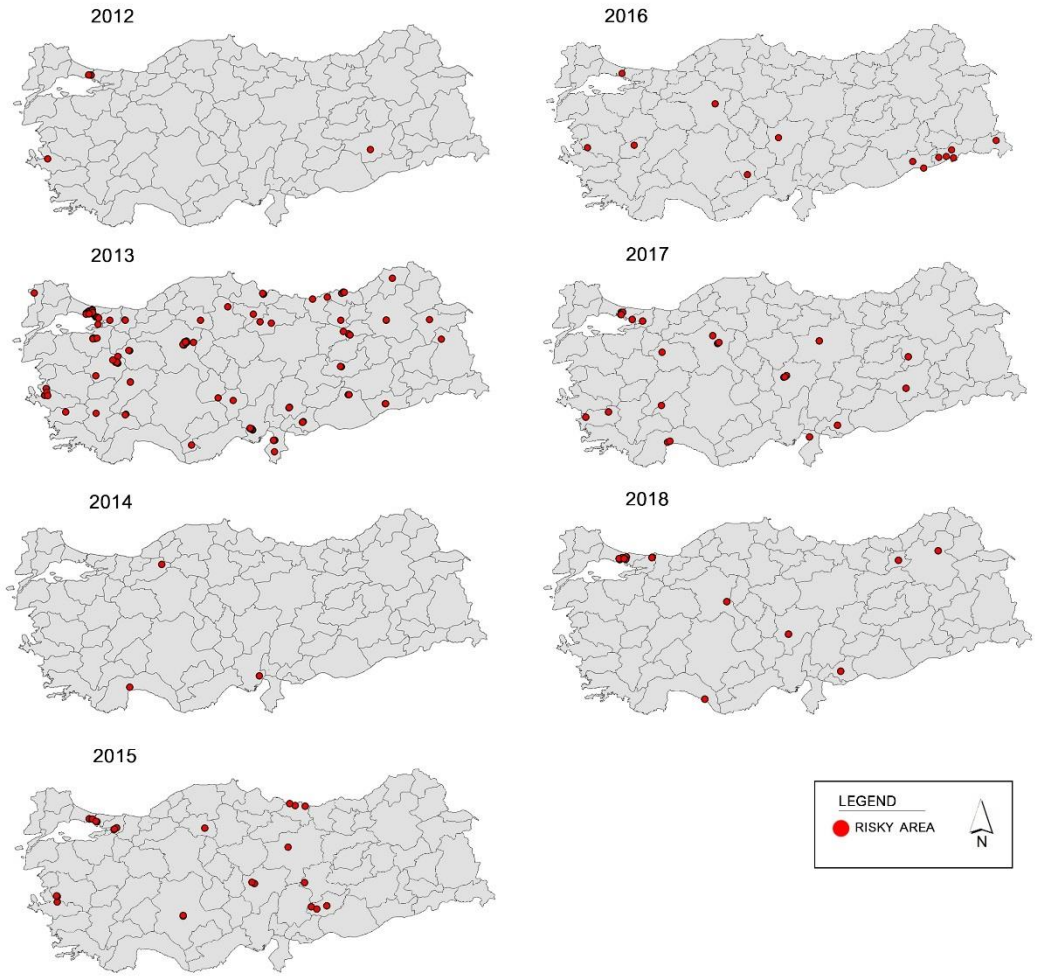

Figure 3.16. Spatial Distribution of Risky Areas Per Designation Years (2012-2018)

The chronological distribution of the designations can be discussed from two perspectives. First, when the local and general elections took place in Turkey after 2012 are analysed as in Table 3.6 and also when the additional changes in the formation of governments concerned as in 22nd of May 2016, it can be concluded that the rate of risky area designations changes parallel with the changes in the governments and local governments.

Table 3.6. *Chronological order of Elections between 2012-2018*

Date	*Type of Election*
30/03/2014	Local Elections
10/08/2014	Presidential Elections
07/06/2015	General Election
01/11/2015	General Election
24/06/2018	Presidential and General Elections

Source: Supreme Election Council, 2018

On the other hand, when the annulments and amendments to the law concerned, for the changes in 2016, there can be a connection between the changes and the rate of designation as more defined proposal files were adapted in this year. As emphasized previously in the 2016, new regulations were adapted which needs a learning process for the proposers different than the previous implementations. This can be resulted as a decrease in rate of designation in 2016. However, it is not possible to draw a direct relation with the rate of designation.

Further, the Figure 3.17, shows the distribution of responsible authorities in 230 risky areas. The authority covers; real estate valuation and property registration, project development, conducting negotiations, project implementations and sales of new properties in the most cases yet in some cases the authority of plan preparation and approval also be transferred to the related body. From this data gathered from the

Ministry, it can be argued that the principal method in distribution of the power so far is devolving several responsibilities to local governments for mutually benefiting and providing a coordination (Rondinelli, McCullough, & Johnson, 1989).

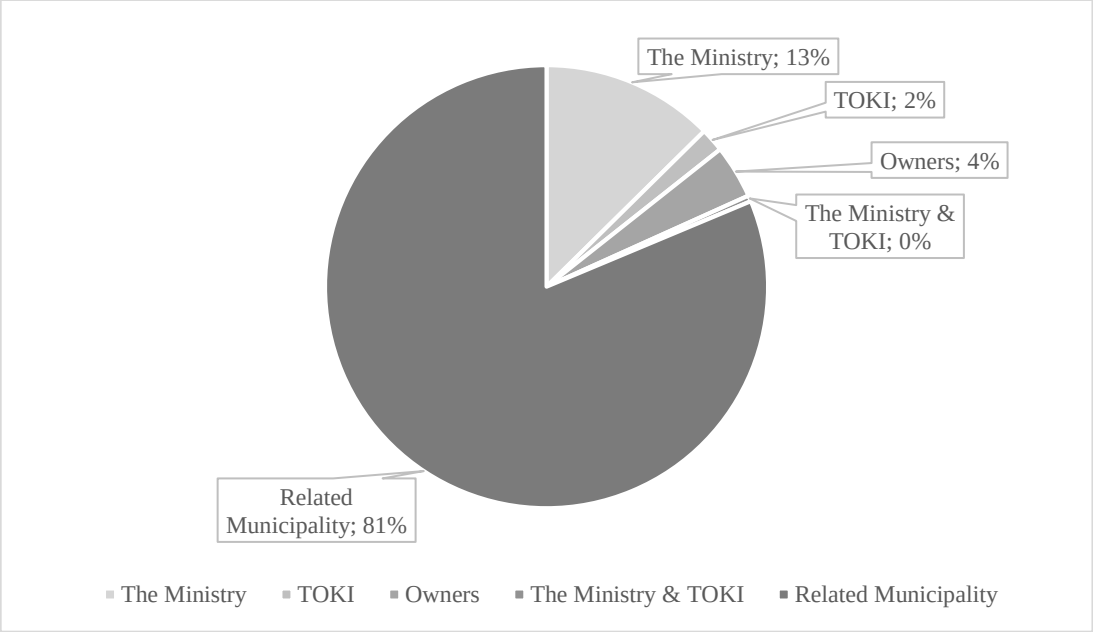

Figure 3.17. Distribution of the Responsible Authorities

In the latest version of the law there are four different justifications for the decision of risky area as expressed in previous sections. The implementations, risky areas, are classified according to the justifications. According to this classification, as seen in Figure 3.18, 48% of all risky areas are designated due to the conditions of the buildings and 30% due to combined justification of both ground and building conditions (see also Figure 3.19). When compared with these, the risk due to ground conditions are not assessed or designated in the risky area implementations. In order to have a deeper understanding about the reasons behind risky area designation from the designated risky areas it is essential to analyse the spatial distribution as well.

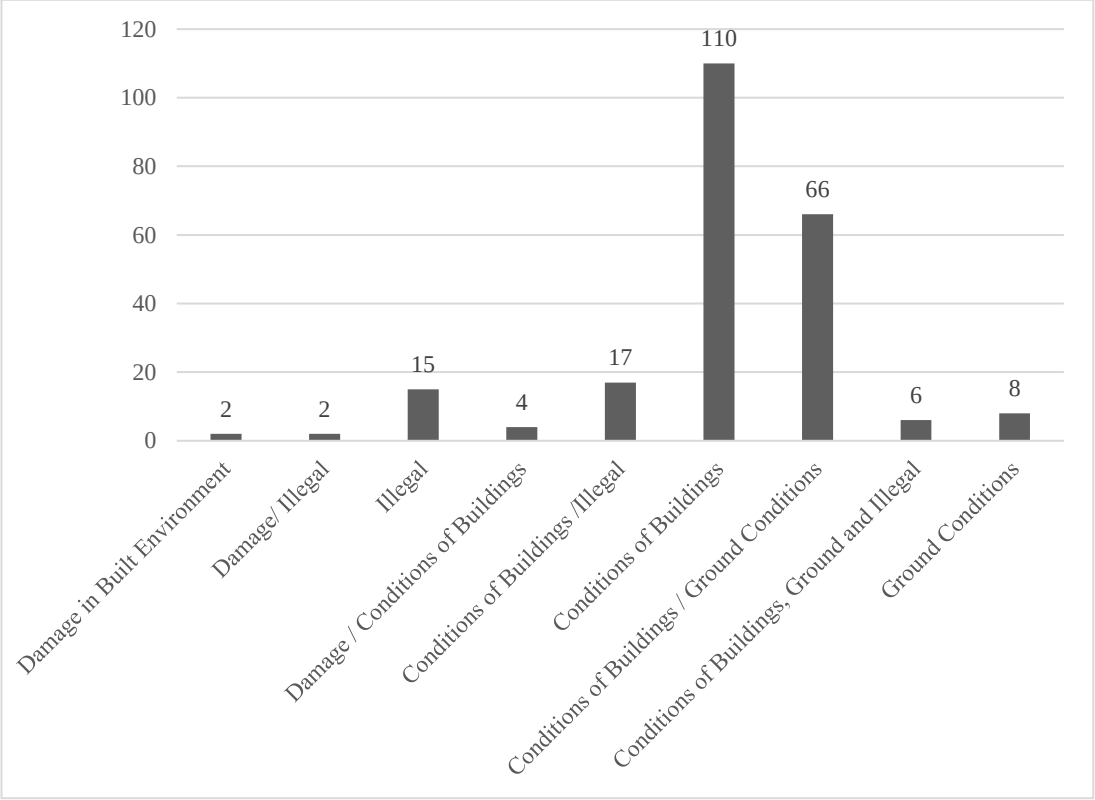

Figure 3.18. Number of Risky Areas per Justification

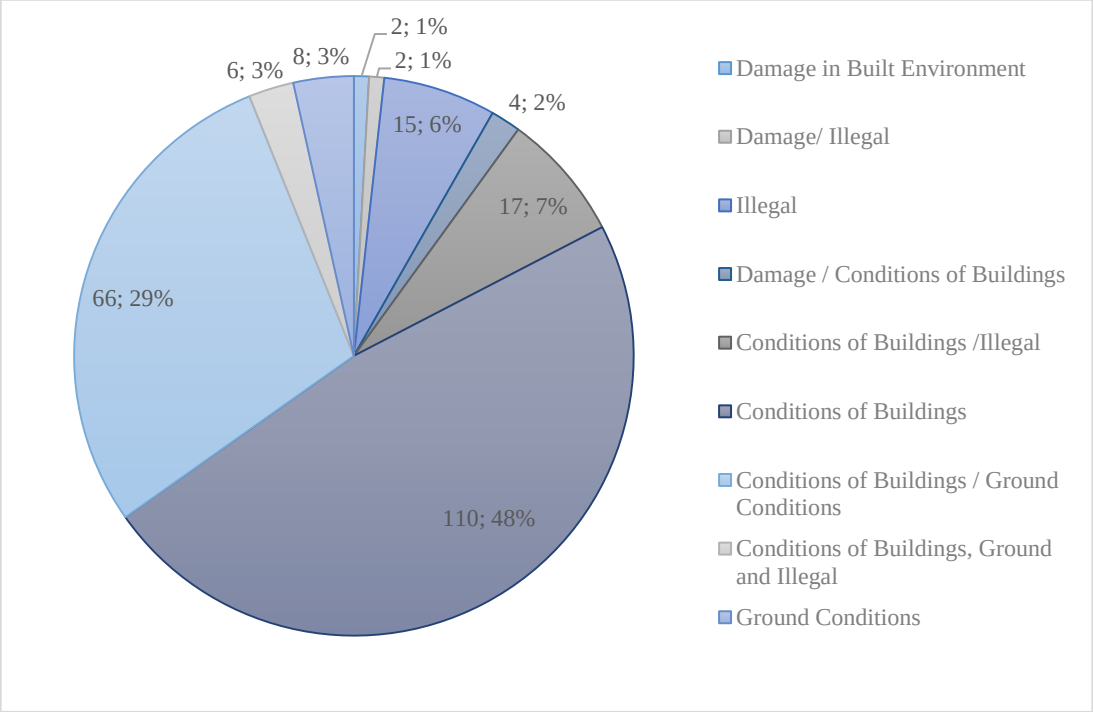

Figure 3.19. Distribution of the Justifications

Nonetheless, the process also affected from the legal processes such as lawsuits against the risky area implementations. The Director in the Ministry (2018), emphasized that since there exist laws against the risky area decision and for the urban regeneration plans approved regarding the area. One of the notable changes in the legal processes is explained as; since 2016, the lawsuits resulted with cancellation of whole risky area due to lack of technical and scientific risk assessment. Afterwards this method is changed to partial cancellation of the risky areas.

For the spatial distribution and analysis of risky areas another data source was used in addition to the geographical data of risky areas gathered from the Ministry of Environment and Urbanization. Before moving on to the spatial analysis, explanation of the data sources will be covered.

The data about seismic risks and the levels of damages in the buildings are collected from the study of Kandilli Observatory and Earthquake Research Institute. In this

study different levels of damages in buildings were mapped as grids by using the Earthquake Loss Estimation Routine (ELER). This program was developed within the project of Network of Research Infrastructure for European Seismology (NERIES) for estimating the losses due to earthquakes. The structural vulnerability levels in buildings are explained by European Macro Seismic Scale from A to F levels. Within the study of Turkey's seismic risks and loss estimation, the D to F levels are accepted, as the concrete building stock in Turkey is mostly built with lack of design, built by low quality concrete and other inappropriate implementations. The damage levels in the masonry and concrete buildings are classified as in "*D1-Slight, D2-Moderate, D3-Heavy, D4-Partial Destruction, D5-Collapse"*. In estimating the losses due to earthquakes, the levels starting from D3 to D5 are needed to be considered (Erdik & Aydınoğlu, 2002).

Based on this information in the damage and loss estimation maps the total numbers of D4 and D5 levels buildings' ratio to total building stock is used to have a relative loss estimation in grid base mapping leaving room for comparative analysis in risk dispersion (NERIES,2010).

As seen in Figure 3.20, 75 of the risky areas are on the high building loss zones which also overlaps with the zone including North Anatolian Fault Line (here after KAF). This analysis shows around 30% of all risky areas are in high risk zones due to earthquakes which carries the risk of high vulnerabilities and high losses. The map shows the location of the risky areas on the high building loss zones, are concentrating on Istanbul. As reflected in the map, there exist some risky areas outside of the high building loss zone and also in a far distance with the active fault lines. These risky areas are shown in the map with a circle. However, for covering all types of natural hazards and city level risk sectors, this analysis needed to be re-evaluated by data regarding multi-hazards to have a comprehensive risk and risky area implementation evaluation.

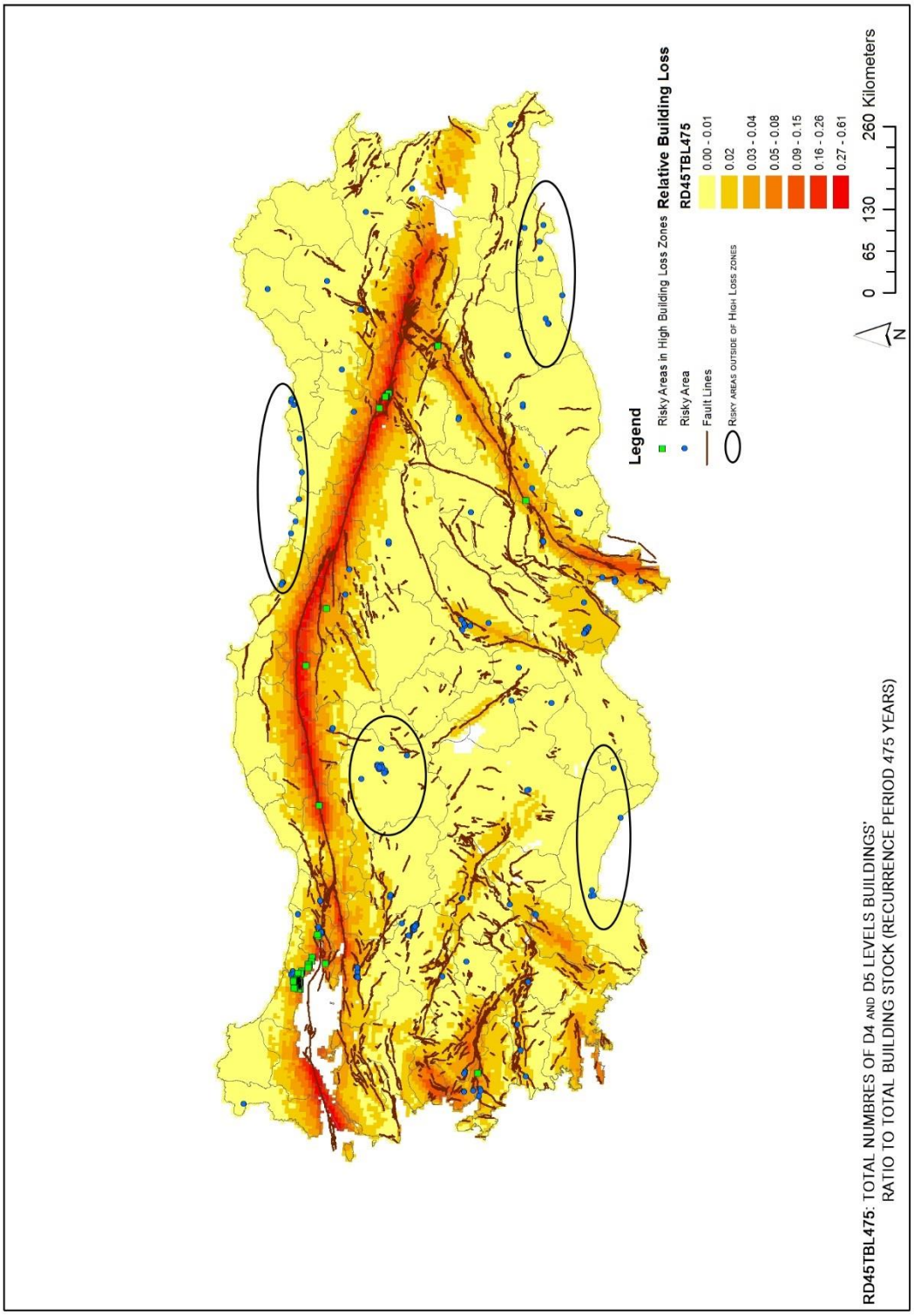

Figure 3.20. Risky Areas in High Building Loss Zones (CSB,2018b; NERIES,2010)

3.2.4.1. Analysis of Sample Projects

Sample projects are selected according to the justifications of the designation of risky area under three categories and they are re-categorized according to the different models of regeneration and/or according to the current land use in the areas to analyse the regeneration projects with the correct and differentiated analytical tools. The samples were selected under the categorization as follows;

- Risky Area due to Ground Conditions
- Risky Area due to Conditions of the Buildings
- Risky Area due to Illegal Housing

In the analysis of these projects, the projects will be examined in terms of their regeneration model including the agreement model, sharing of power and the urban regeneration development plan. While analysing the plans, the aims described in the law and its regulations draw the analytical framework which are;

- Disaster risk reduction,
- Rehabilitation, protection and development of the physical environment (built environment),
- Sustaining social and economic development,
- Increasing the quality of life with climate sensitive and energy efficient urban design

Finally, all the samples are evaluated with the ways of contribution to the disaster resilience. For this purpose, the projects evaluated in dimensions of community resilience defined by Cutter et al. (2008); *the ecological resilience, social resilience, economic resilience, institutional resilience, infrastructure resilience, community competence*. For identification of these dimensions in terms of coping and adapting capacity the categorization of Parsons et. al (2016) is used.

3.2.4.1.1. Risky Area Due to Ground Conditions

As an example of risky areas designated due to ground conditions, the Ordu, Altınordu, Yenimahalle Risky area is evaluated. This sample is selected based on the findings of the interviews conducted with the experts in the Ministry.

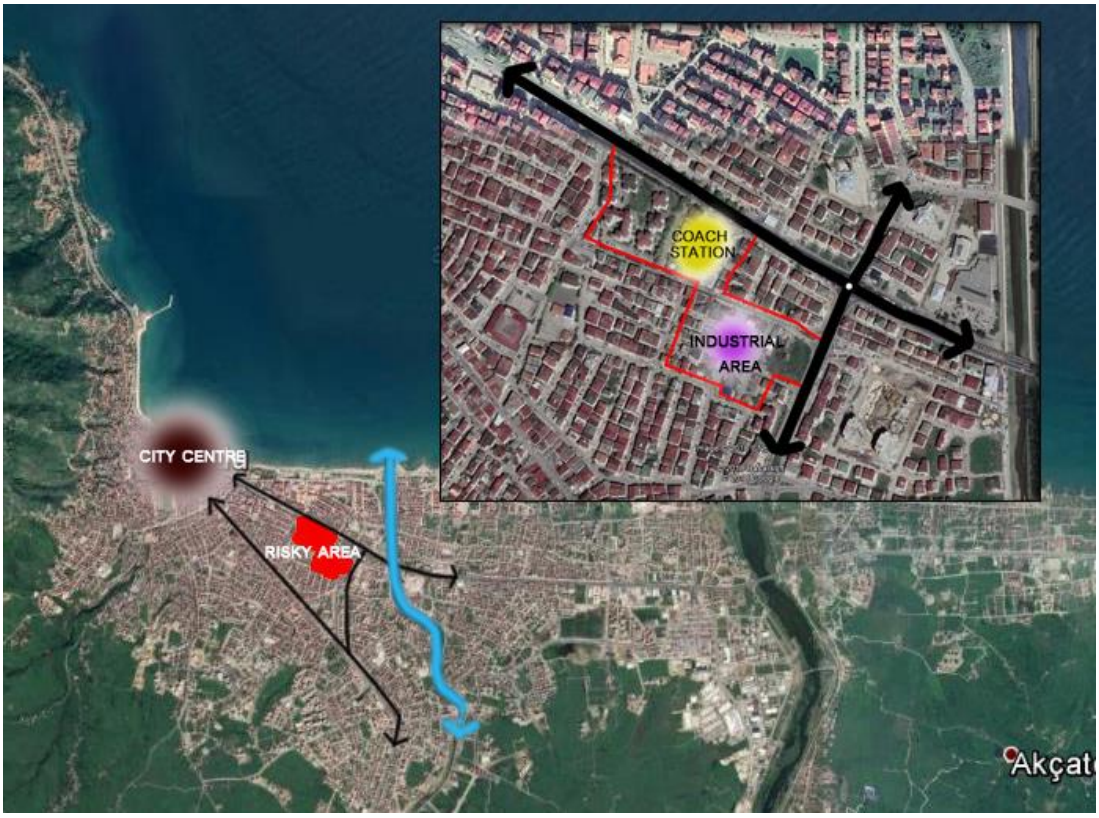

Figure 3.21. View of Ordu, Altınordu, Yenimahalle Neighbourhood Risky Area

The 8,6-ha area in Yenimahalle neighbourhood is designated as risky area on 20.02.2015 due to ground conditions upon the proposal of Ordu Metropolitan Municipality as seen in Figure 3.21. However, by the Council of State's decision in 2016, the risky area decision on the pursuer's plot is cancelled, and the new area of risky area is 7,85 ha in the final version.

After the metropolitan status in 2014, parallel with all the new urbanization projects, urban regeneration projects also came into the agenda of the local government and the area in the city centre including the old industrial site and the coach station is proposed for regeneration under the law no.630.6 to transform the old industrial land and to create disaster resilient living areas (Özgür & Özgür, 2018).

In this respect, when the disaster profile of the Ordu considered, the city is mostly prone to landslides and due to heavy rains many floods were observed (Özgür & Özgür, 2018). The analysis of the geological formation, as reflected in Figure 3.22 shows the undifferentiated quaternary structure of the area (MTA, 2018). And according to the settlement suitability study, the area is precautionary area for settlement with swelling and settling problems *(Mühendislik Problemleri Açısından Önlem Alınabilecek Nitelikte Şişme Oturma Açısından Sorunlu Alanlar'' Önlemli Alan-5.1 (ÖA-5.1))* (Özgür & Özgür, 2018).

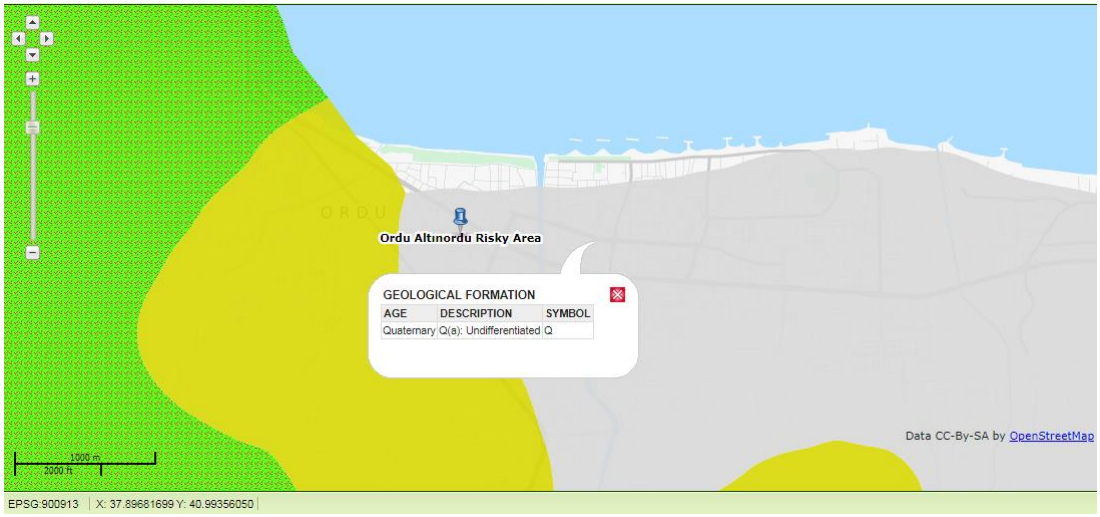

Figure 3.22. Geological Formation of Ordu, Altınordu, Yenimahalle Risky Area (MTA,2018)

Furthermore, Figure 3.23 shows the ages of the buildings in the risky area. According to this map, the majority of the buildings are constructed at least 30 years ago which

also means they did not built according to the Earthquake Regulations (*Deprem Yönetmeliği*) (Özgür & Özgür, 2018). The ground conditions of the area require precautions however the construction years and methods which were not regulated with a contemporary Earthquake Regulation, shows the nonexistence of such precautions which creates risks in the area.

For the regeneration of the area, the municipality proposed a model which includes moving of the small industries and the coach station to the designated areas in the development plans of Ordu. In addition, the project includes transferral of some mix-use areas to a reserve area around this risky area. However, due to the lawsuits the project is still not completed yet (CSB, 2018b).

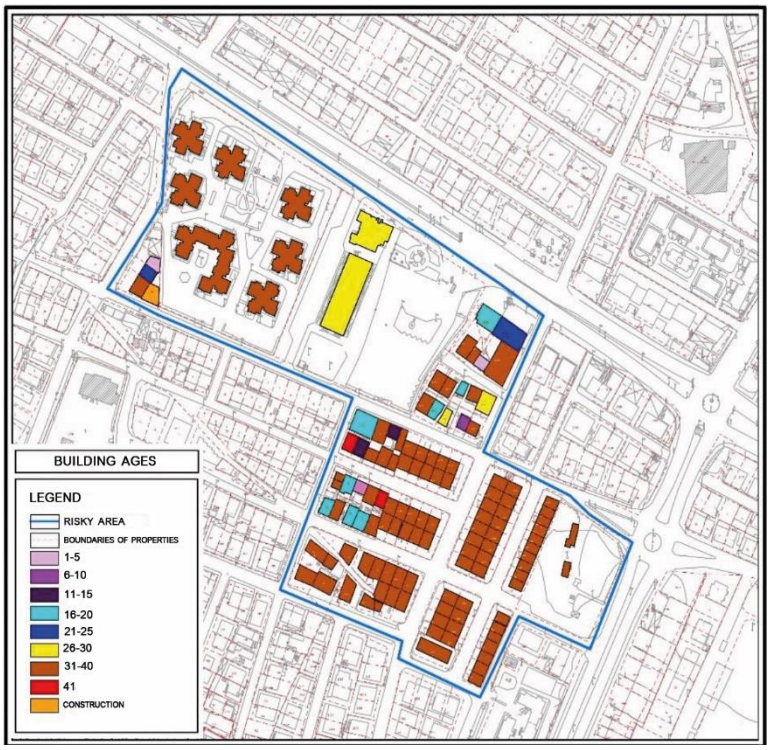

Figure 3.23. Ages of Buildings in the Ordu, Altınordu, Yenimahalle Risky Area (Özgür& Özgür, 2018)

This project is an example of risky area due to ground conditions and also how the process of urban regeneration projects can create resilience problems. First of all, the area is designated in 2015 but ever since due to the lawsuits the plan or projects regarding the regeneration model cannot be created, negotiated or implemented. When the legal processes defined in the law concerned such as limitations on the construction and development permits, it can be said that due to neither the responsible authority, Ordu Metropolitan Municipality nor the people themselves can take any measures for reducing the disaster risks defined with technical reports while designating the risky area.

Table 3.7. *Review of Ordu Altınordu Yenimahalle Regeneration Project*

	Ordu
Regeneration Model	Transferal of the Small Industries and Coach Station from city centre
Model for Agreement	-
Authority	Ordu Metropolitan Municipality
U.R. Development Plan	-
Legal Status	Partial Cancellation in the Area

3.2.4.1.2. Risky Area Due to Conditions of the Buildings

As an example of the regeneration model which includes both regeneration in the existing site and transferring the area to designated reserve area; Bursa, Osmangazi, Soğanlı Neighbourhood urban regeneration project is analysed according to the urban regeneration plan, the responsible body and the share of powers, the agreement model and the regeneration model itself.

This project covers both a risky area designated on 06.09.2013 and a reserve area designated by the Ministry on 02.08.2013 upon the proposal of the Osmangazi Municipality as seen in Figure 3.24.

Figure 3.24. Map of Bursa, Osmangazi, Soğanlı Neighbourhood Risky Area and Reserve Area

Bursa is located in Marmara Region of Turkey and in the high hazard zone according to the earthquake hazard map of Turkey. When the geographical formation of the Osmangazi Soğanlı risky and reserve area concerned, as seen in Figure 3.25, the urban regeneration project is settled on Quaternary, undifferentiated area and approximately 1,5 km distance to the active faults in southern part of area.

Also the plans show that the risky and reserve area is settled on liquefaction zone which requires special measures such as improvements in soil or special construction methods for buildings to have safe settlements on those areas if the buildings are planned above 3 storey (Şehir Plancıları Odası Bursa Şubesi, 2008).

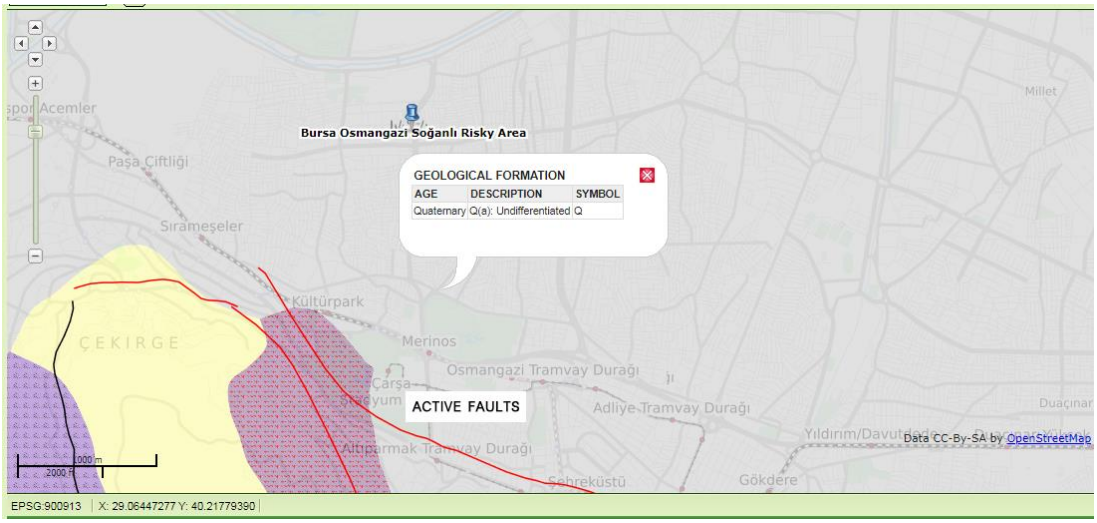

Figure 3.25. Geological Formation of the Bursa Osmangazi Soğanlı Risky and Reserve Area(MTA, 2018)

The project developed as regeneration of risky area including both transferral to new development in reserve area and on-site transformation. Hence the agreement model of this project covers both negotiations on tranferral to reserve area or agreements on on-site regeneration in risky area in accordance to the size of their property. The agreement ratio is designated as 30% for the properties in the risky area in exchange for residential or commercial units in the reserve area.

For this project the urban regeneration development plan updated the existing urban development plan and the densities were increased from low density (200 p/ha) and medium density (350 p/ha) to 400 p/ha. Paralell to this, the land-uses were changed from residential development area to mixuse (residential and commercial) area. Also as reflected in the plans in Figure 3.26, the area covered by recretional uses also decreased from 7,31 m^2/p to 6,68 m^2/p.

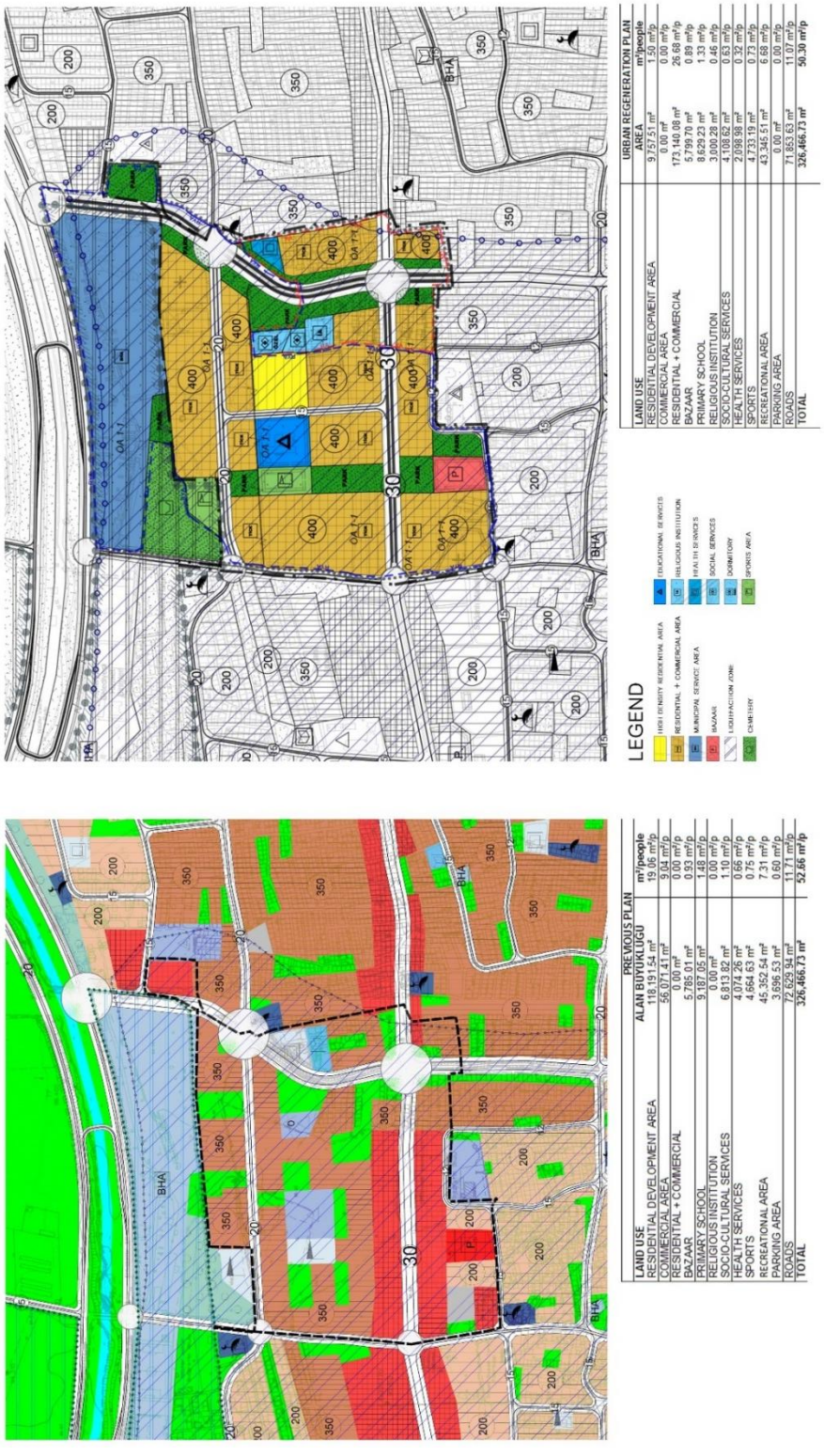

Figure 3.26. Previous and Current Urban Regeneration Development Plan (CSB, 2018b)

The responsible authority of this project including the negotiations, property registration and transfer, project development and urban development plan preperation is Osmangazi Municipality which is a district municipality in Bursa. According to the website of the Osmangazi Municipality (2018), 153.170 ^{2} area was expropriated by 130.897.306 TL for the project in reserve area and 2161 residential units and 240 commercial units were developed (Osmangazi Municipality, 2018b).

On the other hand, there exist an association established in the neighborhood for cooperation and assistance in the urban regeneration project named as "*Soğanlı - Çiftehavuzlar Kentsel Dönüşüm Dayanışma Ve Yardımlaşma Derneği"*. This association also actively involved in the regeneration project.

The analysis of development plan of regeneration project area shows, there exist limited information about disaster risk reduction measures in plan. The planning decisions within the report of the plan and the planning notes do not include disaster preparedness, emergency planning or mitigative actions. For the rehabilitation and development of built environment, the plan includes investments to the infrastructure in vacant area of reserve area, density increases in terms of residential and commercial uses yet decreases in amounts of socio-cultural services, recreational areas which make the sustainability of social and economic development in the area questionable. For the quality of life with climate sensitive and energy efficient urban design aim of the law, the decreases in the open spaces and green spaces in the area jeopardize the climate sensitivity however for having a deeper analysis one need to analyse the constructional details of the project.

As seen in Figure 3.27, in 2018 the project in reserve area is completed. When compared to 2014, a huge vacant land is filled with urban development having different physical characteristics from the environment. The details of the project with 6 storey mixed-use buildings can be seen in Figure 3.28.

The latest news regarding the urban regeneration project highlighted that, within the 240 lots in risky area the municipality negotiated with 74 (Milliyet Gazetesi, 2018).

And according to Osmangazi Municipality's website, 55 buildings were demolished in the risky area (See Figure 3.29) (Osmangazi Municipality, 2018a).

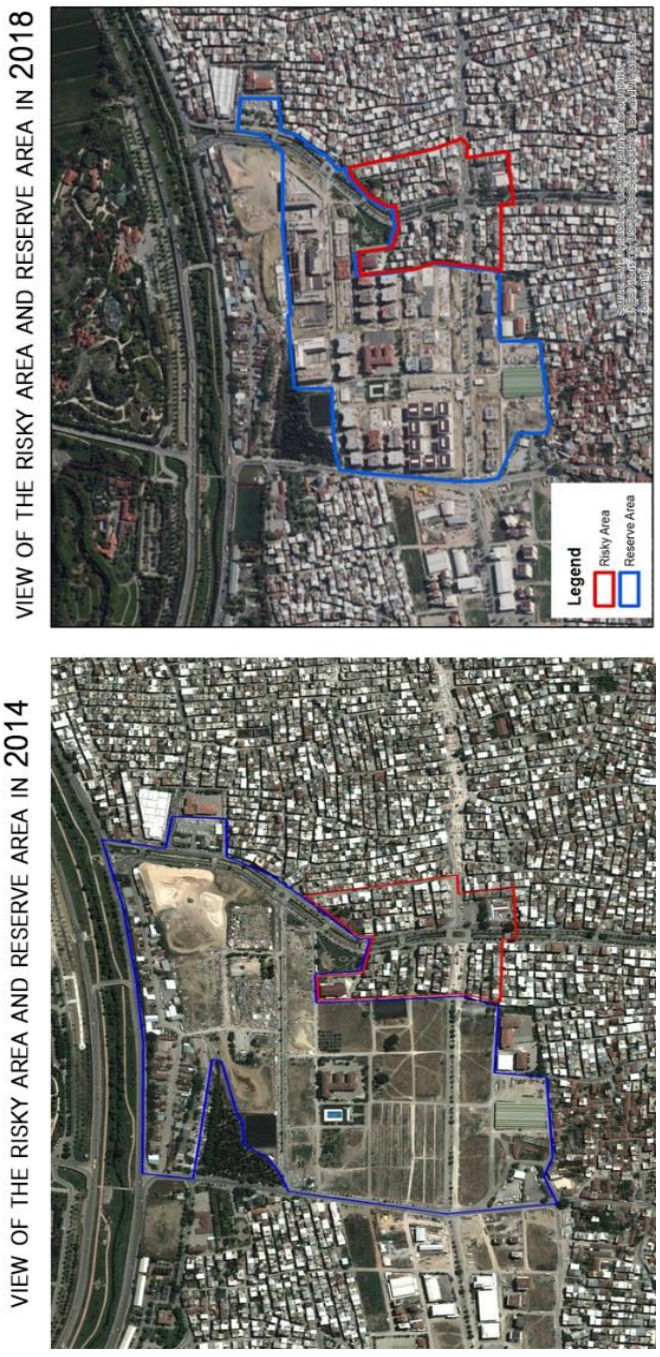

Figure 3.27. View of the project area in 2014 and 2018

Figure 3.28. Views from Buildings in Reserve Area (Osmangazi Municipality,2018b)

Figure 3.29. View of Bursa Osmangazi Soğanlı Risky and Reserve Area (Osmangazi Municipality,2018a)

When the project evaluated, as explained one of the most significant characteristics of this project is, the regeneration model involves both a risky area and a reserve area adjacent to the risky area. Also, this project is an example of how the built environment is changed with increased densities which created an environment with limited open spaces, no indication of emergency or mitigation planning. This is also noteworthy when the geological formation and closeness to active fault lines considered in the area.

When these findings evaluated with the disaster resilience indicators, one can conclude that, the project itself have limited impact on the coping and adapting capacity in the area and within the community. In terms of ecological resilience, with the development in the reserve area in high density, the acreage of green areas hence the permeable areas lost. This have negative impact on both adaptive and coping capacity. When the social resilience and community competence considered, with the development of urban regeneration project, the involvement of the association founded within the neighbourhood could positively contribute to the adaptive and coping capacity of the community with an organized system, increased participation to decision-making. Also, the location of reserve area and risky area being adjacent to each other also positively contribute to the resilience within the community by providing options for resettling within the same site or to be transferred to a close area. Yet the agreement model, the scope of financial instruments within the project still limits the positive impact of the project as people with limited purchasing power could have challenges while agreeing on the model created by municipality.

Table 3.8. *Review of Bursa Osmangazi Soğanlı Regeneration Project*

	Bursa
Regeneration Model	On-site & regeneration with new development in reserve area
Model for Agreement	In exchange of property in risky area (30%) to reserve area & on-site regeneration
Authority	Osmangazi Municipality

Development Plan	Prepared by the district municipality Provides density increases
Legal Status	Cancellation of the plan and reserve area, re-designation and new plan

3.2.4.1.3. Risky Area Due to Illegal Housing

An example to risky areas which was designated due to illegal housing is Istanbul, Sarıyer, Armutlu Neighbourhood Risky Area. This sample project is selected based on the findings of the interviews conducted with the experts in the Ministry.

This risky area is designated on 20.01.2013 in the Official Gazette no. 28534. However, with the case result, the decision-made regards to risky area designation was cancelled with the reason of lack of technical information about risk assessment in the area. Afterwards with the amendments in the law in 2016, the area is re-designated with a reason of at least 65% of illegality in the area on 06.12.2016 in the Official Gazette no.29910. For analysing the Armutlu regeneration project information about the risky area, its plan and regeneration project, the agreement model and responsible authority are gathered from the Ministry.

The Armutlu risky area is 140.62 hectares located near to the Bosphorus and neighboring a university campus on north covering a neighbourhood of illegally built settlements (see Figure 3.30). This area is also adjacent to one of the busiest roads of Istanbul.

Figure 3.30. View of Istanbul, Sarıyer, Armutlu Neighborhood Urban Regeneration Project

The illegal settlements were built starting from 1970s on both public and privately owned lands and university's campus development area (Türkyılmaz, Baytin, Akinci, & Aytug, 2005). The distribution and pattern of ownerships can be seen in Table 3.9. Afterwards as a part of elections, the temporary usage certificates were distributed to people living in the neighbourhood. This illegally built neighbourhood is composed of mostly 1-2 storey houses with gardens (Billig, 2011). According to a research conducted by Türkyılmaz et al (2005), there exist approximately 4430 houses among 5642 buildings in the area covering 80% of all buildings.

Table 3.9. *Distribution of Property Ownerships in the Risky Area*

Owner	*Area*	*Ratio*
Istanbul Metropolitan Municipality / ISKI	75,2	53,3%
ITU	51,4	36,5%
Treasury	9,5	6,8%
Foundation	1,6	1,2%
Private Property	1,9	1,3%
Non-listed(nonregistered)	1	0,7%

Source: (CSB, 2017)

Reflected in the map in Figure 3.31, the geological formation of the area is flysch (c) in permo-carboniferous age. As indicated in the Report of the Urban Development and Implementation Plans (2017), the suitability for settlements evaluation shows 4 categories as;

- Proper Area: Rock Stratum *(Uygun Alanlar-2 (UA-2): Kaya Ortamlar)*
- Precaution Zone-2.1: With stability problems *(Önlemli Alanlar- 2.1 (ÖA-2.1): Önlem Alınabilecek Nitelikte Stabilite Sorunlu Alanlar)*
- Precaution Zone-5.1: With settling and swelling problems (*Önlemli Alanlar-5.1 (ÖA-5.1): Önlem Alınabilecek Nitelikte Şişme, Oturma vb. Sorunlu Alanlar)*
- Improper Area-2.1: Landslide Risk (*Uygun Olmayan Alanlar- 2.1 (UOA-2.1): Heyelan Riskli Alanlar)*

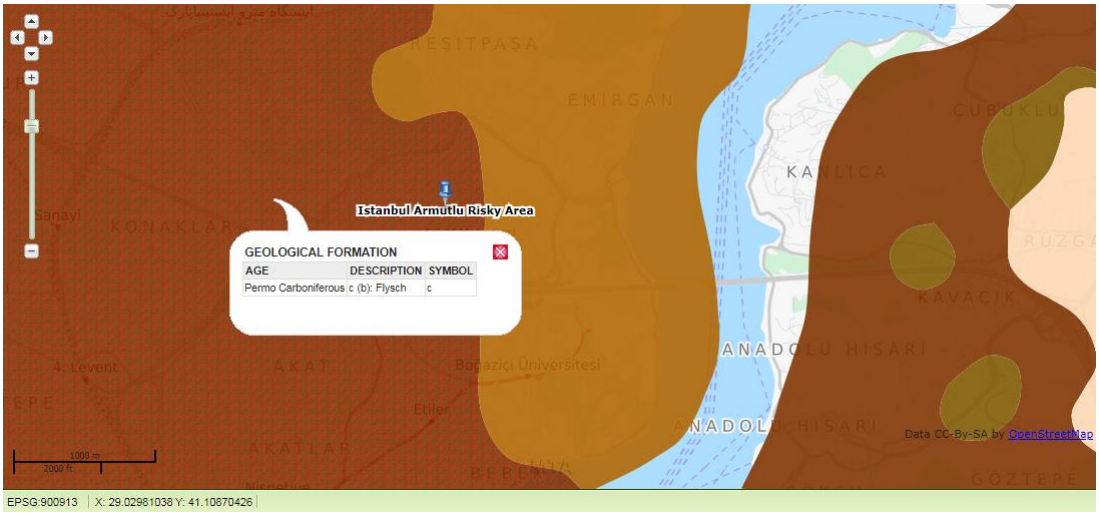

Figure 3.31. Geological Formation of Istanbul Armutlu Risky Area (MTA, 2018)

Another locational characteristic of this risky area is as reflected in the Figure 3.31, the neighbourhood settled on the interaction zone (*etkileşim bölgesi)* and posterior view zone (*geri dörünüm bölgesi)* according to the Law of Bosphorus and the northern part of the area also have the status of 1st degree Natural Site. All these characteristics define additional measures and rules for spatial development decisions.

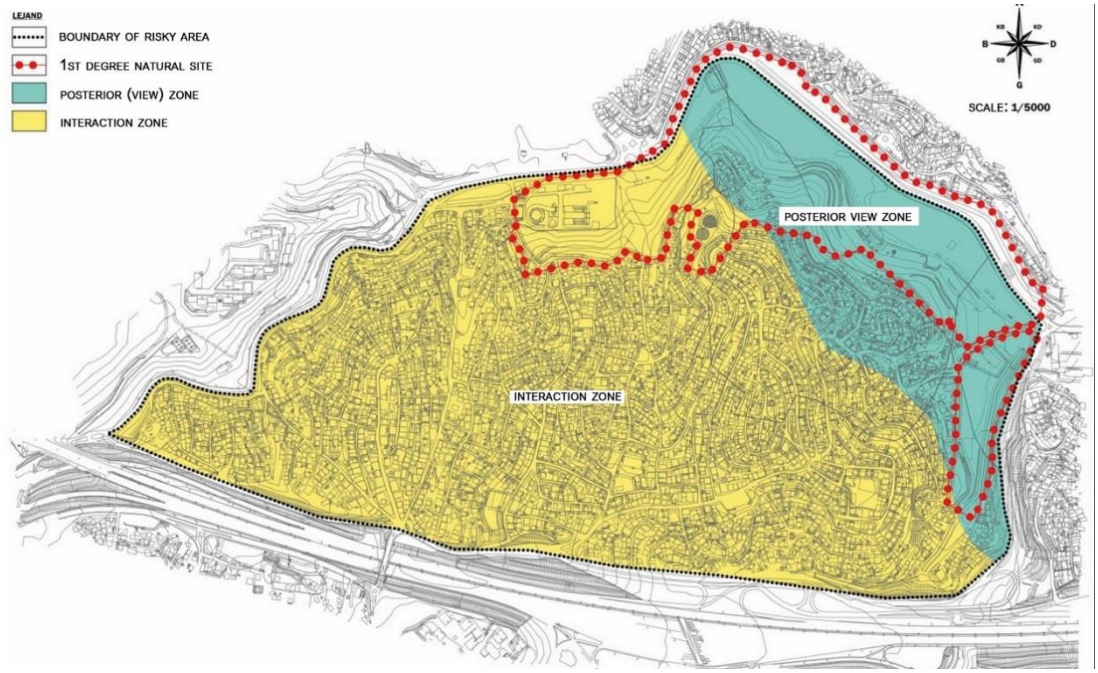

Figure 3.32. Zoning according to the Law of Bosphorus (no.2960) (CSB,2017)

As the area designated as risky area, the Ministry as the responsible authority, prepared an urban regeneration plan for this project. The main spatial development pattern (as seen in Figure 3.33) in this plan is developing mixed use land-use covering residential and commercial usages with 3 main arteries designed. And the northern periphery of the area is devoted to parks and educational uses which is adjacent to University campus. According to the information gathered from the Ministry, the population is estimated as 15661 where 3645 buildings and approximately 7500 units will be developed.

The development plan is examined through the lens created with the aims described in the Law regarding the plan preparation. The analysis of development plan of this project shows, there exist no measures or land-uses allocated for disaster risk reduction or emergency and preparedness planning. Rather than, this project mainly focusing on rehabilitation of the built environment which was illegally built and adopted to the physical conditions of the area. Only one contribution to the disaster preparedness is

the new arteries designed in the plan contribute to the accessibility of the area; a main road 34 metres wide in east west direction and two 30 metres wide roads in north south direction.

Figure 3.33. Urban Development Plan of Istanbul Armutlu Risky Area (CSB,2018b)

Within this project the master plan describes 3 different typology of housing units which can be seen in Figure 3.34. In the posterior zone, the buildings can be constructed 4 storeys and 12.5 metre height at most and in the interaction zone it is 5 storeys and 15,5 metres height. Based on this urban design, the initial but not finalized plan of the Ministry in agreement model is;

- Supplying a unit in exchange of 1 unit of a property owner in the area.
- Charging the people without having any legal ownership with a debt
- Giving housing benefits to property owners

In designating the property ownership rights in this squatter settlement, the new amnesty law which is known as *"imar barışı"* is also implemented and for the ones who correspond with the conditions of the law can have the Registry Certificate.

Figure 3.34. Master Plan of Istanbul Armutlu Regeneration Project (CSB,2018b)

When the urban regeneration project is evaluated, the project has similar and centralized methods with the urban regeneration policies developed for the transformation of squatter settlements in Turkey under different laws. Yet it supplies housing benefits different from the other urban regeneration policies.

In terms of the project's contribution to disaster resilience, it has limited measures in increasing the adaptive and coping capacity in the area. The analysis of social resilience and community competence measures shows, even though it was explained by the Ministry that the agreement model is still in planning phase there is no

indication of community participation to the planning of agreement model. Also, to create a community competence there is no indication of any awareness raising activities in disasters or activities for increasing the understanding of risks designated in the area. So, there is no actions planned for pre-disaster or post-disaster management in the area. Within the built environment and infrastructure, compared to current land-use pattern which is composed of illegally built houses, the organized and planned built environment could contribute to the resilience. For instance, the organic road pattern in the neighbourhood could decrease the accessibility in emergency or disaster events but the new arteries could increase the accessibility in emergency situation. Finally, organizational or institutional characteristics of this project also contribute negatively to the disaster resilience of the area. As explained by Cutter et. al (2008), centralized and hierarchical structure such as the Ministry as the responsible authority, is less flexible in facing disasters with being far from the local (Cutter et al., 2008).

Table 3.10. *Review of Istanbul Armutlu Urban Regeneration Project*

	Istanbul
Regeneration Model	On-site Regeneration
Model for Agreement	1-1 and with debt
Authority	The Ministry
Development Plan	Increased density, zoning according to other laws
Legal Status	Cancellation and re-designation

3.3. Concluding Remarks

The chapter about the Case of Turkish Law no.6306 provides the information about the analysis of case study; the law no.6306, upon the urban resilience analytical framework constructed based on the theoretical background about urban resilience to disasters. To find an answer to the main research question of "*how the urban regeneration policies and projects affect urban resilience in the context of disaster*

risk management and planning", contextual information about the Turkish case is briefly explained.

The part about urbanization and policy context in Turkey, shows that the fast urbanization pattern starting from 1980s with taking the economic restructuring in cities into consideration created new urban forms, new production patterns, new relationships between the people and its environment. These increased densities of people and buildings, new production and consumption patterns, spatial development phenomenon within the urban areas also have an impact on disaster risks and vulnerabilities in cities. As explained Turkish cities are prone to many disaster risks, primarily earthquakes and floods. But also, the urbanization experience in many cities created new types of risks such as; the reinforced structures constructed in high rates without having technical consultancy, the urban development without allocating the required amount of open spaces, construction of infrastructure without a plan, the location of emergency facilities, the location of industries and ineffectuality of central and local administrations.

The urbanization pattern and economic restructuring in Turkish cities resulted in the need for regenerating the areas where illegal settlements were built named as *Gecekondu*, and the historic centres in metropolitan cities which was mainly dominated by industrial activities. For these purposes, several urban regeneration policies were developed with laws and regulations. As discussed in section 3.1.2.1., the first urban regeneration policies are mostly highly centralized policies adopted to the squatter settlements by the central government. This was followed by a more decentralized urban regeneration laws in 2000s focusing on redevelopment in historic sites, regeneration and development areas with the law no.5393 and no.5366 implemented by municipalities. Lately, with the law no.6306 a new centralized urban regeneration policy was developed focusing on regeneration of areas under disaster risk with three types of implementation tool; risky buildings, risky areas and reserve area.

Now that urban regeneration policies evolved into a new type, aiming the disaster resilience in cities, creation of safe and liveable places. To identify the effects of regeneration policies in achieving these targets, the law no.6306 was analysed in three interconnected dimensions of policy, institutional and risky area implementations.

The analysis of the policies of the law was conducted through the lens of resilience to disasters framework. It shows that the law has protective, preventive, promotive and transformative intervention mechanisms which have an impact on coping, adapting and transforming capacities at different levels and scales. For instance, the risky building and risky area implementations aim to transform the risky building and places and create new and safe living areas for the community. This approach can be identified as a both preventive and transformative intervention mechanism for protecting the people before any disaster take place and transform the system into a more resilient one with creating or sustaining the existing coping and adapting capacity of places and people. Here, the adapting capacity is about the capacity of organizing responses while facing internal or external disturbances in favour of development and coping capacity is about balancing or safeguarding the impacts of any disturbances or shocks related with disaster risks on livelihoods and commodities. Also, it defines a requisite of negotiation in risky area and risky building implementations which also have an impact on the resilience in a community by increasing the transformative capacity with creating a room for developing a new system when the current system is indefensible. However, this analysis shows the possible impacts of the policies defined in the law, neglects the real impacts faced in implementation of these policies. To have a deeper analysis about the implementations, the institutional dimensions and a sample implementation of the law were also analysed. With these analyses, the challenges faced throughout the regeneration process and the relationship of the policy with the resilience of community can be clarified.

For the institutional analysis, the responsible authorities were identified in each step of the risky area, risky building and reserve area implementations. Following this

within the context of this study, only the institutions involved in decision-making process of risky area designation were analysed. The institutional analysis was based on three sections to understand the roles in the decision-making process. First step was about the institutional capacity of the Ministry in terms of disaster resilience and urban regeneration. This part shows, for the Ministry, even though there exist several methods for increasing the technical capacity within the department with committees formed and trainings organized, none of these programmes or knowledge sharing involves specific programmes or focus on disasters and disaster management. Rather than they concentrate on the enhancement of knowledge about urban regeneration and project management. For the AFAD, their role is only for supplying the official opinion which includes the disaster history of the area. Their role and capacity about regeneration is limited. For the municipalities, in terms of knowledge and awareness in disasters, most of the municipalities concentrates on the regeneration dimension rather than risk assessment and risk reduction.

On the other hand, the comprehensiveness of the policies in targeting different land uses and different risk sectors in cities also analysed and from the information gathered from the interviews, the projects were developed mostly focusing on the regeneration of residential areas and due to the risky conditions of the buildings in an area.

Following this, for the implementation phase of the projects, the methods of project development, negotiations are examined with giving reference to the challenges and strengths of the projects developed and implemented since 2012. This analysis reflects there exist some commonly used methods such as entitling for the newly built property according to the agreement ratio within the on-site regeneration or transferral to the reserve area. The model also differs with respect to the responsible authority. According to this principle, the Ministry can transfer several responsibilities to the related municipality or real or legal person(s). In terms of challenges, it was emphasized by the experts that there exist challenging experiences in negotiations with the people, the lawsuits and the legal processes, the inadequacy in financial instruments, the non-existence of well-defined risk assessment procedure and the

coordination and project management challenges during implementations. On the other hand, the law and policies have some strengths compared to other urban regeneration policies such as; enabling financial instruments like housing benefits and interest supports, the on-site regeneration with protecting the social structure as much as possible for the society.

Lastly in the analysis of risky area implementations; the qualitative and quantitative data about 230 risky areas were collected from the Ministry and studied for providing a comprehensive idea of the implementation principles and methods. This part of the study covers both analysis of risky areas at national level and examination of three sample projects. When the risky areas studied countrywide, the majority of the risky areas are in metropolitan cities which is in high earthquake hazard zone. However, this analysis expresses limited information and needed to be developed with a multi-risk analysis. Also, when the distribution of the risky areas considered the dominance of metropolitan cities like Istanbul and Ankara proves the fact that regeneration projects were still developed with a knowledge based on previous experience about urban regeneration. As highlighted by the experts in the Ministry, other local governments also try to involve in regeneration process but there is still challenges regards to their technical and financial capacity.

The selected sample projects represent different stages of regeneration projects in risky areas due to conditions of the buildings, due to ground conditions and illegal status of the buildings. These projects show that even though the justifications were about the disaster risks, projects include similar methods with previous regeneration policies in Turkey such as transferral of industrial uses, renewal of city centre or transformation of squatter settlement. The three sample also represent some unique characteristics. For instance, the Ordu case reflects the challenges faced in the risky area projects due to lawsuits. The second case Bursa represents both a reserve area and risky area regeneration project which half completed. This project shows the transformation within the built environment, the changes in density, characteristics of the spatial pattern. Also, it is an example of project managed by the local authority

Osmangazi District municipality, which is responsible of development of regeneration model, preparing the urban regeneration master plans, managing the negotiations and implementing the project. Additionally, it reflects the lack of risk management measures such as emergency planning, lack of risk awareness raising programs in a risky area project located liquefaction zone near to active fault lines. Lastly the Istanbul case display regeneration due to the illegal housing. This project has similarities with the previous regeneration policies both also have new instruments defined within this law. It also represents the circumstances of the new amnesty law applied in 2017. The summary of sample projects represented in Table 3.11.

Table 3.11. *Review of Sample Risky Area Projects*

	Ordu	*Bursa*	*Istanbul*
Regeneration Model	Transferal of the Small Industries and Coach Station from city centre	On-site & regeneration with new development in reserve area	On-site Regeneration
Model for Agreement	-	In exchange of property in risky area (30%) to reserve area & on-site regeneration	1-1 and with debt
Authority	Ordu Metropolitan Municipality	Osmangazi Municipality	The Ministry
Development Plan	-	Prepared by the district municipality Provides density increases	

Legal Status	Cancellation of the plan and reserve area, re-designation and new plan	Cancellation and re-designation

CHAPTER 4

CONCLUSION AND LEARNING OUTCOMES

4.1. Learning Outcomes

This conclusion chapter of research describes and categorizes the main research findings within the context of research objectives defined previously. By doing this the implications of this research for theoretical and empirical works in urban regeneration and resilience field will be discussed. Arising from clarification and analysis of these research findings and learning outcomes, several policy recommendations are listed for policy makers for connecting the urban regeneration policies with disaster resilience in cities. These suggestions are developed based on the strengths and challenges identified from the Turkish Case. At last, after putting forward the research findings and suggestions, options for future research is explained.

4.1.1. Research Findings

The research regarding the urban regeneration and disaster resilience in cities aimed to identify the policies, intervention mechanisms and tools of urban regeneration which can be used for achieving urban resilience to disasters in cities, to identify the relationship between urban regeneration policies and projects with urban resilience to disasters in cities, to define the problems occurred while using urban regeneration policies and projects for urban resilience to disasters, to explain the strengths and advantages of using urban regeneration in seeking urban resilience to disasters and to determine recommendations and policy suggestions.

In order to identify the policies and tools of urban regeneration targeting the resilience to disasters, the literature regarding the urban resilience to disasters is reviewed. This part of the research show disaster resilience or resilience to disasters is about capabilities within or of the systems and communities while implementing disaster

risk management measures such as prevention, preparedness, mitigation and recovery while conserving and improving the functions (Cutter,2014; Johnson & Blackburn, 2014; UNISDR, 2017). And this system needed to be developed with covering resilience in dimensions such as ecological, social, economic, institutional and physical (built environment). Urban regeneration as an urban policy is lately accepted as a way of disaster risk management in cities. As reflected in the examples of urban regeneration policies and projects from world, this tool can be used as a both pre-disaster risk reduction and mitigation mechanism and a post-disaster recovery and reconstruction scheme.

The analyses about the urban regeneration and disaster resilience in cities explored the connection between urban resilience to disaster concept and urban regeneration policies and show that regeneration policies like within the Law no.6306, contribute to the resilience to disasters in cities but with some limitations and shortcomings. From the analysis of the policies developed within the Law no.6306, it can be said that there exist several measures aiming disaster resilience and providing actions for disaster risk management with the help of urban regeneration. On the other hand, the analyses demonstrate limitations and shortcomings of the policies in terms of contributing to resilience to disasters.

First of all, the law aims creating resilient cities with safe and liveable environments. With including the resilience in the context of a policy which is administered by a central institution as the Ministry of Environment and Urbanization, the law is contributing to the relationship between built environment, planning and disasters. This relationship described by Keskinok (2001), as a comprehensive system which encompasses both regional level, city level and building level strategies. From this perspective, even the law includes both building level and area-based implementation tools such as risky buildings and risky and reserve areas, the connection between these measures and regional and city level urban development policies left ambiguous within the law.

Secondly, the analysis of the policy instruments shows that there exist different levels of contribution to disaster management and hence disaster resilience. For example, both risky area and risky building policies developed with an understanding and definitions of a disaster risk. However, the law only defines a risk assessment system for risky buildings as in the appendix of the implementation regulation of the law no.6306. The "risk" concept in risky areas is defined by four different types of justifications as; risks due to ground conditions, due to conditions of the buildings, due to illegal status of the buildings and due to the disturbances in the public order. Still, the risk assessment methods and techniques are not defined. The institutional analysis also supported this finding of the policy analysis in terms of vagueness in risk assessment in risky areas. As stated by the experts in the interviews, the risk assessment while evaluating the risky area proposal files there exist different practices. Also, it was highlighted that this vagueness in risk assessment also resulted in lawsuits against the risky area decisions and cancellations.

Furthermore, the policies and experience of the institutions in implementing these policies since 2012, demonstrate the fact that even though the policies target disaster risk reduction and mitigating the disaster risks, there exist limited policies defined in terms of comprehensive disaster risk management. The instruments within the law targets primarily the regeneration of the built environment. There exist only several financial instruments and a negotiation method defined in the law which could contribute to social and economic resilience. But as reflected in the theoretical chapter of this thesis, there need to be ecological, social, economic, institutional and physical resilience measures covering all four dimensions of urban resilience. The findings from the institutional analysis reflect that, there exist several studies and projects for developing new strategies and actions in order to contributing social and economic resilience within the communities involved in urban regeneration such as development of a new agreement model, development of an insurance system. However, the findings also demonstrate the lack of any actions for raising awareness in disaster risks in urban regeneration projects.

The nature of the policy instruments of this law show that, there exist time limits set for proposal and decision-making and implementation phases of risky areas, risky buildings and reserve areas. These time limitations are contributing to the fasten the process of urban regeneration and contribute to the adaptive and coping capacities hence the resilience. However, as the findings of the institutional analysis demonstrate, in practice some time limitations affect negatively the coping capacity of people involved in risky area projects and in other cases the non-existence of any time limit for project implementation also negatively affect the sustainability of the urban regeneration project.

Finally, the analysis of risky area implementations and sample risky area projects indicate that, even though the law defines policies which include risk reduction measures in physical environment, preventive and promotive measures like financial supports, an on-site regeneration option for conserving the current social structure, there exist several challenges occurred while implementing these policies. The research demonstrates that there exist challenges experienced in negotiations with the people, the lawsuits and the legal processes, the inadequacy in financial instruments, the non-existence of a risk assessment system in risky area designation and the further problems observed while implementing the projects due to management and coordination.

Based on these research finding recommendations were developed for describing an urban planning model which could contribute to eliminating the shortcomings of current system within the law no.6306 and also several strategies which could contribute to overcoming the challenges identified. These recommendations are covered in the following section.

4.1.2. Recommendations

In this section a model suggestion for urban planning process is explained based on the findings of this research and also the challenges identified from the analysis of the

law no.6306 is categorized under three sections for providing some policy recommendations.

The urban resilience to disaster concept or disaster resilient cities include dimensions covering metabolic flows within cities which are production, supply and consumption chains that creates the urban economy, the social dynamics within the built environment and the governance of this system. So, an urban planning procedure in the context of urban regeneration policies need to target all four dimensions of the idea of resilience.

Further, as demonstrated previously, the relationship between urban planning and disasters requires interconnected policies developed in regional, city and building level. From this point of view, the urban planning that describes urban regeneration is needed to be compatible with regional development plans and the urban development plans (Keskinok, 2001). So, for both including multiple dimensions of urban resilience to disasters and the interconnection between different levels of planning, a model urban regeneration master plan could be developed as putting the resilience to disasters agenda in the core and describing spatial strategies and further actions of disaster risk management involving risky buildings, risky areas and reserve areas. Within this type of plan, the relationship between the urban regeneration projects and comprehensive disaster risk management policies could be constructed. This plan can be used as a road map for central and local governments in planning the allocation of resources and prioritization of the projects.

Secondly, based on the challenges identified with the analyses, several recommendations were developed as follows.

1- Challenges in Project Management

1.A.: *Duration of projects have negative impact on community resilience:* The duration of the project extents due to some circumstances such as; lack of agreement on the regeneration model and project, the existence of lawsuits against the project or the limited financial resources. There is no time limit defined for risky area for

decision making process or implementation phase which also affect the duration of projects.

S-1. A.: To overcome this problem, several time limits can be set within the law and regulation starting from the decision-making process. However, this still carries the risk of extension due to lawsuits.

1.B: *Lack of monitoring and evaluation of projects:* The analyses about the law shows that the decision-making process, the preparation of the projects is defined within the law. However, the monitoring and evaluation of the ongoing projects after the designation of the risky area is neglected. This resulted in several other problems like longer project durations, lack of agreement.

S-1. B.: As a part of urban regeneration project cycle, evaluation criteria can be developed by responsible authorities for assessing the improvements, identifying and determining the problems on time and taking actions against them within a time limit. Development of such system should be responsibility of responsible authority.

2- Challenges in Disaster Risk Management

2.A. *Lack of Risk Assessment Process in Risky Area Implementations*: Even the law defines 4 types of reasons of risky area designations, there is no risk assessment system defined within the law that direct the institutions about measuring the risks in the proposed area. This resulted in vagueness in projects and regeneration model in terms of how to reduce risks, prevent and increase the capacities which have an impact on the resilience of the system.

S-2. A.: The law and regulations could describe risk assessment methods reflecting the diversity of risks within cities to create a framework for risky area proposal files.

2.B. *Limited knowledge and awareness about disaster risk and resilience:* Findings from the institutional analysis and examinations of sample projects display that there exist no or limited knowledge about disaster risk aspect of the projects within the decision-makers and implementors. Moreover, even the policy targets the resilience

within cities this aspect within the projects were neglected rather focusing on the physical regeneration only. This results as no actions planned for achieving resilience throughout preventing and enhancing the adapting, coping and transforming capacities within cities.

S-2. B.: There can be several trainings with regards to the disaster risks and disaster resilience measures for the decision-makers and related parties including the community affected from the policy to enhance the technical capacity about the subject.

2.C. *No measures for raising risk awareness within the community:* The analysis of the policies and risky area implementations show that there exists no measure for community competence in disaster resilience covering local understanding of risks, knowledge about vulnerabilities and how to prepare and respond to disasters.

S-2. C.: While developing a regeneration project a stage should be developed for raising risk awareness covering local understanding of risks, knowledge about vulnerabilities and how to manage these factors as a part of disaster preparedness and mitigation action.

3- Challenges in regeneration model

3.A. *Lack of Diversity in Regeneration Model:* The research findings display the fact about lack of diversity in regeneration model implemented since 2012. The policies mainly concentrated on transformation of residential areas with a certain type of financial model.

3.B. *Lack of community participation project development:* The regeneration model described in the interviews conducted with the experts and directors in the Ministry shows the participation of the community is after the development of the project. This method leaves room only for negotiation based on a certain project design rather than co-creation process of a regeneration project.

4.2. Limitations of the Research

This study analyses the relationship between the urban regeneration policies and projects and urban resilience to disasters with a case study of Turkish Law no.6306 using a comprehensive approach with the following limitations.

Primarily, the analysis is based on a specific case using a law and its implementations. Even though it can draw the relationship between urban regeneration policies and urban resilience to disasters and give an idea of how to develop urban regeneration policies for contributing to the urban resilience of cities, it does not account for the dissimilar conditions of other cases, the results of this study are peculiar to Turkish system.

Policy and institutional analysis cover the analysis of all policies defined in the law and its regulation. However, the institutional analysis cover interviews with the representatives of the Ministry and AFAD and indirectly gathered information about other institutions such as neglecting the local governments and other related bodies due to the extent defined within this study.

Also, for the analysis of implementations in the context of this law, only "risky areas" were studied. While studying the risky areas, information about designation date, area, justification was used in each risky area but no information about the population and the numbers of buildings within the area and the responsible authority due to non-availability of publicly shared data in the Ministry. Likewise, for the analysis of risky areas projects, the law and implementations are enforced since 2012 and there are many unfinished projects, so the outcomes of the sample projects are measured within this circumstance, giving a limited idea about what will happen at the end of the projects.

4.3. Discussions and Options for Future Research

The findings from the Turkish case creates further question marks and new opportunities for future research about urban regeneration policies and their impacts on disaster resilience in cities.

Firstly, future studies could target a comprehensive comparative study with international cases of urban regeneration policies related with disaster risk management and resilience with the findings of this study. By doing this, different circumstances within different systems could be covered so that more comprehensive learning outcomes could be clarified.

Also, in terms of the Turkish law no.6306, a further study could analyse the risky area projects with a similar sampling method used in this study after completion of the projects for measuring the impacts of projects to the resilience to disasters. More, an analysis could be carried with including deeper analysis of all implementation tools, risky buildings, reserve areas, financial instruments and other supporting measures to have a deeper analysis of the extent and impacts of these instruments related with the resilience.

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APPENDICES

A. Interview Questions

Questions used in the interviews with the experts and directors in the Ministry of Environment and Urbanization and AFAD;

For understanding the decision-making process of risky areas following questions asked.

- For the role and competence of the institution:

1. In the risky area designation, which professional groups are involved in the decision-making process?

2. How these groups are organized? Are there any mechanisms for measuring the professional competence of these groups in terms of disaster risks and urban regeneration? If there any could you please briefly tell me about?

For understanding the practice in risk area designation:

3. The law no.6306 defines different decision-making process in terms of risky areas, for the areas related with the law no.2863 but no other specific measures for any other circumstances such as industrial areas or commercial areas. How do you make a decision when there exists a proposal file regarding the regeneration of a risky area currently used as an industrial zone or any other land uses beside residential area?

- If there exist a specific model developed for the different circumstances, could you please explain it? Are there any example projects?

- If there exist no specific model developed for the decision-making process in different land uses, do you think there exist a need for developing different models and a need for developing the law and regulations in this respect?

4. While planning the risky areas, what are the planning principles in terms of reducing

the disaster risks and achieving resilient city goal?

For understanding the implementation process of risky areas, following questions asked.

1. Is there any specific regeneration model used in the risky area projects? If yes, could you please explain what is included?

* Regeneration model: Agreement and negotiations, financing the project, project management authority, participation model, planning criteria

-If there exist no specific regeneration model, could you please explain the methods used in the urban regeneration projects so far?

2. What are the challenges faced in the implementation of risky area decisions and shortcomings of the Law since 2012 in risky area projects?

3. What are the strengths of this Law for the Ministry and for the people involved in urban regeneration projects?

For understanding the future of the Law no.6306 and projects, following questions asked.

1. What are the limitations and shortcomings of the policies defined within the Law no.6306 and in the Regulation?

2. Are there any studies developed for improving the policies and overcoming the challenges faced within the implementations?

- If yes, could you please explain the studies?

- If no, in your opinion, what are the areas of study for remedying the shortcomings and challenges?