

DEINDUSTRIALIZATION, DECLINE AND RESTRUCTURING IN  
SOCIO-SPATIAL CONTEXT: A MULTI-LAYER EXPLORATORY STUDY  
ON A MONO-CENTRIC LOCAL ECONOMY, ZONGULDAK CASE

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## **ABSTRACT**

### **DEINDUSTRIALIZATION, DECLINE AND RESTRUCTURING IN SOCIO-SPATIAL CONTEXT: A MULTI-LAYER EXPLORATORY STUDY ON A MONO-CENTRIC LOCAL ECONOMY, ZONGULDAK CASE**

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This thesis investigates in deindustrialization process, its decline impacts and restructuring process in socio-spatial context. Both deindustrialization and restructuring processes are evaluated regarding a multi-layer conceptualization of the problem. Zonguldak Case is chosen to investigate in the deindustrialization process taken place in the mono-centric local economy dependent on coal mining, the decline impacts of this process on the whole urban set-up including labour households, the city, other economic activities and industrial, regional and urban restructuring process in response to these impacts. The study discusses diverse restructuring attempts concerning local dynamics and local characteristics of Zonguldak.

Keywords: deindustrialization, industrial decline, socio-economic and socio-spatial restructuring

## ÖZ

### **SANAYİSİZLEŞME, DÜŞÜŞ VE SOSYO-MEKANSAL BAĞLAMDA YENİDEN YAPILANMA: TEK MERKEZLİ BİR YEREL EKONOMİ ÜZERİNE ÇOK KATMANLI KEŞİFSEL BİR ÇALIŞMA, ZONGULDAK ÖRNEĞİ**

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Tez, sanayisizleşme süreci, bu sürecin düşüş etkileri ve sosyo-mekansal bağlamda yeniden yapılanma sürecini incelemektedir. Hem sanayisizleşme hem de yeniden yapılanma süreçleri çok katmanlı bir problem kavramsallaştırmasını dikkate alarak değerlendirilmektedir. Zonguldak Örneği, bu bağlamda, kömür madenciliğine dayalı tek merkezli bir yerel ekonomide oluşan sanayisizleşme sürecinin, bu sürecin çalışanların hanehalkları, kent, diğer ekonomik aktiviteler gibi bileşenleri içeren tüm kentsel yapıya olan düşüş etkilerinin ve bu etkilere karşılık endüstriyel, bölgesel ve kentsel yeniden yapılanma sürecinin incelenmesi için seçilmiştir. Çalışma Zonguldak'ın yerel dinamikleri ve yerel karakteristiklerini dikkate alarak farklı yeniden yapılanma eğilimlerini tartışmaktadır.

Anahtar kelimeler: sanayisizleşme, endüstriyel düşüş, sosyo-ekonomik ve sosyo-mekansal yeniden yapılanma

To my dear parents, Nebahat and Tayyar Güneymen

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## LIST OF ABBREVIATIONS

- DEK/TMK: Dünya Enerji Konseyi, Türk Milli Komitesi  
DPT: Devlet Planlama Teşkilatı  
DDY: Devlet Demir Yolları  
ETKB: Enerji ve Tabii Kaynaklar Bakanlığı  
EPDK: Enerji Piyasası Danışma Kurumu  
EKİ: Ereğli Kömür İşletmeleri  
ETKB: Enerji ve Tabii Kaynaklar Bakanlığı  
GMİS: Genel Maden-İş Sendikası  
IMF: International Monetary Fund  
IEA : International Energy Agency  
İSDEMİR: İskenderun Demir Çelik Fabrikası  
KARDEMİR: Karabük Demir Çelik Fabrikası  
MTA: Maden Tetkik Arama  
TCÇOB: T.C. Çevre ve Orman Bakanlığı  
TCİB: T.C. İmar ve İskan Bakanlığı  
TOKİ: Toplu Konut İdaresi  
TTK: Türkiye Taşkömürü Kurumu, Turkish Charcoal Institution  
TÜİK: Türkiye İstatistik Kurumu, Turkish Statistical Institution  
TKİ: Turkish Coal Enterprises  
TMMOB: Türkiye Mimarlar ve Mühendisler Odası Başkanlığı  
ZBKRDİP: Zonguldak Bartın Karabük Regional Development Plan  
ZMA: Zonguldak Metropolitan Area  
ZMABBPOB: Zonguldak Metropolitan Alan Belediyeler Birliği Planlama Örgütü  
Başuzmanlığı  
WB. World Bank  
WCI: World Coal Institute  
WEC: World Energy Council  
ÜSİGEM: Üniversite Sanayi İşbirliğini Geliştirme Merkezi

# CHAPTER 1

## INTRODUCTION

The thesis study is mainly constructed on the *decline impacts of deindustrialization and restructuring process as responses and intervention to these impacts* on a Turkish Case, Zonguldak Metropolitan Area. Zonguldak is a coal mining region where the coal production is dominated in the metropolitan area. The Zonguldak Metropolitan Area is composed of four coal mining cities and characterized by a single local basic economy which depended on a local mono-centric sector of coal mining industry until recent years. The study evaluates deindustrialization process as a phenomenon with an emphasis on *change* together with the repercussive consequences of this change on a relational base by considering social, economic, institutional and spatial restructuring.

### 1.1. The Subject of the thesis

The problem statement of the study is set as “***How could the city and the mono-centric industry stand against the decline brought by deindustrialization in Zonguldak?***”

The problem statement of the study is thus closely related to answer “***Why has Zonguldak not experienced a complete decline?***”

A multi-dimensional and multi-perspective approach to evaluating deindustrialization is adopted in the study. Pulling the curtain behind relationships that define the mechanisms of change and showing how local has embedded in this process of change by revealing impacts reciprocally remain the main concern in expressing the process of change.

In this regard, the aim of the thesis is to reveal the contribution of the local idiosyncracies of Zonguldak in standing against the decline impacts of deindustrialization and to evaluate the restructuring process.

Deindustrialization has become a subject of discussion in academic literature especially in the period starting with the early 1980s, a period signified by global change and restructuring. After circa 1980, the new organizational and technological changes brought by globalization are evident in mostly old industrial regions with traditional industries of shipbuilding, coal mining, iron and steel manufacturing, and textiles. Coal mining regions, which are usually within geographical clusters of heavy industry, including iron and steel manufacturing, and the energy sector, remain specific due to their rather insular socio-spatial structure that includes a homogenous economic base, labour market, strong trade union tradition and spatial pattern that is often not evaluated as attractive for new investments.

Some mining localities have endured the crisis of deindustrialization which in certain cases destroyed jobs, and companies revealed devastating impacts on local communities including their socio-economic lives causing psychological and social problems. As a result, some mining areas have experienced a slump all over the world; some closed down, and some prevailed but were severely affected economically and socially.

Generally speaking for coal mining localities, which constitute the mono-sectoral focus of the regional and local economy operate in close contact with the local community. Therefore, any intensive fluctuation in the sectoral economy is likely to have a serious social and economic impact on the local community. Not only will the employment in the mine which constitutes the main income of the families be negatively affected, but the local tax revenue, local consumption and production, social services, social security and even physical infrastructure as well. The decline in the mono-sectoral economy will definitely result in a social decline as well.

Zonguldak, the case study of the thesis, did not experience such a downfall expressing a complete diminishing of the coal mining sector or such a regeneration

so as to completely transform the local economic base. Rather, the decline impacts of deindustrialization in Zonguldak are partly compensated by buffer mechanisms that can be accomplished both externally and internally.

For Zonguldak Case, exogenous measures, such as government support, exemplify the external compensation mechanism at the layer of the firm firstly. Hence, external expectation for intervention and relatively low capacity of generating endogenous potential for further restructuring remain to be important characteristics. Secondly, the unique endogenous persistence and resilience of the labour market, covering characteristics of rural labour and secondary capabilities, have allowed mining households to stay intact and have enabled them to maintain their existence economically and socially through the crisis internally at the layer of labour market households. Production relations within the basin that involve relationships between the state and the private sector within a context of disintegration tendencies in the vertically integrated firm and informal coal mining remain other internal dynamics that slow the pace of deindustrialization and further restructuring.

To discuss the issue from a labour market perspective in a more detailed way, first the general characteristics of the labour market in coal mining regions need to be identified. In general, mineworker household economy depends entirely on wage labour in many cases of coal mining localities. Mineworker households do not have access to agricultural economy and the mono-centric economy usually inhibits women and other members of the household to enter the labour market. Therefore, mining towns are very vulnerable in times of crisis of the mining sector. In many cases crisis in the mine results in dilapidation both in the labour market and in the spatial pattern itself and thus, households not able to withstand the loss or reduction of the main economic source of their livelihood, that is, the wage from the mine, are forced to migrate partly or entirely. Reduction or loss of wages is reflected perhaps more intensely in the family kitchen.

It needs to be emphasized that the characteristic that distinguishes the Zonguldak case from other old mining regions can be stated as the unique labour market. The uniqueness of the Zonguldak mining labour market rises from the fact that mine

labour is not completely detached from rural life. They either keep their land in the village or are attached to the land of their parents, relatives. This ongoing attachment remains as a buffer to compensate and partly meet the household food needs through shares received from the harvest. This receiving of food from the village not only protects them against occasional national economic inflations but also enables them to maintain and sustain their families in times of crisis.

Following the stage of standing out against decline, the unique characteristic of rural labour at the same time is an important component in affecting the pace of the restructuring process in Zonguldak. As mentioned earlier, this is due to the fact that the process of detachment from rural land ownership, which is a necessary stage for the formation of labour class consciousness, is not completed. This aspect is likely to prevent the emergence of strong political lock-ins as resistance to the restructuring process in Zonguldak.

The study focuses on the place-specific local idiosyncracies of Zonguldak both in experiencing decline impacts of deindustrialization and responding to this process within the restructuring process. The restructuring process in Zonguldak, which is the first industrial region composed in the only charcoal basin in Turkey, has also exhibited specific characteristics that express the diversification from the old structure to a new one to make comparisons with other cases from the world.

The assumption in this case is that the existence of a specific labor market in Zonguldak has protected the social structure from decomposing and the establishment of the university has contributed by stimulating the transition of the local mono-sectoral economy to a more diversified economy and has enhanced the proliferation of the local economy.

A multi layer evaluation is at the focus for examining decline impacts of deindustrialization and also local and regional responses to these impacts within restructuring process in Zonguldak. What is novel about the approach is this multi layer characteristic of the research with respect to the representation of the problem and constructing the methodology.

What is specific about the problem is that it concerns change in industrial production particular to coal mining. This change is influenced by changing energy policies and the structural changes brought by the globalization process.

Below are the secondary questions that inform the main flow in the thesis structure for review:

The main problem statement of the thesis:

*How could the city and the mono-centric industry stand the crisis/decline brought by deindustrialization in Zonguldak?*

The secondary questions under the general statement of the thesis problem:

What are the decline impacts of deindustrialization in Zonguldak?

Through which indicators can decline impacts of deindustrialization be discussed in Zonguldak?

Which dimensions in these impacts can be considered?

Which place specific characteristics of Zonguldak are evident in its experiencing of and response to decline impacts of deindustrialization?

How did the town's institutions and mining families cope with decline impacts of deindustrialization?

What are the main components of the restructuring process as a response to crisis/decline and further revival of Zonguldak?

What are the dimensions of evaluation of the restructuring process in Zonguldak?

Which place specific characteristics of Zonguldak are evident in the restructuring process of Zonguldak?



How have these local idiosyncracies affected the restructuring process in Zonguldak?

What is specific about Zonguldak in coping with crisis/decline and further restructuring when compared to other cases in the world?

### **1.1.1. Reasons to Select the Subject of the Study**

*Decline* is introduced in a discourse where the localities with economic bases that developed on old industries find themselves involved in the changes imposed by the globalization process that results in the changing of institutional structures, new ways of attracting investments and new development patterns to exist.

New concepts and capacities for development have been defined through globalization process that reflects on the changing role of the state in development within structural changes and on new priorities for capital flow. Accordingly, the extent to which these new requisites are met parallels the extent to adapt to the new global economy. *Success stories* characterize the post-industrial development debate comprising concepts such as network, innovative milieu, learning regions, regional innovation systems, etc. on the one hand. On the other hand, the localities that lack such assets defined by the post industrial development criteria to integrate with the global economy have faced *decline process*. Those localities usually comprise old industries in relation with large enterprises, unionized labor power and complementary old infrastructure, embedded knowledge on economic activity, thus development through dependence on this path. Those declining localities occupy the opposite side of the success stories and need to be studied. In other words, apart from success stories considering global cities, network of global market and city-regions, not much in-depth research is available on declining and deindustrializing cities in the literature and current discussions in the area.

Declining cities owe their existence to the incapability to integrate with the global capitalist system. The main reasons for this stagnancy in generating dynamics for strategies in developing this capability can be set as:

- incapability to open to and compete in the global market
- being disadvantaged and incapable to act as a city-region
- incapability to realize the technological transformation in the main economic base especially for cities that have a single-economic base.

Old industrial areas have generally been characterized by industrial monostructure, lack of innovative milieu, a culture of dependency, rigid institutions, little or no attractiveness to new investors, strong binds and path dependency (Hassink, 2005). These characteristics also form and partly explain their limited capacity of understanding and developing original ways of responsiveness to change.

Zonguldak serves as a case to analyse and continue an integrated research on the third reason that emphasizes incapability of generating technological upgrade in the production process in a single economic base city, in the Turkey context.

### **1.1.2. Reasons to Select the Case Study and the Expected Outcome of the Study**

Zonguldak is the first industrial city characterized by a local mono-centric sector managed by a single state owned enterprise, (Türkiye Taşkömürü Kurumu, Turkish Charcoal Institution, [TTK]). Zonguldak, as a province, has been introduced as an industrial region with Karabük and Bartın as an industrial geographical cluster that consists of iron and steel factories, a thermal power plant and charcoal production (TCİİB, 1964).

What makes the study of Zonguldak as a case special is basically its monostructure in a local economic base managed by a monosectoral local industrial firm. This reality seems to distinguish the Zonguldak Metropolitan Area from Zonguldak Region (province) and the West Black Sea Region due to the fact that *decline impacts of deindustrialization* become mostly and clearly observable within this monostructure. Investigation of the deindustrialization process and the restructuring in this monostructure based on coal mining industry and its specific socio-spatial structure provides opportunities to make evaluations at the meso and micro levels.

Contribution of local idiosyncracies to both the process of standing against the decline impacts of deindustrialization and the course of restructuring which is mainly based on revival of the locality in the single economic base ZMA, make studying the problem in Zonguldak specific.

At the meso level, the mechanisms of change in Zonguldak appear through an evaluation of Turkish economic restructuring, and related structural changes. Through investigation of these mechanisms, the repercussive impacts on state owned enterprises- a major employer for Zonguldak Case-, on the industrialization process and on the coal mining sector in relation with changing energy policies are revealed as the main key points for understanding both the deindustrialization process in Zonguldak within a wider context as well as the key strategies of restructuring following or accompanying deindustrialization process.

At the micro level, it becomes possible to discover how place specific characteristics act as buffer mechanisms to stand, soften and decrease the pace of decline in Zonguldak. The characteristics of rural labor and existing secondary capabilities form basic references apart from socio-spatial and institutional characteristics.

Especially for the restructuring process, it is understood how this monostructure diversifies by revealing restructuring at multi layer: the regional, the industrial and the urban restructuring levels. Restructuring of the production process, restructuring at the firm level and the consequences on the labour market are major components of the process. Again, in addition to evaluation of the changing regional strategies in Zonguldak, micro stories arise on the local restructuring peculiar to the four cities that form the metropolitan area. In general, the characteristics of labour and the existing relationships of coal production have again prevented the formation of strong political lock-ins in Zonguldak at the micro level. Moreover, Zonguldak provides an opportunity to observe the first experience of industrial heritage tourism and the museum within this restructuring process.

Evaluation of regional plans in this regard decodes the main strategies and policies in both understanding the background of decline discourse that deindustrialization

has been built on and also the main strategies, policies, actors and tools in restructuring process.

Apart from realizing a place specific research at the micro and meso level and revealing experiences that can be defined as the *first*, this study presents a comparison made at the international level from a perspective concerning the experience of deindustrialization, and the decline and restructuring processes.

### **1. 1.1.3. Literature survey**

In the literature industrial decline, deindustrialization and restructuring processes have been examined in terms of their relationships with the changes they create in socio-economic and socio-spatial structure.

The consequences of global economic restructuring, the social and economic transformations concerning disintegration in production process, changes in firm structure, and changes in division of labor represent dynamics beyond deindustrialization and are widely studied topics in the literature (Massey, 1984; Scott, 1986; Cheshire and Hay, 1989; Jones and Wild, 1991; Spooner, 1991; Cooke, 1995; Winterton, 2003; Castells, 2005). The impacts of structural changes on industrial production at the local level which concern processes complementary to deindustrialization remain critical in examining deindustrialization process (Townsend, 1983; Harvey, 1999; Wallerstein and Western, 2000; Soja, 2001; Castells, 2005). In other words, these processes of disinvestment, deregulation, deunionization reveal the relationship between national economic restructuring process and local industrial restructuring process.

The concept of deindustrialization has mainly been studied in terms of its definition, its impacts, its indicators with reference to cases that have completed the deindustrialization process and restructured in response to deindustrialization. The decline impacts of deindustrialization are investigated with an emphasis on economic decline, depopulation and the related environmental and spatial

consequences<sup>1</sup> (Anderson, Duncan and Hudson, 1983; Townsend, 1983; Massey, 1984; Helmut, 1991; Jones and Wild, 1991; Harvey, 1999; Turner, 2000; Soja 2001; Winterton, 2003). Secondary relationships between industrial decline and urban decline that comprise inner city problems are complementary to each other in terms of examining decline impacts of deindustrialization<sup>2</sup> (Townsend, 1983; Anderson et al., 1983; Massey, 1984; Clark, 1989).

Restructuring is taken into consideration as a problem of response to deindustrialization and decline. This consideration refers to two dimensions considering response capacity and intervention in restructuring process. Response capacity is studied with reference to the literature on the relationship between development and failure in the restructuring process (Hassink and Shin, 2005; Hassink, 2005; Martin and Sunley, 2006; Hassink, 2007). The lock-in and path-dependency concepts are highlighted in this context. Intervention in restructuring process is founded on main strategies, tools and actors from diverse experiences of local restructuring (Massey and Meagen, 1978; Townsend, 1983; Keeble, 1991; Jones and Wild, 1991; Cooke, 1995).

Coal mining regions occupy a specific place in investigating decline impacts of deindustrialization and the restructuring process. Specific characteristics concerning coal mining regions (Hudson, 1982; Massey, 1984; Turner, 2000; Barchiesy and Kenny, 2002) and their experiences of restructuring (Rehfeld, 1995; Danilin, n.d.; Beatty and Fothergill, 1995; Bowes, 2003; Artobolevsky, 2003; Shutt et al., 2003; Pleines, 2004; Pattison, 2004; Suchacek, 2005) reveal major insights to the difference brought by these localities in the study.

Studying decline impacts of deindustrialization and restructuring process in Zonguldak has a multi-layer character. The Turkey context is investigated to

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<sup>1</sup> The reader may review Beauregard, R. A. (1995). *Voices of Decline: The postwar fate of US Cities*. Cambridge: Blackwell Publishers to evaluate planning discipline with decline management.

<sup>2</sup> The reader may review OECD (1983). *Managing Urban Change*. Paris: OECD for further information.

highlight the relationship between economic restructuring and changing industrial and energy policies. Changing socio-economic and socio-political structure is mainly reviewed with reference to Bayar (1996); Boratav (1998); Engin (1999); Boratav, Yeldan and Köse (2000); Makal (2002); Boratav (2003). The impacts of these changes on state owned enterprises and on industrial production, in particular to coal mining industry associated with industrialization policies are basically drawn on. Investigation of changing energy policies is studied by referring to Tamzok and Torun (2005); Tamzok (2007); Demirbaş (2000); Yılmaz and Uslu, (2007) in addition to reports of International Committee of Energy Council; Turkish Committee.

The socio-spatial change in Zonguldak with particular emphasis on deindustrialization process (Erkin, 1999; Ersoy and Şengül, 2000) and on industrial restructuring in coal mining sector (Zaman, 2004) occupy an important part of the study. The plan reports, reports of TTK, reports of the trade Union, GMİS, are major references to study change in Zonguldak in terms of changing visions on the region, the problem definitions and proposed strategies against them and the restructuring at the firm level. The historical characteristics of Zonguldak are reviewed mainly by referring to Kiray (1974) and Tekeli (1965) with an emphasis on worker policies<sup>3</sup>. Working practices and the related historical characteristics remain a major part of the literature on Zonguldak<sup>4</sup> (Makal, 2002).

## **1.2. Methodology**

The context to understand the dynamics behind the decline and deindustrialization processes in Zonguldak and the restructuring process in terms of response capacity and intervention reveal a multi layer and multi perspective evaluation on construct for the definition of the problem and for the construction of the methodology. As a

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<sup>3</sup> Mimarlık 77/1 on Zonguldak can be reviewed for further information on urbanization policy and urban management for Zonguldak.

<sup>4</sup> The reader may review Çatma, E. (2006). Zonguldak Taşkömürü Havzası Tarihi. Ankara: Ofset yayıncılık for further information on the history of coal production in Zonguldak Basin.

relational and evolutionary base, the restructuring process in Zonguldak concerns both the socio-economic change with its repercussive impacts and local dynamics embedded in Zonguldak in a socio-spatial perspective.

### **1.2.1. Constructing a mixed and integrated methodology**

This thesis study develops on a contingent ground that considers place specific characteristics and local idiosyncracies of an old industrial area that is based on a single economic base, the coal mining industry, and is dominated by one large state owned enterprise, the TTK. In this regard, the study looks into the locality and reveals a perspective of change through the eyes of the locality while assessing a multi-level intervention of change acting on the locality exogenously.

Parallely, the methodology is designed at multi-stage employing both quantitative and qualitative research methods within a multi-variate analysis. The methodology brings together the literature survey; the statistical data, and in-depth interviews to formulate the context of the research in relation with the case study; main dimensions of the evaluation of change by referring to main indicators of change and the level of response capacity of actors in giving response to change.

The mixed and integrated methodology involves basically two stages of analysis which concern decline impacts of deindustrialization and the restructuring process in Zonguldak. The first stage comprises the analysis of the collected statistical data, the questionnaire survey and the in-depth interviews. The second stage involves the analysis of the collected statistical data, the interpretations drawn from the in-depth interviews and a comparative study between the restructuring experiences of old coal mining regions from the world and Zonguldak.

The Collected data encompasses the statistical data at different scales. The questionnaire survey focused to panel trestle production workers and their households. In depth interviews were conducted mainly with the planners and the related authorities in ZMA. The comparative study concerning comparison of

Zonguldak with other cases from the world in terms of restructuring experiences was based on the literature review.

The literature survey reveals a synthesis on common characteristics of deindustrialization in old industrial areas, their responses, and adaptation strategies to change. The statistical data to assess change over such dimensions are briefly stated below:

- Impacts of change in the local mono-centric sector (coal mining industry) at the micro and meso levels
  - The related firm, the state owned enterprise, TTK: mainly changes considering employment, retirement, productivity, produced and sold output and investment schemes at the institutional level on micro scale. On the meso scale, change in the national (Turkish) public enterprise system parallel to structural economic changes in order to integrate with the global system (originating from) national restructuring experience: a literature review integrating with statistical data assessment
  - Changes concerning operational rights and property rights in coal mining industry in relation to changes in the national legislative structure directly reflecting on coal mining as an economic activity: deregulation, effects on labor, conflicting with a declining or an imposed decline process acting on the locality
  - Disinvestment and unemployment schemes concerning the local mono-centric sector and repercussive impacts on other sectors
  - General indicators of decline impact on urban set-up concerning urban economic decline and urban depopulation
  - Census-oriented and various institutional data gathering to assess decline impact on the local mono-centric sector, on the general urban set up comprising urban elements and institutions.
  - Repercussive effects of changes in the local mono-centric sector on labor market



The analysis of the impact of decline on the labour market related to deindustrialization has been covered through literature review on downsizing process of TTK and a questionnaire survey in the field study. The questionnaire survey focused on the panel trestle production workers and their households as they formed extreme cases in their experience of decline impacts of deindustrialization. This is because they constitute a group of workers that are characterized by high risk working practices peculiar to deep underground coal mining. The questionnaire survey aimed at assessing the endogenous and characteristic effects of changes on individual households of the possibly most directly affected section of labor, the panel trestle production coal miner in TTK, and existence of buffer mechanisms that include survival strategies and slow the pace of change in the restructuring process.

The stratified type of questionnaire survey was founded on a sample size of 13% of panel trestle production workers and it is a stratified type of questionnaire targeted at **panel trestle production coal miners**<sup>5</sup> of TTK. A quota sampling of 13% from a universe of 2740 production workers was realized through selection concerning production workers who work in three TTK firms (Kozlu, Üzülmöz, Karadon) in the Zonguldak metropolitan Area, (ZMA) and whose address data is available in TTK records. Nevertheless, problems emerged with the questionnaire survey in the field study. Unfortunately, the data returned included some inconsistencies and therefore, some of the data had to be excluded from the analysis.

In addition to the questionnaire survey, conversations held during the pilot study for the questionnaire survey allowed for interpretations on basic strategies of labour households. In-depth interviews mainly conducted with the planners yielded local information on the specific decline impacts of deindustrialization and micro stories of local restructuring within the Zonguldak Metropolitan Area.

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<sup>5</sup> The panel trestle production workers are the main actors in underground coal production composed of diggers and fortifications workers. The panel trestle workers are called “pano ayak üretim işçileri” in Turkish.

The dimensions of approaching the problem and constructing the theoretical framework consistent to evolution of methodology can be evaluated and observed in Figure 1.

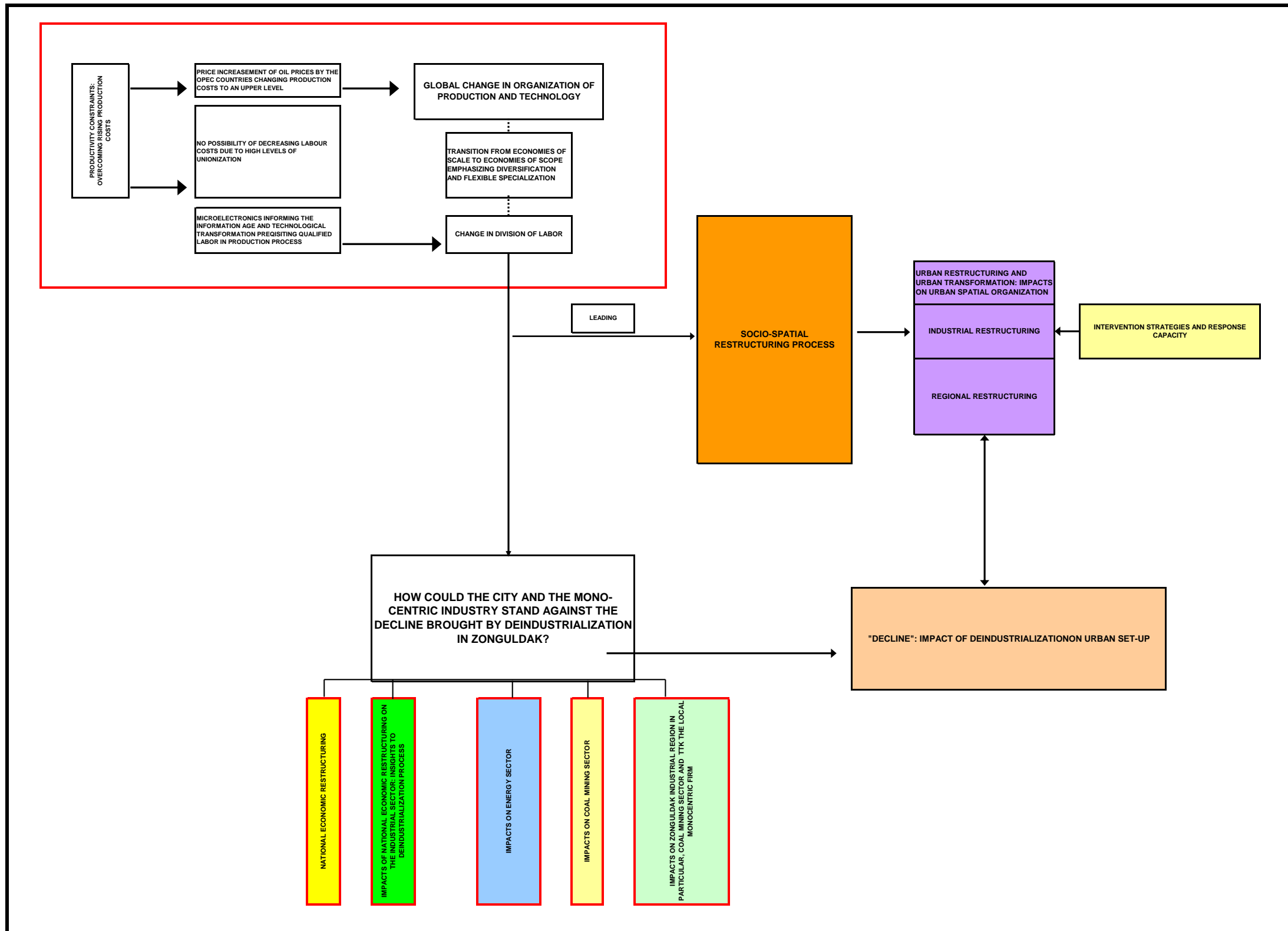


Figure 1. The main construct of the thesis

## CHAPTER 2

### INDUSTRIAL DECLINE, DEINDUSTRIALIZATION AND RESTRUCTURING PROCESSES

Deindustrialization, decline and restructuring are socio-spatial phenomena. Industrial decline, deindustrialization and restructuring processes are interrelated. Of the three concepts, deindustrialization and restructuring remain more all-inclusive. Deindustrialization defines a process of socio-economic and socio-spatial decline originating from industrial decline. It is seen as **a process of change** and **a process of restructuring** in forms of both impact of change or response to change, an outcome of complex and multi-dimensional relationships. Through the lens of deindustrialization, concrete forms of socio-spatial structures have come to transform to redundant and obsolete assets as if they were not once a major entity in the local socio-spatial pattern and as if they were not embedded in the lives of people. So, in attempt to define deindustrialization, the periods of 'before' and 'after' are considered and the reference for relativity becomes **change** or **fracture in old forms of development** evident in the local economy and local community attached to local history and spatiality. Thus, the change in the overall pattern concerning meaning and the locality as place is observed.

Deindustrialization is related to industrial change that may have devastating impacts on old forms of the production process. Further, apart from its economic consequences deindustrialization bears evident social and spatial consequences . Deindustrialization in old industrial areas cover complex relationships and processes at multi-scale. Accordingly, Jones and Wild (1991, p. 3) clearly state that "Deindustrialization is not a simple, monolithic causal process, but is likely to embrace a number of causal trends, which may be interrelated". The following chapter is organized to reveal the causal relationships and dynamics behind the deindustrialization process focusing on global economic restructuring and its

repercussions. These are witnessed within the local/regional restructuring process which is also affected by structural changes at the national level.

## **2.1. Dynamics beyond deindustrialization**

The causal developments beyond deindustrialization are mainly founded on global economic restructuring, its repercussions on national economic restructuring and on local economic restructuring in old industrial regions. As pointed out by Castells (2005), economic, social and institutional restructuring form the dynamics and base for understanding the deindustrialization process within a relational context.

Winterton (2003, p. 2) has defined restructuring as:

.. an inherent part of capitalist development and the process of capital accumulation, permitting the continual expansion of profit accumulation through the regeneration of the prevailing regime of accumulation, through modernisation to raise efficiency and through developing new capacity in growth sectors.

The global economic restructuring process has repercussions on the local restructuring process. In that sense, economic restructuring in localities is at the wider scale an outcome of economic restructuring in the global economy inferior to fluctuational processes within increased mobility (Wallerstein, 1974; Jones and Wild, 1991). Accordingly, Spooner (1991) bases the problems brought by industrial decline on the local economic restructuring process which is related to adjustment process to global economic restructuring reflecting the changing organization of production and division of labour.

In a more detailed way, Cheshire and Hay (1989, p.) have noted that the causes that lead to deindustrialization can be searched through shifts concerning “internationalization of world economy, diffusion of technological innovations, declining productivity rates, the fall of transport and communication costs; the increase in personal, economic, and financial mobility”.

Economic restructuring is defined to be associated with social and spatial restructuring (Massey 1984). At the spatial dimension, spatial restructuring includes

urban change concerning the change of land use patterns and the change of spatial division of labor. Thus, urban decline, urban transformation and regeneration can act as components of such change. Roger (1982, p.99) comments on the relationship between urban decline and deindustrialization by pointing out that “the inner city problem is generally associated with the decline of traditional industries and less frequently with the growth of new ones”. Deindustrialization directly relates to industrial decline but no direct relationship exists between urban decline and the deindustrialization process. Nevertheless, urban decline can be an important part of urban/spatial restructuring in relation with socio-economic restructuring.

Anderson, Duncan and Hudson (1983) have used the concept of redundant spaces relating to inner city problems, urban decline and urban decay in relation with industrial decline and deindustrialization. They have evaluated social and economic change and restructuring processes with their mutual impacts. Economic decline and social deprivation are seen as complementary to these impacts.

According to Jones and Wild (1991), different viewpoints or different focus points exist in explaining global restructuring in relation with deindustrialization. The first viewpoint, which reflects the neo-Schumpeterian approach, focuses on the relationship between technical change and economic growth via innovation and entrepreneurial activity. The second, which reflects the Neo-Marxist approach, focuses on fragmentation in the production process and related transformation in the mode of production, accumulation and regulation. The third viewpoint, which reflects Castells's (2005) concept of informationalism, focuses on information economy and its relation to economic and social restructuring (Jones and Wild, 1991).

Economic restructuring is examined in terms of three dominant theoretical frameworks, in particular the economic restructuring process in Western Europe (Jones and Wild, 1991; Keeble, 1991). The first is stated to focus on the cyclic mode of industrial restructuring altering between long waves of deep technical change and economic growth on the one hand, and waves of relative stagnation on the other (Jones and Wild, 1991). In this sense, the relationship between technological innovation and entrepreneurial activity is stressed considering that

entrepreneurial activity allows the rises in Kondratieff long waves (Schumpeter, 1939; Jones and Wild, 1991). Jones and Wild (1991, p.6) state that the establishment of a fifth long wave is discussed to be introduced by “Neo-Schumpeterian bunching of innovations in microelectronics, information technology, robotics and genetic engineering” by referring to Hall (1985). They further comment that these technological developments have laid a basis for explaining the stagnation and decline of industrial expansion.

It is emphasized that the second theoretical framework focuses on the mode of production conceived as the most important dynamic behind industrial restructuring (Mandel 1975; Jones and Wild, 1991). In other words, a transition from the Fordist mode of accumulation to the Post-Fordist/flexible mode of accumulation with particular effects on the production process is used to explain industrial restructuring. The transition has indicated a shift from mass production of standardized goods in the media of assembly line and unskilled, unionized labor large in size to flexible production characterized by specialization and highly skilled labor (Gaebe, 1991; Jones and Wild, 1991; Harvey, 1999; Soja 2001). The mass production system of standardized goods and big fixed capital investments within vertically integrated large firms have characterized the Fordist mode of accumulation while collective consumption and social reproduction of labor have signified the Fordist mode of regulation managed by the Keynesian state (Harvey, 1999). The transition is generally defined by transition from mass production to flexible specialization and diversified quality production. The Fordist type of production is characterized by large scale factories engaging in a vertical manufacturing process producing homogeneous goods for markets based on price competition without any competition based on fashion, quality and design.

Mentioned under Neo-fordism, transformation in the working process is emphasized by focusing on increased mass production with no major intervention in organizational change (Winterton, 2003). Transition from economies of scale to economies of scope is another description to give information on the transition process. This process of transformation has pointed out the emergence of a new division of labor and informed the start for the deunionization process due to requisite flexible labor practices in the new industrial production process. Briefly,

mass production of standardized goods have transformed to flexible specialization of diverse goods and services of quality, fashion and design. In addition, new technologies are initiated and are an important factor in the global change in organization of production and the introduction of a new division of labor (Harvey, 1999). Fragmentation in the production process and disintegration in vertically integrated firms toward horizontally integrated firm structure have remained characteristic to definitions of the process of change (Scott, 1986).

Global change in the organization of production and technological advances have played major roles in shifts in paradigms of development and also on the social transformation process. The transition is defined to be based on over accumulation led crisis of the Fordist mode of accumulation managed by the Fordist-Keynesian state (Harvey 1999; Soja, 2001). The most remarkable cause of this is stated as the rise of energy inputs in production costs by the increasing cost of oil by OPEC countries in 1973.

To search for more detailed answers, the path-breaking prominent event of the 1970s is affirmed as the first "Oil Shock" in 1973 followed by the second in 1979 in terms of its effect on increasing the pace of restructuring (Thrift, 1988; Winterton, 2003). This decision has meant a crucial rise in energy cost in production. The crucial rise in energy cost in production could not be compensated by a contraction in labor cost with high wages due to organized labor and strong trade unions (especially in the UK and the USA). Soon, low cost East and Japanese goods grounding on low cost labor invaded these markets. The need to decrease production costs as a productivity constraint has remained the main motivation behind peripherization of labor. In addition to rise in prices of energy inputs, labor unrest and wheat shortages are underlined as other events behind deindustrialization in terms of reorganization of production (Pietrikowsky, 1999). Capital has moved to areas where low cost labor is available. These events have informed the reorganization of production. A more flexible, fragmented production process is introduced.

The crisis of the 1970s is interpreted with diverse perspectives. The crisis is defined in terms of profitability problem by Lipietz (1982), a problem in Fordist mode of



production by Piore and Sabel (1984) and a problem in corporatist relations by Monks and Minow (1995). Winterton (2003, p. 2) reviews these various perspectives and further affirms that the theoretical studies of the 1980s have mainly reflected on topics such as “the fragmentation of markets, paradigm shifts in production relations and quantum leaps in technological infrastructure”. The institutional and economic restructuring of the 1970s were extended and deepened in the 1980s. Likewise, it is commented that a cumulative and mutual change process has involved the change of composition and characteristics of capital accumulation process, of industries and of division of labor (Green, 1989; Winterton, 2003).

The transition to the flexible mode of accumulation has re-conceptualized the production process proliferating some sectors while excluding some other. Finance, production services (insurance, advertisement, etc.) telecommunication and research sectors are on the rise while traditional industries peculiar to old industrial regions including coal mining, iron and steel manufacturing, shipbuilding and textile have declined (Castells, 2005).

The decline of the traditional old industries can be related to their decreasing competitiveness. Therefore, Cooke (1995, p.13) evaluates the Fordist mode of production with regard to its decreasing competitiveness and redefinition of paths for competitiveness:

...In an era, when stand alone mass production on Fordist lines is no longer a source of competitive advantage (Lipietz 1987), the regional and subregional focus of policy networks and business predispositions coalesces around a common interest in optimizing the efficient functioning of an increasingly complex, externalized system of economic coordination.

The third theoretical framework on the relationship between deindustrialization and restructuring is defined by Jones and Wild, (1991, p.8) to draw on

the more integrating concept of the information economy, in which boundaries between manufacturing and services become indistinct, and in which the sale of information is viewed as more critical than the sale of manufactured goods.

Castells (2005) emphasizes the introduction of the universal communication system and the direct effect of information on productivity. Information, as an asset in the production process has reflected certain breaking points brought by capitalism,

such as flexible management, network of firms, individualization and variety in working relations, empowerment of capital over labor--hence decline in labor movements-- restructuring in global economic competitiveness in terms of capital accumulation, and management and integration of financial markets. Following these developments, he further notes that the characteristics of the new type of production are mainly based on communication and innovation transformed to a single operating system in the form of mutual dependence. This system is also observable in the market dimension. So, on the market side, the globe has outlaid commodity production chains and commodity value chains in market constraints and introduced localities to participate in these networks not to be excluded from global competition and global market (Weiss 1997).

Consolidations and integrations between firms are observed to act around the globe, often making investments in multi-sector business activities. Outsourcing and subcontracting type operational constraints have introduced vertical disintegration. Minimizing transaction costs has become a crucial constraint within and between firms, again referring to vertical and horizontal disintegration for further re-integration, often laying the relation of reason in formation of geographical clusters of new industrial production motivated by innovation, research and development (Scott, 1986). Flexibility in means of small size, batch production with adaptability to changing fashion, quality and design have emerged as an accompanying asset for participation in the global market (Harvey, 1999). The social transformation side has included an adaptation process to consumerism to sustain the new type production through media (Scott 1986; Harvey 1999; Soja 2001).

Providing that changing working process and practices refer to social restructuring, changes in both social organization of labour and social structure of employment come forth. Accordingly, Castells (2005) stresses the central role of the working process for the social structure. He puts forward components of social restructuring in relation with changing working practices as the change in capability and productivity introduced by the new division of labor together with occupational variety. He further emphasizes the change in working practices and in labor beside sectoral shifts within economy in explaining social restructuring in relation to economic restructuring. Massey (1984) points out that the social composition of the

workforce has changed with a tendency of increasing female labor while its distribution has preserved its importance in the changing social structure of employment.

The referred theoretical frameworks of Neo-Schumpeterian, Neo-Marxist and the one based on information economy, introduce different dimensions in evaluating deindustrialization on different scales dealing with the restructuring process. They further draw attention to the simultaneous facts taking place considering change from diverse perspectives.

The next chapters project a hierarchic approach in deindustrialization with particular stress on scale effects of the restructuring process on the locality in old industrial regions.

### **2.1.1. National economic restructuring and its repercussions in old industrial regions**

Structural changes have impacts on localities in terms of their economic, social, institutional restructuring processes. In that sense, national economic restructuring and its repercussions in old industrial regions remain important, revealing a meso-level in investigation of deindustrialization and its decline impacts on the locality. On a wider scale, the repercussions of global economic restructuring have reflected on national economies as changing development policies in the context of the structural adjustment process.

What has changed in national systems through transforming paths in development is a question behind the changing modes of accumulation and regulation, in particular to the role of the state in these processes. Accordingly, Castells (2005) points out the changing roles of the state in the Fordist and Post-Fordist eras. He acknowledges that industrialization relies on a statist type of production where the state owns the surplus and aims to maximize state power while post-industrialization relies on a capitalist type of production with the aim of profit maximization. Therefore, he stresses that industrialization as a development type

aims maximum industrial output and hence economic growth, and states that the main objective in industrial society is the production and distribution of energy while for post-industrial society, it is stated to be information and information technologies in improving productivity as new dynamics.

The industrial era is signified to be based on the link between mass consumption and mass production and this link is outlaid by the close relationship between productivity growth and real wage income referring to Fordist mass production and the relations between capital, unions and the state referring to Fordist mass consumption (Bowles, Gordon and Weisskopf, 1983; Pietrikowsky 1999 and Piore and Sabel, 1984). The weakening of the developmentalist state, hence statism, and its regulational role are undermined within an integration process with global capitalism (Castells 2005). The role of the state as the entrepreneur and the investor in industrial development has come to an end. Local socio-economic and socio-spatial restructuring are parts of this wider change including the difference that the locality makes in this process.

Responses to the crises of the 1970s are reflected on the 1980s' restructuring peculiar to capitalist development (Aglietta, 1976; Mandel, 1978 and Winterton, 2003). Winterton (2003) has characterized the 1980s by a period of deregulation informing the fall of the Keynesian state and its failure in managing crisis together with a crisis of investment. He further states that this crisis of investment is responsible for the stagnating productivity in manufacturing industry in the 1980s accompanying a dominancy of neoliberal policies. The restructuring process brought by economic globalization is on the agenda since the 1980s through the changing national economic systems, organizational structure of production process, changing capacities and capabilities as well as changing tools and intervention areas for development. The extent of response to this restructuring process has remarked the existence of localities/regions/nations in the network constructing the global capitalist economy.

Deindustrialization, with its relation to disinvestment and also deunionization has formed complementary developments within the national economic restructuring process. Deregulation is an evident part of this process in the neo-liberal climate.

The national systems have entered a restructuring process with new constraints on attracting investments from global actors. Transition from import substitution to export led development strategies has marked changing economic and development models especially starting with the 1980s under the influence of the neo-liberal wave. Deregulation, deindustrialization and privatization have dominated the agenda that changes regulational constraints on subsidy transfers, public spending and investment structures. Apart from distributional constraints, a decline discourse has started to be coded on old industrial regions with high production costs and organized labor, which leads to deindustrialization, disinvestment and deunionization processes.

The constraints for states or region states are defined by their ability to collaborate and compete in the interregional arena of the globe (Cooke, 1995). Cooke also emphasizes national economic restructuring with regard to imposed or directed policy constraints in relation with global economic restructuring. He comments on the change in social responsibility in terms of state support in declining industries or improving redistribution of income by emphasizing its relation to the global constraints put on states.

Deindustrialization is complementary to processes of deunionization and disinvestment at the meso-level related to impacts of global change in organization of production, the preferences of flowing capital in form of foreign direct investment and multi-national investment on national economic systems and policies. This explanation indicates the impact of globalization on national economies and further provides insight into the relationship between restructuring national economies and industrial production. This relation reveals changes in the investment and subsidy structures concerning especially the public sector in industrial production. Following the dominancy of neoliberal policies in national economies, and hence deregulation, such effects like disinvestment and deunionization are evident within national industries. The downsizing, privatization, contraction in labor force or weakening of the trade unions all provide insight on such repercussions of global economic restructuring on national industries/economies and industrial production in general.

Disinvestment is pointed out as one of the dynamics behind the deindustrialization process in relation with financial circumstances and national decline in competitiveness according to Townsend (1983). Likewise, Anderson, Duncan and Hudson (1983) relate decline in both investment and profit rates with declining employment and production in manufacturing.

Deregulation in the finance system and trade has led the free flow of capital, which changes investment structures of national systems. The transnational institutions like the WB and IMF are introduced to manage free flow of capital by changing and orienting weakened interventionist/developmental states to adapt to this process in terms of fiscal, monetary and distributional means in national systems. The concept of government is redefined as governance including actors in global system. Transnational capital investments and foreign direct investments have chosen geographies of low cost labor, catalyzing fragmentation in organized labor and the deunionization process in localities. Peripherization of production has defined the flow of capital to low cost labor geographies, as experienced in East Asian countries after the 1970s. Helmut (1991) states that proliferation of overproduction in underdeveloped countries, accompanied by a deregulation process lies behind peripherization of production while catalyzing industrial decline in developed ones.

It is commented that it is the multinational investments and their locational decisions that have weakened the control of the nation-states on national economies (Cooke, 1995). Global localization is used to define the activities of multinational investments in localities though investing mostly in research and design both at the micro and macro regional levels (Cooke, 1995).

State-owned enterprises might be pointed out as the components in industrialization that are affected most severely. Liberalization, by means of availability of cheap imported inputs, outsourcing, and possible technology transfers by partnerships with transnational firms, have disintegrated domestic industrial regions to sustain export capacity beside upcoming new regulations on product content and quality in the global market. Participating in the global commodity chain has become a constraint for firms to be included in the global market network, especially in developing countries.

Deunionization remains to be an important change as part of the social restructuring process. The deunionization process is emphasized due to its complementary consequences of fragmentation, decrease in bargaining and mobilization power and exclusion of the unions from regulations related to employment (Smith, 2001)<sup>6</sup>. Smith adds that the most prominent events beneath these consequences have comprised free capital flows and changing employment relations, such as sub-contracting, as well as restructuring in legislation on employment. One other consequence is stated to be the decreasing in union membership accompanied by a loss of identity. Likewise, Wallerstein and Western (2001) emphasize degradation of union organization and strength in relation with declining centralized wage setting practices especially after 1980 in advanced industrial societies.

“Large but aging dinosaurs struggling to adapt as the climate changes” are the words used by Wallerstein and Western (2000, p.355) to describe the current situation of the unions. While commenting on the breaking apart of centralized systems of wage-setting and labor experiencing high unemployment in Europe, they point at labor market inflexibilities contra capital flight and global competition.

Deindustrialization is discussed with reference to multi-dimensional and multi-perspective criteria and said to have impacts at different levels that concern globalization of capital emphasizing free flow of capital and changing investment structures through accelerated foreign direct investment and multi national investment in addition to the global change in organization of production and new technologies. Accordingly, the impact of globalization on national economic systems and policies via changing national investment and subsidy policies together with deregulation process are discussed. The impacts of national economic restructuring on unionized industrial workers, hence deunionization and disinvestment at the regional and local levels are emphasized in relation with

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<sup>6</sup> Smith (2001) specifically carries on his research for the road haulage industry, in the UK. For a review of the book the reader could look at Gall, G. (2001) *Capital and Class* (79), p. 186-188.

deindustrialization. Furthermore, regional impacts concerning disintegration in old industrial clusters in terms of outsourcing or use of imported raw material and changing property schemes via privatization are pointed out. These evaluations have considered macro and meso levels of change and restructuring. On micro scale, impacts on locality via local population/community, local economy and local socio-spatial characteristics that have an impact on the whole urban set-up will be investigated.

## **2.2. Socio economic and socio spatial restructuring at the regional and local levels in relation to deindustrialization and industrial decline**

Socio economic and socio spatial restructuring at the local and regional levels concern local specific characteristics that act on experiencing change, on response capacity to change and restructuring on wider scales. Here, characteristics of urban set-up, local economy and local population, especially local labor market, remain the major references. To emphasize, the impacts of change and restructuring on the local labor market, on major economic sectors, on firms and on spatial pattern reveal the change in locality specified in terms of the way change is experienced, the major impacts and outcomes of change and the response problem to change. Different experiences of several cases of deindustrialization and industrial decline serve as a common ground to reveal indicators of change defined by deindustrialization and industrial decline through impacts, outcomes, phases of transformation and response capacity.

The mutual relationship between socio-economic change and spatial change gives insights to industrial and spatial restructuring processes. The impacts of deindustrialization have mainly concentrated on local economy, local population in particular to local labor market and local socio-spatiality.



### **2.2.1. Indicators of deindustrialization and decline: In between impacts and outcomes**

Freeing capital from space and time has affected industrial regions and their social structures leading to the deindustrialization process. Rising unemployment and decreasing real wage on the labor side and closures, privatization experiences on the firm side in an era of increased international competition are the prominent outcomes of the deindustrialization process (Anderson, Duncan and Hudson, 1983; Harvey, 1999 and Winterton, 2003). Soon, a new division of labor with capabilities to understand, direct and manage new rationality in a complex network of knowledge, innovation and new technologies with high mobility around the globe is introduced with high wages and high living standards, and a privileged group low in numbers (Harvey, 1999; Soja, 2001). On the other hand, exclusion of blue-collar labor has appeared with the deindustrialization process directing them to generally low cost and non-security service sector jobs while laying a foundation for the emergence of non-capable underclass (Massey, 1984; Soja 2001 and Turner, 2000).

The feminization of labor, including female labor in temporary low-cost service sector, has accompanied the deindustrialization process. In addition, the globalization process has further enabled the re-emergence of old type informal work organizations within family production, paternalistic work organization toward informationalization (Soja 2001; Harvey 1999 and Turner, 2000).

Urban economic decline and urban depopulation are the main indicators to assess local change in terms of deindustrialization. Changes in employment structure and contraction in labor force due to job losses in the manufacturing sector are the primary impacts of deindustrialization on localities. Thus, the main indicators of deindustrialization emerge as unemployment in relation to job losses in manufacturing employment and consequently, a decline in purchasing power or real incomes (Anderson Duncan and Hudson, 1983; Jones and Wild, 1991). In addition, stagnation or decline in absolute manufacturing output and dislocation of

manufacturing are stated as evident components in deindustrialization (Townsend, 1983). Deindustrialization is denoted to also point to a decline in percentages of active workforce and decline in the total economic output of a city in general (Helmut, 1991).

The deindustrialization process has indicated decline in terms of urban set-up via urban economic decline and urban depopulation. Closures, massive lay-offs of labor, and early retirement policies remain characteristic to urban economic decline while decreasing population growth rates and increasing out migration rates have indicated urban depopulation. Consequently, Butzin (1991) remarks that weak endogenous potential is complementary to urban depopulation and urban economic decline due to its relation with loss of human capital and hence poor potential for creativity. He further comments that population losses are indicated to exceed the regional average. Likewise, Jones and Wild (1991) mention problems on social and economic capital, old infrastructure, environment, and image associated with deindustrialization in old industrial regions. Vulnerable local economy has remained as a consequence of the mentioned outcomes.

Apart from economic and social consequences of deindustrialization, environmental constraints and spatial change are characteristic. Abandoned industrial buildings, contaminated and derelict physical environment, smokestack landscapes describe the imagery of decline within the context of deindustrialization (Townsend, 1983). Environmental deterioration is considered to be an ongoing problem associated with deindustrialization (Cooke, 1995). Other than environmental constraints, it is stressed that declining traditional industries signify a major dynamic behind spatial inequalities (Jones and Wild, 1991).

Jones and Wild (1991, p. 22) define the typical image of 'rust-belt' old industrial regions as:

a composite image of ugly, smoke-blackened factories, out-dated infrastructure, mean and monotonous housing of substandard quality, a very limited range of leisure and cultural facilities, and a physical environment polluted and scarred by the industrialization of the past.

This physical image is declared to be complemented by a social structure with characteristics of homogeneity in terms of working practices within the domination of large industrial firms and strong trade unions (Jones and Wild, 1991, p.22-23). Apart from economic, social, spatial and environmental consequences of decline and deindustrialization, there are psychological consequences. Integrated in its specific social context, an economic activity and the impacts on the local community are related to wider social consequences beyond loss of income and job. Loss of hope for the future, loss of the main assets to develop one's social identity (in terms of membership of an organized community, etc.), loss of value on one's capability are some of the impacts of such a process of decline. Nel, Hill, Aitchison, and Buthelezi, (2003) remarks the high levels of disempowerment in communities through discrimination and negated opportunities. Likewise, diminishing living standards for the working class are complementary (Anderson, Duncan and Hudson, 1983). In addition, deindustrialization, in the long run, is affirmed to result in diverse forms of exclusion as outcomes of long term structural poverty and unemployment (Cooke, 1995, Massey, 1984, Nel et al., 2003). The existence of multi-layer evaluation on impacts of deindustrialization and industrial decline point at the various other relations as catalyzers of the intensity of such phenomena.

Embedded in socio-economic phenomena, the spatial transformation hides in itself the landscapes of production that once served as the motors of economic growth with its images on the production culture and the institutional context. The dominance of a situation of becoming "out of context" has accompanied some of the old industrial regions. Thus, deindustrialization process on common grounds to industrial decline should be evaluated in a wider perspective with reference to the effect of specific socio-spatial phenomena on the locality rather than reductively explaining it in terms of macro economic parameters. It is the endogenous potentialities that are given importance and that bring an inner eye to the locality.

The local restructuring process is embedded in the experience of consequences of deindustrialization and industrial decline. Massey (1984) draws attention to the relationship between social and spatial change by focusing on change in production and hence, spatial reorganization of production and division of labor. Economic, industrial and spatial restructuring processes are components of and responses to

the change brought about by especially changing demands of the production process and changing ownership patterns. All the socio-economic change has affected spatial restructuring while the geography, space has also affected socio-economic change via reflecting locally characteristic and specific response of the locality to such change.

Spatial restructuring can be considered as responses to complex and multi-dimensional socio-economic changes. Spatial structures of production are observed as outcomes of integrated capital, technical and organizational characteristics of an industry referred by Massey (1984). He comments that a particular form of spatial patterning of society indicates a particular form of spatial division of labor. Thus, change in industrial production in terms of its organization considering technology, working practices, skills, investment and vice versa is a subject to changing spatial pattern.

The scale, strength and timing of deindustrialization and their effects on unemployment, national wealth and regional impacts are discussed (Jones and Wild, 1991). Deindustrialization characterizes different circumstances of economic and social transformations in the 1970s, the 1980s and the 1990s. Industrial change in the 1950s is stressed by Massey (1984) for the UK case as the decline in some basic industrial sectors such as shipbuilding and coal mining as a major political problem. 1970 is characterized by large numbers of job losses while the 1980s is defined as a decade in which deindustrialization occurred more rapidly and in an environment of greater cyclical instability and weaker national growth (Howland, 1988; Brady and Wallace 2001).

Townsend (1983, p. 15) describes the 1980s' reflections of deindustrialization by these words: "mass unemployment, loss of manufacturing jobs, collapsing local economies" beside to plant closures, clearance and landscaping problems. Further, Jones and Wild (1991, p.390) have attracted attention to some of the severely affected regions by the crisis of deindustrialization stating that they embrace "combinations of structural, organizational and technological weaknesses". They discuss the relationship between structural weaknesses and dependence on old

industries such as textile manufacturing districts and the rustbelt regions peculiar to resource extraction and iron and steel manufacturing industries.

Deindustrialization brings the negative effects and the repercussions of these effects can be set as chain reactions on other sectors and on the macro-economy (Nel et al., 2003). One other dimension of deindustrialization can be set as the common ground it shares with urban decline process.

Deindustrialization has remarked urban demographic change in terms of negative net migration rates and declining birth rates as similar indicators of urban decline referred by Clark (1989). Furthermore, he acknowledges that employment losses, low capacity for regeneration, urban and national economic decline are the common indicators to discuss deindustrialization and urban decline.

The relationship between national and local concern the difference that local brings in both experiencing the impacts and responding to changes brought by national policy changes (Massey, 1984). According to their local characteristics and socio-spatial characteristics, localities undergo changes in a different way. Therefore, their responses can also be assumed to be different. The different preexisting structures create differences in experiencing of processes of change and thus reveal different impacts and responses to change.

Deindustrialization and local restructuring processes are interwoven. Restructuring, as a response to change, concerns two basic discussions. The first discussion is based on response capacity in restructuring the process considering basic characteristics of old industrial regions and relationships within intra structural actors (institutions, firms, etc.) which are discussed with reference to social capital, transformative capacity leaning on lock-in and path dependency in the development literature.

The second discussion approaches the restructuring process in terms of action oriented strategies and related policies. These provide concrete experiences related to tools, actors and further impact assessment on old industrial regions after restructuring process. As a result, it is possible to assess whether the restructuring

process acts on severely affected old forms of industrial production that are integrated with socio-spatial structure and with concerned local characteristics in real terms, or whether the out of context condition of the former socio-spatial structure is excluded from new paths for development within the transformation process. Deepening problems in old industrial regions due to impacts of local restructuring process and judgement on failures and success in the restructuring process form a basis for evaluation in this sense. Assuming any case to be context-dependent and to have contingent characteristics, we nevertheless investigate how a local economy restructures in relation to wider circumstances of restructuring on global and national scales and how a locality positions itself with local potential in the restructuring process. The two discussions have mutual relationships.

### **2.3. Discussing response problem to decline**

After evaluating deindustrialization, industrial decline and the restructuring process at the global and national levels, restructuring processes and their repercussions on old industrial regions, local response and local restructuring becomes vital. What would be the locality's position in a process of transformation when new trajectories for development, new paths, capital forms, actors and capabilities dominate the agenda? How would 'the affected' position itself in transition? Could we specify relationships that would be important in restructuring process? Could we discuss local characteristics that act as a potential for existence in change or as burdens in local development? The answers to such questions help in relating endogenous potential in cognizing change and form a response capacity to change even if the change is directed or imposed in terms of restructuring policies on a wider scale.

#### **2.3.1. Response capacity**

The failure and success stories in local and regional restructuring provide clues in evaluations about response capacity. Hassink and Shin (2005) review the main concepts in research on success stories in industrial restructuring, such as the rise

of new high-tech regions, industrial districts, and regional production clusters in North America and Western Europe (Storper, 1997; Keeble and Wilkinson, 1999); the concepts of flexible specialization (Piore and Sabel, 1984), industrial districts (Pyke and Sengenberger, 1984), and the innovative milieus of the 1980s (Camagni, 1991). It is pointed that these concepts are expressed to question the probable reasons behind the concentration of internationally successful industries in a few regions (Porter, 1990; Krugman, 1991; Enright, 1995; Hassink and Shin, 2005).

In contrast to the Neoclassical approach, success stories on rising regions and their theoretical discussions are considered evolutionarily within contingent perspectives. These contingent perspectives are stated to include place-specific elements and processes inscribed in locality to explain broader spatial patterns of technical evolution; the origin and development of innovation, the significance of industrial organization and inter-firm linkages for regional competitiveness and regional innovation processes by Hassink and Shin (2005). Likewise, they further remark the discussion on positive aspects of clustering in terms of the growth of new industrial agglomerations in social and cultural context in addition to economic reasons (Hassink and Shin, 2005).

The decline of old industrial regions and their restructuring problems are subjects for research in school of evolutionary technical change in economic geography<sup>7</sup>, in development studies<sup>8</sup> and in embeddedness literature<sup>9</sup> (Hassink, and Shin, 2005; Hassink, 2007). The embeddedness literature is stated to take into consideration

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<sup>7</sup> Hassink and Shin (2005) have presented the representatives of this school as Enright (1995), Glasmeier (1994), Grabher (1995), Hassink (1997, 2001), Porter (1990), Steiner (1985, 1998)

<sup>8</sup> These are mainly development studies of Enright (1995)

<sup>9</sup> For further information, please look at Oinas (1997)

the local history and place-specific assets in evaluating the problem of decline and restructuring (Hassink and Shin, 2005).

Success and failure stories in restructuring are directly related to whether a region develops the capacity of generating competitiveness and adaptability while this capacity is directly seen as related to being geographically agglomerated (Hassink and Shin, 2005). The direct relation between being successful in developing competitiveness and adaptability and being geographically agglomerated is rejected by research on failure stories (Hassink and Shin, 2005). Accordingly, it is stressed that as a component; spatial clustering does not necessarily create mutual interdependencies in the context of research on old industrial regions (Saxenian, 1994; Hassink and Shin, 2005)

Failure mechanisms for regional production clusters are explained with reference to competition among other clusters<sup>10</sup>; decreasing competitiveness in domestic regional production cluster<sup>11</sup> and inflexible specialization within strong binds as disadvantageous for developing capacity for adaptation to change<sup>12</sup> (Grabher, 1993; Hassink, 1995). Declining old industrial regions can be evaluated from the three mentioned perspectives. Declining old industrial regions, some of which can be geographical production clusters, are stated to comprise characteristics of insularity mostly inferior to resource-based mono structural areas and also areas specialized in consumer goods (e.g. textiles) (Steiner, 1985; Hamm and Wienert 1989; Haußermann, 1992; Hudson, 1994; Schamp, 2000; Hassink and Shin, 2005). Localities dominated by steel, coal mining, and shipbuilding have characterized

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<sup>10</sup> The reader can review a further detailed study on failure mechanisms in relation with competition among other clusters in Enright (1995), Hayter and Patchell (1993)

<sup>11</sup> For reviewing failure mechanisms on decreasing competitiveness in domestic regional production cluster, please look at Enright (1995) and Porter (1990)

<sup>12</sup> For more information on strong binds and low adaptability capacity, please look at Grabher (1993)



resource-based mono structural areas as old industrial regions (Hassink and Shin, 2005).

It is interpreted that declining old industrial regions, independent of whether they exist in a geographical cluster or not, are stated to indicate a loss of regional or national competitiveness which stresses organizational structure alongside the technological changes or changes at the firm level (Porter, 1990; Grabher, 1993; Glasmeier, 1994; Enright, 1995; Steiner, 1998; Hassink, 2005, Hassink and Shin, 2005; Hassink, 2007).

The two concepts of lock-in and path-dependency are given importance while evaluating response capacity to change. In a more detailed way, these two concepts are useful in understanding characteristics defining the current situation of old industrial regions, and in finding out the relations and assets in their experience of change and in their response capacity to change. The path-dependency concept and lock-in concept are evaluated as components of an evolutionary approach to research subjects on the relational base between changing economic landscapes and regional development (Martin and Sunley 2006). Further, Martin and Sunley (2006, p. 395) add that "Path-dependence and lock-in concepts are place dependent processes, as such need geographical explanation".

Pointing out that there exists no clear definition on regional lock-in concept, Martin and Sunley (2006, p.395) define path dependence as being "locked into development paths that lose dynamism" and also as the protection against danger and against "reinvention through successive new paths or phases of development". They admit that regional path creation and path-dependence are important assets for economic landscapes in this context.

Evaluation of decline in context of industrial evolution is denoted to be considered in two ways (Boschma, 2003; Grunsvan and Smakman 2005). One is explained to take into consideration decline as problems of adjustment in the context of path dependency and lock-ins concerning interaction patterns between economics, political and institutional actors because they affect ability to react. The second conceptualization of decline approaches decline as a natural inevitable process

based on decline of the mono structure through cumulative decline in output and further damage of the local economy through negative feedback (Boschma, 2003; Grunsvan and Smakman 2005).

The lock-in concept is used to describe decline in old industrial areas under domination of a traditional heavy industry by referring to (David, 1985; Arthur, 1989; Grabher, 1993; Hassink, 2005; Hassink, 2007). Lock-ins are explicated to act as barriers to restructuring while hindering endogenous development (Hassink, 2007) and also inner potential for creativity (Hassink and Shin, 2005).

Of the three types of lock-ins, functional lock-in is described as hierarchical inter-firm relationships; cognitive lock-in is explained as a mutually reinforcing common worldview of actors (Hassink, 2005; Hassink, 2007) and political lock-in is described as declining competitiveness of a production cluster (Grabher, 1993; Morgan and Nauwelaers, 1999; Hassink and Shin, 2005). It is stated that the existence of cognitive and political lock-ins may result in a vicious cycle a self sustaining coalition (Hudson, 1989; Grabher, 1993; Hudson 1994; Hassink and Shin, 2005) and an inflexible specialization entrap (Grabher, 1993; Hassink 2005).

Hassink (2005, p. 573) defines political lock-ins as:

thick institutional tissues aimed at preserving existing traditional industrial structures and therefore unnecessarily slowing down industrial restructuring and indirectly hampering the development of indigenous potential and creativity.

Responses to failure mechanisms are mentioned to arise in three forms. Hassink (2007) affirms that renewal, as the first form, expresses a tendency for diversification and innovation oriented development interrelating with weak lock-in and quiet restructuring. He further adds that weak lock-in and quiet restructuring are denoted to describe relatively low resistance to change (Hassink, 2007). From another perspective, achieving internal and external changes that lead to the emergence of positive industrial evolution is seen as a chance for weak lock-in and quiet restructuring (Boschma, 2003, Grunsvan and Smakman, 2005; Hassink, 2005). The second form of response is stagnation or gradual decline (Chapman, McKinnon, Cumbers, 2004; Hassink, 2007). The third form of overcoming failure mechanisms is presented as adjustment by Hassink (2007). He explains that

adjustment refers to an attempt to preserve the existing development path while only creating significant changes to sustain the prosperity of the cluster. Moreover, he emphasizes that this form of response is often related to noisy restructuring to describe a relatively high resistance to change.

Overcoming political lock-ins is also paralleled to developing capacity for re-emergence and cooperation through ability to unlearn (Hassink 2007). Maskell and Malmberg (1999) introduce a dichotomy on industrial agglomerations and their ability to unlearn. Accordingly, it is stated that good and bad industrial agglomerations with ability to unlearn exist through the ability to remove political lock-ins and former institutions (Hassink and Shin, 2005). In this sense, bad industrial agglomerations lack the ability to unlearn (Maskell and Malmberg, 1999; Hassink 2007). Likewise, this condition has common ground to political lock-ins revealing strong lobbying powers and persistence of former institutions for further development (Hassink, 2007). In addition, Essletzbicher and Winther (1999) reclassify the condition of overcoming political lock-ins in terms of positive and negative lock-ins. Positive lock-ins are explained with reference to the existence of a capacity to create productive political networks whereas negative lock-ins point to a lack of this capacity (Hassink, 2007).

These discussions provide insight to re-evaluate decline in old industrial regions in terms of new paths in development, main strategies of renewal, adjustment, reinforcement of decline and provide information on creation of potentiality in transformation through characteristics of relationships among actors in positioning to change.

This chapter has introduced a base for **why and at what perspectives** in dealing with and overcoming decline in relation to restructuring. The next chapter would briefly discuss intervention in terms of tools, actors, main strategies beside to assessment of intervention within concrete experiences in old industrial regions. Originating from evaluation on action in experiences, the following chapter would briefly discuss **how** question on response problem to change. In other words, the reader would be informed on intervention strategies, actors and tools of intervention

and also the expected outcome of intervention in responding to decline and deindustrialization in the next chapter.

### **2.3.2. Intervention: An evaluation of action**

Industrial change and socio-spatial change processes are mutually interacting dynamics in the restructuring process. Restructuring experiences inform intervention strategies and policies in diverse ways which are both affected by mechanisms on a wider scale (as discussed in previous sections) and affect local and regional structures. Restructuring is evaluated multi-dimensionally. Change in old forms of industrial production, hence previous paths of development lay on common ground to the deindustrialization and restructuring processes. Briefly, restructuring can be observable through such bases:

- restructuring in regional economy comprising restructuring of urban economic base measured via changing employment structure and occupational schemes
- restructuring within the previous economic sector itself
- restructuring within the firm: changing policies on labor, property, organization, relationship with other firms, form of capital
- institutional restructuring: trade union; availability of social capital
- restructuring within spatial pattern, urban restructuring

There exist responsive attempts to the impacts of deindustrialization that create the characteristics of a restructuring process in a locality. However, such impacts or even the new ones may have arisen during and after an episode of restructuring in a locality. Thus, it is not possible to draw the definite borders between the periods, yet they are realized to mutually affect each other in the making of local experience on change.

Restructuring appeared on the agenda in the 1980s and intensified its conceptualization in the 1990s in terms of changing global and state policies and constraints on growth and development. Local response to such a change has comprised various intervention bodies, tools and policies together with joining the

restructuring process in terms of inner potentialities and context-dependent local characteristics.

Intervention facing out coming impacts of deindustrialization concern what main strategies have put on the agenda. Accordingly, three forms of reorganization are set after deindustrialization:

- **Intensification** that comprises improvements in productivity across a wide range of plants without heavy new investment.
- **Investment and technical change** that occurs where employment decline is accompanied by heavy net capital investment providing that the new investment leads to replacement and closure but mobile employment remains there.
- **Rationalization** involving complete or partial plant closures due to lack of profitability and hence leading job losses and unemployment (Massey and Meagan, 1978; Townsend, 1983).

Furthermore, Martin (1989) suggests six strategies for intervention in regional and local restructuring (as cited in Spooner, 1991, p.123):

- reindustrialization (most often through the development of high-tech industry);
- modernization of the existing industry
- tertiarization
- reskilling and 'flexibilization' of the labor force;
- infrastructure renewal
- the creation of regionally- and locally- based financial markets

Emphasizing the relationship between economic restructuring and urban restructuring, Clark (1989) states which areas intervention strategies as main responses to urban decline are up against to. In this sense, he highlights the dimensions of:

- spatial consequences of changes in size and character of the manufacturing sector
- the consequences of shift of employment
- counterurbanization as a demographic response to the locational dictates of capital

- secondary consequences of sectoral policies

Deindustrialization, industrial and economic restructuring shed light on urban decline and urban restructuring. Clark (1989) describes this relationship by drawing attention to the ceasing of agglomerative forces of the former industry. He further states three main perspectives in intervention toward urban decline. The first is **reviving the cities** through revival policies in order to reverse decline. The second is **recapturing the cities** on aims of minimizing the harmful effects of decline and re-attracting lost population and industry by expanding the boundaries of cities. While explaining this intervention strategy, he emphasizes the new locational choices of industry outside the city center, especially rural areas for the UK case. The third strategy suggested is **reinforcing decline** which proposes to encourage decline and direct growth to somewhere other than the old industrial and spatial structure.

Intervention strategies are subject to responding to regional change. Deindustrialization, reindustrialization and tertiarization are stated to be three mutually interacting processes indicating regional economic change (Jones and Wild, 1991). Keeble (1991, p.41) briefly defines these interacting processes through an evaluation of European regional economic restructuring in the 1980s as presented in the table below :

Table 1. Key processes of European regional economic restructuring in the 1980s

Key processes of European regional economic restructuring in the 1980s	
<b>De-industrialization</b>	Substantial manufacturing decline, especially of employment, focused on nineteenth century 'smokestack' industries (steel, shipbuilding, heavy engineering, textiles) and old industrial regions.
<b>Reindustrialization</b>	Small firm/new firm resurgence, often in new, less-industrialized regions. Rapid growth of 'high technology' industry, especially based on microelectronics. Widespread adoption of new computer-based technologies by existing industries. Surge of new, inward multinational investment (Japanese, American) to serve European Community markets.
<b>Tertiarisation</b>	(including): growth of tourism, recreation and leisure industries, as a direct result of rising real incomes: impact on 'sun belt' and peripheral regions. Growth of producer services (finance, banking, business and information services), especially in Europe's major capital cities.

Reference: Keeble, D. (1991). De-industrialization, new industrialization processes and regional restructuring in the European Community. In T. Wild and P. Jones (Eds.), *De-Industrialization and new industrialization in Britain and Germany*. A project of the Anglo-German Foundation for the Study of Industrial Society. Worcester: Billing and Sons Ltd. (indirect)

(Direct): Keeble, D. (1989). New firms and regional economic development: the implications for the 1980s'. *Cambridge Regional Review*, 1.

Jones and Wild (1991, p.18) characterizes new industrialization, mostly observed in advanced industrial economies, by "the rapidly emerging field of information technology, which includes components from manufacturing and services". Like Keeble (1991), they draw attention to three interrelated processes of economic development, each with their characteristic *location logic* and *spatial division*:

- "... the creation of new industrial spaces through the medium of new types of manufacturing industries"
- "... the application of new industrial investment to foster the reindustrialization of old industrial regions"

- “..the immense pressures for change, generated by the increased tertiarisation of the economies of selected major cities” (Jones and Wild, 1991, p.18).

The new industrial spaces, unlike the old ones, have demands on knowledge and innovation oriented resources and capital rather than demands on raw materials and transportation. Jones and Wild (1991, p.19) formulate these demands as “technological innovation, scientific and professional resources, and accessibility to increasingly complex and highly differentiated markets”. They further define the reflection of shifting industrialization by locational choices of the new industrial spaces. Consequently, the establishment of new industrial spaces outside the old industrial regions is stressed while old industrial regions undergo underinvestment or disinvestment. Likewise, Butzin (1991) states that new industries tend to choose to establish their own spatial pattern of industry in new regional locations rather than reuse the already established industrial locations.

The shift in locational choices and demands marks a transition from prominences on raw materials and nonflexible labor skills to prominences on externalities of being in the network of global commodity and market chains in terms of competitiveness (Jones and Wild, 1991). Alongside the disintegration in production process in geographical means, the choices of the new industries for location have comprised different firm size and externalities in terms of reaching information, research and development facilities, advanced service activities and advanced technology (Butzin 1991, Jones and Wild, 1991). This points to cooperation of universities and new industry as observed in technopoles and science parks.

Other characteristics concerning new industrial spaces are based on new working practices. Jones and Wild (1991, p.20) present the dynamics behind the new employment induced by industrial change, as the product life cycle, product and price innovation.

Reindustrialization of old industries is confirmed to be achieved by using processes and products of the new technology as inputs into production process of old declining industries, such as iron and steel industry (Jones and Wild, 1991, p.19).



The restructuring process has come to involve two bases of intervention revealing constraints on old industrial regions:

- “..inadequate rate of generation of local businesses, especially in the high tech and information spheres”
- “.. imposition of “checks upon the types of industrial enterprises, which these regions are able to attract” (Jones and Wild, 1991, p.23).

Some characteristics of old industrial regions are striking when discussed in the framework of the new period and from the perspectives of industrial change, deindustrialization and further industrial restructuring. These characteristics also become references for formation and assessment of intervention strategies posited to manage industrial restructuring or in general, economic restructuring in old industrial localities. Jones and Wild (1991, p.23) discuss some of these characteristics in the pattern of industrial activity in old industrial regions by denoting “the shrinking residue of earlier types and forms of industrial production, ranging from textiles to iron and steel, coal mining, shipbuilding and heavy engineering industries” and by adding their “declining, late-mature stage of the product cycle and domination of large Fordist plants”. Furthermore, they draw attention to the tendency to continue old institutional structures.

The reindustrialization creates a contradictory situation for the employment structure and labor working in old industries. Feminization of labor, demand for unskilled and semi skilled female labor, especially for part-time, low paid service jobs remain indicative in deindustrializing old industrial regions in this context (Jones and Wild, 1991, Turner 2000). Keeping the entity of old industrial pattern as a tool to attract new industry seems to perpetuate the old industrial regions and their characteristics defining decline and deindustrialization processes but add no further opening for change or innovation within the old industrial process. In fact, this manner deepens their “out of context” situation in existence and further development while deconstructing the social structure they are embedded in.

Following the discussion on employment structure change, Jones and Wild (1991, p.24) shed light on the tertiarisation process by defining it as “the shift in the

employment structure from industry to services-from secondary to the tertiary (including quaternary) sector- which characterizes the post-industrial period". Jones and Wild (1991, p.25) also point out and relate the inner-city decline by tertiarisation process revealing decentralization of economic activity and population. They state the essentiality of evaluating tertiarisation process within spatial change in metropolitan areas. The mutual relationship between industrial and urban restructuring is emphasized once more. What they define as decentralization of economic activity and population is what is set as the main criteria of observing impacts on urban set-up in the context of decline in the thesis as urban economic decline and depopulation.

They further emphasize the severe socio-economic impacts of tertiarisation process on local populations in terms of decline in jobs parallel to inner urban deindustrialization in the British experience. Three key factors are evident in recovery and regeneration of British inner cities:

- "the cardinal role of property-led development schemes";
- "the pivotal role of service based activities in the employment"
- "the dominance of private capital and entrepreneurship" (Jones and Wild, 1991, p.25).

For further evaluation of the tertiarisation process and property development schemes on old economic and social structure, attention is drawn to the conflicting situation they lead to through strengthening economic, social and spatial inequalities (Jones and Wild, 1991, p.26).

As mentioned earlier, the main indicators of industrial decline and deindustrialization which are concentrated around economic, social, spatial and environmental problems, are evaluated in comparison with intervention strategies. In this sense, Jones and Wild (1991, p.31) note policy initiatives experienced in the West Germany and British cases while revitalizing old industrial regions through strategies of attracting mobile industry to the region and enhancing the growth of the current industry simultaneously. They also mention diverse regional policies on economic regeneration of old industrial regions for British and West Germany Cases. In this sense, the British case has formulated regional policy through

enterprise-led initiatives within a deregulative structural change and immense investments in constructions of recreation, leisure, consumption spaces and offices directed to tertiarisation while the West Germany Case has founded regional policy mainly on environmental problems through retrieving and rehabilitating strategies for derelict land in the Ruhr.

Regional imbalances are stressed relying on the diverse spatial impacts and demands of deindustrialization and new industrialization. In this sense, Jones and Wild (1991) note that the new location demands of the new industrial spaces reinforce the depth of deindustrialization in old industrial regions. Corresponding to the spatial impacts and demands that inform the restructuring process, they summarize that policy instruments in economic, industrial, social and environmental context form the scope for intervention in regional imbalances referring to old industrial regions. Further, they draw attention to maintaining and realizing social objectives within a community driven approach alongside formulating policies of intervention in old industrial regions. Jones and Wild (1991, p.397) state some of these social objectives as “the quality of employment, the quality of life, and the security of economic recovery”.

Regional economic recovery is expected to happen through utilizing diversifying regional economic development policies peculiar to industrial restructuring (Cooke, 1995). Cooke (1995) expresses the common judgment on the revival of heavy industry regions. He underlines the general tendency toward restructuring in heavy industrial regions through a transition to engineering industry which is stated to be higher skilled and value added rather than shifting to completely new sectors such as high technology sectors as an expert proposition on industrial change in the 1980s.

Strategy of regional specialization through external endorsement and also internal enhancement by regional institutions are evident in the restructuring experiences of some German, Italian and Spanish regions in the 1980s (Cooke, 1995, Cooke et al. 1993, Körfer and Latniak, 1994). Mainly, objectives of preparing a suitable transition process for technological transfers and proliferating research and design in medium-size firms are stated to direct these strategies. Cooke (1995) uncovers one

dynamic behind this kind of regional policies on specialization as foreign direct investment. He also discusses the policy responses considering the 1990s as based on increased regional competitiveness through integration of regional and global networks of innovation and production. In this respect, Cooke stresses the active roles of regional production clusters and their relations with a global network of production and innovation for regional competitiveness.

Having fulfilled their restructuring process so as to intervene in the impacts of deindustrialization and generate new paths for development, most Anglo-American cases have diverse policy responses and revitalization attempts. These examples show an evident shift from heavy industries to culture industries in relation with universities, arts and culture<sup>13</sup>; urban renewal practices for old heavy industry towns through image renewal<sup>14</sup>; development of regional technology plans by development agencies, shift from heavy industries to cultural heritage tourism as part of urban regeneration and image renewal (Cooke, 1995).

**Diversification** is stated as a major strategy of intervention in industrial restructuring. Cooke (1995) stresses that diversification is an essential strategy of intervention for those regions particularly dependent on too narrow a base as in the cases of coal mining, steelmaking, shipbuilding or textiles. Likewise, he adds that either vertical or lateral diversification or even both of them are stated as crucial for firms in this condition (Cooke, 1995).

**Vertical diversification** is explained in terms of either diversifying into products peculiar to the same branch, or into processed products possibly in the same branch and not previously produced by that firm, whereas lateral diversification of a firm is explicated as completely diversifying into other branches away from the former industrial activities (Cooke, 1995). Cooke, in the same chapter, describes lateral diversification through transforming to industrial machinery producers,

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<sup>13</sup> Hamilton, in Ontario provincial government

<sup>14</sup> Wales, UK, former steel cities

automotive recycling, waste removal, packaging and plastics recycling or incineration which are stated to exemplify lateral diversification of coal mining and steel firms formerly in traditional industries in North Westphalia, Germany.

Restructuring through **reinforcement of decline** is one of the strategies of regional economic restructuring in old industrial regions. This strategy is characterized by no direct or real effort to reverse industrial decline as Cooke (1995) points out for South Wales Case in the UK. Stagnating government expenditure accompanied by idle regional spending that assists declining old industrial areas in the 1980s and the 1990s are explained as examples of some tools for reinforcement of decline strategy (Cooke, 1995). Furthermore, urban policy on private property development in addition to strengthening inward investment for new jobs are stated to be complementary strategies. The proliferation of indigenous and medium sized firms demanding female employment is one of the main strategies while letting the traditional industries of coal, steel, shipbuilding or textiles decline accompanied by a large group of redundant labor. Cooke has remarked this also as one of the cases of external diversification externally driven by government policies<sup>15</sup>.

In contrast, the internal diversification strategy comprises the inclusion of previous industrial workers in the restructuring process<sup>16</sup> (Cooke, 1995, p.18). Bosch (1995) has remarked the advantage brought by internal diversification strategy as the inclusion of the former labor in the declining industrial sectors and reemployment of the labor in the new industrial activities through training.

Revitalization problems as problems of intervention are related to the problem of the labor market, of the sub regional division of labor, of investment tendencies of firms, entrepreneurial culture, modernization strategies and diversification within companies (Butzin, 1991). Butzin, in the same chapter, emphasizes that each

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<sup>15</sup> The writer discusses the case for reinforcement of decline on the Thatcher government policies of the 1980s

<sup>16</sup> As such in the Ruhr case, in Germany

strategy of intervention concerning local restructuring has impacts on the locality related to the socio-spatial structure. He further emphasizes that location choices of the new industries, whether they exclude the old industrial regions or not, remains an important consideration in addition to the lack of endogenous potential enhanced through out migration and disinvestment. Moreover, he relates endogenous potential with the local authority and institutional restructuring and adds that creativity and collaboration in organization are seen as crucial in activating the endogenous potential in heavily industrialized regions.

Training initiatives, and governmental and private sector initiatives are stated as possible tools of diversification through reindustrialization and revitalization<sup>17</sup> (Deitrick and Beauregard, 1995). New development programs have also been suggested as tools of intervention aiming to assist private business. Regional institutions, such as non-profit organizations that support the development of advanced technology and modernization of manufacturing, may act as actors of intervention in declining industrial regions.

Generating and developing innovative ability of companies rather than promoting the maintenance of the industrial structures is commented as the main perspective in intervention for some cases that fulfilled their restructuring process<sup>18</sup> (Morris and Plake, 1995). Realization of such a strategy is founded on cooperation at the intra firm level and involvement of local institutions in the restructuring process and keeps a tendency toward technology development and diversification in terms of product and process innovation (Morris and Plake, 1995).

In context of sustainable regional restructuring, it is stressed that constituting a regional base with characteristics of flexibility and innovativeness are important with regard to global competitiveness and the realization of flexible specialization in industrial development (Piore and Sabel, 1985; Rehfeld, 1995). Consequently,

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<sup>17</sup> Pennsylvania

<sup>18</sup> North-Rhine-Westphalia

Rehfeld (1995) remarks the importance of the extent of supra regional integration of economic interlinkages within the region for regional development as a process involving internal and external factors.

Spatial restructuring provides insight to industrial restructuring that proliferates the new socio-economic and socio-spatial structure (Massey, 1984). In the urban restructuring stage, the new demands on housing and market have remained striking in relation with the new division of labor of higher incomes (Cooke, 1986; Spooner, 1991).

Lastly, household survival strategies can be considered a response and intervention on the consequences of deindustrialization. Decreasing household consumption demand and purchasing power due to contraction in the labor market motivate households to create their own survival strategies. Socio-economic transformation may lead to creation of buffer mechanisms of local population in response to change in their socio-economic lives. These buffer mechanisms can act on the pace of experiencing change or in other words social restructuring by slowing the process of change. These buffer mechanisms are embedded in place specific characteristics and local idiosyncracies. This illustrates the socio-economic dimension of industrial decline at the household level in deindustrializing old industrial regions and reveal the of impact of deindustrialization, especially on the most directly affected households such as in lain off blue collar labor households.

#### **2.4. Discussing specific characteristics of declining coal mining regions**

Coal mining towns embody characteristic socio-spatial structures reflecting industrial production peculiar to the nineteenth century. Coal mining used to be perceived as one of the main engines for national economic growth. The social structure of mining communities, excluding context-dependent and place-specific differences, comprises strong binds, an understanding of solidarity and social identity in relation with hard working conditions, labor class consciousness and trade union tradition. The spatial division of labor and industrial production characterize the socio-spatial pattern. Coal mining generally integrates with heavy

industry, particularly iron and steel manufacturing industry and energy production through coal burned thermal power stations. Thus, the spatial and employment structure is dominated by the main industry, such as coal mining industry and directly related complementary industries (Massey, 1984). Therefore, industrial change in the coal mining sector offers an opportunity to observe disintegration tendencies among geographical production clusters composed of mentioned complementary industries to coal mining industry.

The coal mining areas are characterized by specific structures involving economic and social relations which are in prominent spatial division of labor (Massey, 1984). Massey (1984) notes that self conception and identification with working practices have remained characteristic to coal mining areas associated with specific social relations brought by working practices. He states some of those relations as toughness of the work, masculinity, collectiveness reflecting on labour movement, labour power and solidarity<sup>19</sup>. It is also stressed that especially in coal mining towns where the preeminence of a single industry is evident, domination of male labor prevails (Hudson, 1982, Massey, 1984). Consequently, these localities remain short of both job opportunities for female labour and alternative jobs for male labour in addition to the deficient number of local small firms (Massey, 1984). Poor housing and lack of higher ordered services are mentioned as other common characteristics of some coal mining localities (Spooner, 1991).

Industrial change which brings socio-economic and socio-spatial change in coal mining localities have revealed impacts and responses related to their characteristics. Local restructuring in the economic, institutional and spatial dimensions interrelate with response capacity and intervention strategies which both affect and are affected by the former characteristics of old coal mining regions. A common ground to search for these impacts may show their experience of change and response capacity.

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<sup>19</sup> Massey (1984) discusses specific social and economic structures and their characteristics on South Wales Case, in the UK



As specific cases, coal-mining towns characterize social and economical insularity (Turner 2000). Generally, the economic base of coal mining regions is not much diversified. In case of a too narrow local economy in a coal mining region, monostructure has repercussions on formation of strong ties between actors and the level of vulnerability in change, thus in the restructuring process. To an extent, these characteristics reflect the burdens these localities face in formation of endogenous potential in giving response to change and creating strategies to cope with the crisis condition. Accordingly, this crisis condition may be either brought by structural changes, such as deregulation, disinvestment and deunionization processes, or by new technologies and new demands on environmental cost minimization on coal content, both at the state and the global scale.

Deindustrialization and industrial decline are stated to most severely affect old industrial regions dominated by coal mining, heavy industry, shipbuilding and textiles. Likewise, for the West Germany and Britain cases Jones and Wild, (1991, p. 16) point out that “regions with a heavy dependence on resource endowments of coal and ironstone, port-linked industries or textiles, all redolent of nineteenth century patterns of industrialization, dominate the locations of decline”.

As mentioned before, old coal mining regions carry characteristics of nineteenth century industrial production associated with specific socio-spatial characteristics. Accordingly, spatial division of labor, relationships between industrial production and the spatial pattern exhibit the specific spatial characteristics of these localities. This type of industry shapes socio-spatial structure with respect to urban macro form, transportation network (e.g. port link, railway) and urban land inferior to industrial production and the resource, coal. Coal mining industry as complementary to iron and steel industry embed in a relatively isolated socio-spatial structure. The citizens are miners and their families at the origin of urbanization and urban form. Therefore, changes in employment structure and also in the local economic base once more present chances to observe spatial change.

The decline impacts of deindustrialization in coal mining regions can be pointed out with reference to the intensity of these impacts resulting from the specific characteristics of these regions. The fact that these regions have narrow or single

base localities may result in deeper impacts on local population. Turner (2000) points out those significant changes in local economy, such as pit closures, create demoralizing effects on local workforce; decrease in consumer demand for locally traded goods and services, and an increase in petty crime rates.

Labor lay-offs through redundancy and retirement schemes may cause long-term unemployment in some cases, yet social and psychological problems such as increasing crime rates, suicides, alcoholism, and vice versa. The fact that the new industrial structure demands a new division of labor and new capabilities increases the vulnerability and disempowerment of labor households in terms of their reintegration to social and economic life. Moreover, as Çevik (2003) states, the declining coal mining sector has repercussions on other sectors while affecting the consumption demands of many households. Furthermore, out migration and exclusion of old industrial structure, thus old blue collar labor, may bring along abandoned landscapes if not the changing spatial division of labor, which lead to spatial inequalities.

The contradictory consequences of restructuring concerning the former employment structure are stressed while spatial change is considered respectively. Massey (1984) states that the main strategy of restructuring following the decline of coal mining industry is diversification away from declining sectors economically and away from the region spatially. Stressing effectiveness of diversification and multinationalization on local capital and local labor, he adds there is a tendency of changes in regional/local capital toward supraregional integration. Furthermore, the labor side preferences of multinationals of female labor in a condition faced with redundant organized male labor is stated to be prevalent in reorganization of skills in the production process and in class structure within the locality (Massey, 1984).

The intensity of vulnerability due to impacts of deindustrialization is closely linked to the extent to which the local economy is diversified. It can be stated that response and resistance to change by the localities concerning downsizing of industrial production, like pit closures, comprise strikes and public outcries. The change in former class structure and institution structure refer to vulnerability in socio-economic means. Derogation in labor power parallel to deunionization process and

further changes in division of labor as part of the local restructuring process have acted as catalyzers in minimizing resistance in the restructuring process.

From the vulnerability perspective, change in the nature of the labor process and in work practices; in skill composition of the workforce are stressed (Massey, 1984). Removal of autonomy and individual control over the labor process as major aspects of work, solidarity and organization; increasing difficulties of working class organization by increasing heterogeneity; weakening of the trade union organization by the impact of long-term unemployment are the deficiencies in the labor process and organization of labor in relation with deindustrialization in coal mining regions (Cooke, 1981, Friedmann, 1977, Massey, 1984). Furthermore, the new spatial reorganization of labor has changed social and spatial coherence (Massey, 1984). Accordingly, Barchiesi and Kenny (2002) adds that the emergence of new forms of low-wage economy as well as employment, social exclusion, employment uncertainty, vulnerable employment, loss of rights and power are evident disempowering developments<sup>20</sup>.

Reactive and pro-active actions attempted to struggle with outcomes of deindustrialization on the labor and local community sides are observed in coal mining communities. Specific buffer mechanisms that introduce survival strategies for the local community, particularly labor households, remain an important component of investigation of responses to the impacts of the deindustrialization process in old coal mining regions.

Mine closures, as one of the specific outcomes of deindustrialization in coal mining localities, remain vital. Apart from strikes and political conflict on the labor side, the difficulties in developing ability to take action and respond to mine closures are stated as a major problem (Camagni, 1991, Nel et al., 2003). Consequently, the typology of local strategic responses as an intervention in mine closures with regard to four key stages function as attempts to preserve existing economic life, finding

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<sup>20</sup> Barchiesi and Kenny (2002) investigate in Coal-Rim Cluster, Northern KwaZulu-Natal, in South Africa.

and expanding existing alternative local jobs, development of new activities and movement into high technological sectors (Liljenas, 1992, Nel et al., 2003).

The capability of developing endogenous potential is considered important in intervention in the restructuring process (Butzin, 1991). One of the burdens of developing endogenous potential may be the inability to generate bottom-up strategies collectively. One of the reasons of such a phenomenon may present a tradition of external expectation of subsidization for a long period of time. In other words, as Massey (1984, p. 207) states, change in coal mining areas is in fact the change in their externally directed economic control of the means of production and possession, which is what Massey calls “pre-existing economic peripherality”. Consequently, development of endogenous potential in a tradition of external economic control is expected to face challenges.

As engines of national growth, coal mining and complementary industries once acted as the prominent industrial activities in industrial development. Development economics and interventionist developmental states have reinforced externally driven expectations of both the local institutions and local community. Therefore, the change in the intervention of the state in industrial development has meant much for monostructural, big public firms with regard to structural changes with a tendency of market-led policies. Accordingly, disinvestment policies have put pressure on big public firms while affecting the whole socio-spatial structure.

The regeneration and renewal efforts in the former coal mining towns face difficulties due to the relatively low ability to transform. This low transformation ability could be linked to homogeneous, coherent structure characterized by working practices together with social and economic relations in addition to strong ties peculiar to coal mining regions. This fact is emphasized by Turner (2000, p. 29) who states that “where a pit closed, or shed labor, the local economy would have very little else to offer the local population in the way of jobs and economic activity” in coal mining localities. So in a way, special characteristics of coal mining towns are considered to act as a catalyzing factor in resistance to change and vulnerability is considered to exist in a process of change and restructuring.

The relationship between single-industry dominance and coherence in local social structure in addition to the relationship between working practices and solidarity in coal mining localities reveal greater resistance to change on the labor side (Lockwood and Sayles 1995, Massey, 1984).

Turner (2000) points out the single economic base of coal mining towns and the difficulties in regeneration of these localities. Due to the specific characteristics of coal mining towns, they reveal and lead stagnancy in terms of both economic and social means in a process of change, especially in case of indicating a single base economy. Turner, in the same article, emphasizes the underdeveloped and disadvantageously progressed small business sector peculiar to coal mining communities. He further states that the single activity based nature of many localities associated with coal has presented problems for any form of economic regeneration strategy due to the dominant specific skills indigenous to working practices in coal mining industry, usually intergenerational transfer of skills, and the unvaried local economic base to motivate alternative capabilities.

Dominance of a single industry has brought forth a particular kind of social, political and community culture insular in characteristics and involving a sense of community in coal mining localities (Turner, 2000).

It is emphasized that intervention attempts in local restructuring and responding to impacts of deindustrialization in coal mining regions are difficult compared to that of other localities. Consequently, Turner (2000) has remarked the main problems of the inability to attract inward investment as the economically unattractive local settlement, old infrastructure, challenges brought by geography, and isolation and poor accessibility in old coal mining regions. He further comments that the regeneration strategies of coalfields through job creation via enterprise zones, via proliferating small businesses and via reindustrialization attempts are rarely successful. Nonetheless, it is acknowledged in the same article that improvements in training and infrastructure are evident in attempts to attract inward investment. Local economic change which signifies the tertiarisation process is acknowledged to offer less skilled, less income service jobs for redundant skilled labor, and security remains in question (Tomaney et al., 1999, Turner, 2000).

## 2.5. Conclusion

Deindustrialization, decline and restructuring are taken into consideration as socio-spatial phenomena. Deindustrialization is focused on as a process of socio-economic and socio-spatial decline resulting from industrial decline. It comprises a process of change and a process of restructuring in the form of both impact of change or response to change, which is an outcome of complex and multi-dimensional relationships. This change is evaluated with regard to change or fracture in old forms of development evident in the local economy and local community attached to local history and spatiality with place specific characteristics originating from characteristics of socio-spatial structure.

Deindustrialization and industrial decline is conceptualized within mechanisms of change emerging from complex relationships among restructuring processes on diverse scales by putting emphasis on local restructuring in terms of response capacity and intervention. On the common ground, the deindustrialization process is conceived as a social phenomenon as well as an economic phenomenon that interacts and inscribes in spatial change. It is asserted that decline impacts of deindustrialization are mostly evident in unemployment, depopulation and decreasing purchasing power alongside environmental degradation and image problems of physical space.

Having discussed transformations mainly in the production process and development trajectories it is emphasized that deindustrialization and socio-economic and socio-spatial restructuring are revealed within a context of national restructuring that relates with institutional restructuring. Intervention in the deindustrialization process to manage change has introduced strategies of rationalization and modernization policies that often appear as closures; technological changes or vice versa. On the other hand, transformation in urban economy through diversification in economic activities as well as transformation in urban space which reflect on image renewal, enhanced the service sector through recreational, leisure activities and similar strategies informing tertiarization process. It has also been highlighted that there can be degrees of responding to change in

terms of capacity of collaboration among actors and institutions that indicate the pace of restructuring and the choice of intervening it through adjustment, renewal, resistance, reinforcement of decline.

Stating the specific characteristics of old coal mining regions embedded in socio-economic and socio-spatial structure as profiling strong binds, insularity, and weak entrepreneurial capacity, the case, Zonguldak coal mining region will be investigated by evaluating the dynamics of change and restructuring in the Turkey context, in addition to a brief evaluation of change within the coal mining sector and energy policies.

## CHAPTER 3

### INDUSTRIAL DECLINE AND DEINDUSTRIALIZATION PROCESSES OF A TURKISH CASE OF ZONGULDAK, COAL MINING INDUSTRY

#### 3.1. Dynamics beyond industrial decline and deindustrialization process in coal mining industry

The globalization process has affected coal mining industry directly through reorganization in the production process in this sector by introducing technological changes and changing market constraints on putting new content-related regulations on coal in relation with global climate change. Globalization has also affected the coal mining sector through its effects on national economic systems in terms of introduction of the liberalization process in energy sector, on changing state policies related to (state owned) enterprises associated with their subsidy and tax systems, and on the introduction of new capacities and capabilities, thus capital for development.

Global changes concerning technological changes in the coal production process accompanied by changing legislative constraints on coal content and market changes in coal exportation are crucial in restructuring of coal production and coal mining industry.

Tamzok (2007) has stressed the impacts of developments and advances in communication, transportation and distribution in the world coal sector. He has further attracted attention to the impact of liberalization of electricity production on coal production due to the availability of cheap coal in electricity production on the one hand, and the dynamics behind the emergence of new actors in coal production on the other hand, which are stated as the change in management of



corporations in coal production and intensified competitiveness in the global market. Especially the liberalization process has played an important role in segregation of domestic regional production in terms of distortion of linkages between the complementary sectors of especially coal mining, iron and steel production and coal burning thermal power stations in the domestic market.

Restructuring in coal mining industry has comprised technological change in production process and compensation for new standards for product content in order to adapt to the global coal market to meet environmental concerns on carbon and sulphur emissions. These are the direct impacts of the globalization process on the sector and on output. On the other side of the coin, the globalization process has impacts on coal mining industry in mediation of changes at the national policy level concerning structural changes in the national system which is led by supranational institutions like WB and IMF. These impacts have concerned changes in subsidy structure and changes in economic models that affect trade policies and energy policies as well. On the coal mining side, changes in investment structure and impacts on state owned enterprises can be primarily specified.

Coal is defined as a fossil fuel with reserves spread all over the world with a capacity of availability until 2030 with characteristics of supply safety to provide sustainable energy in the context of sustainable development (WEC 2003; Ersoy 2004; Tamzok 2007). According to Yılmaz and Uslu (2007), hard coal has an export value among fossil fuel energy resources, whereas lignite is only used domestically in the world. Other energy resources as alternatives to coal, such as natural gas and petroleum, have low supply safety worldwide (Tamzok 2007). Furthermore, the high prices of oil and gas as other fossil fuels keep coal competitive as a fuel (WEO, 2007). According to WEO (2007), the highest increase in the demand for coal is expected to appear between the years 2005 and 2030.

From a comparative perspective to world charcoal and lignite production in years, it is stated that world charcoal production is increasing at decreasing rates with respect to each year (IEA 2003; Tamzok, 2007). Evaluating the change in use of coal over different regions in the world, it is observed that an evitable increase in coal consumption and demand for coal in Asia-Pacific and North American

countries exist (BP 2005; DOE/EIA 2005, p.95; Tamzok, 2007). Furthermore, according to BP (2008) coal is indicated as the fastest developing fuel for the period between 2003 and 2007 with a highly growing coal consumption of 4.5% above the average for period between 1997 and 2007. Asia Pacific countries hold their first place in both coal production and coal consumption whose growth for China forms two thirds of the growth of global consumption for the period between 1997 and 2007 (BP, 2008).

Tamzok (2007) states that the deregulation process, especially in Britain and other West European countries, has opened domestic coal markets to short term fluctuations in the market while decreasing long term investments in the coal sector. He further states that the countries that adopt a protectionist approach to liberalized electricity production, such as Asia and North America, continue to use domestic coal.

WEC (2007) discusses coal use and its relational background within energy use, structural changes and environmental constraints, pointing out that:

In all regions, the outlook for coal use depends largely on relative fuel prices, government policies on fuel diversification, climate change and air pollution, and developments in clean coal technology in power generation (WEC, 2007, p. 43 ).

Steel manufacturing, transportation, power stations and electricity power plants, transportation, cement industry and other industries in addition to household use of coal are complementary industries to the coal mining industry (Yılmaz and Uslu 2007). Early domestic industrial geographical clusters have faced a distortion in their relational context due to restructuring within the coal mining sector, by mediation of liberalization in electricity production, which intensify the use of imported coal in iron and steel manufacturing and thermal power stations.

Industrial production largely depends on the ability to reach energy sources that are cheap, sufficient and that ensure supply safety (Ünver, n.d.; Ersoy, 2004). The increasing demand for energy creates a primary motivation to use cheap imported coal in the case of ability to increase productivity and to decrease production costs in the sector.

Impacts of the globalization process on the coal mining sector can be briefly specified in terms of such developments (Tamzok 2007; Yılmaz and Uslu 2007):

- Increased competitiveness in the global market for coal resulting from the introduction of new partners, such as active multinational firms
- Changes in management and organizational set-up of firms in terms of emerging consolidations, selling, buying and integration of firms by taking advantage of scale economies with an aim to decrease their production costs
- Introduction of new global regulation constraints on coal content to manage carbon and sulphur emissions which act on climate changes and introduction of new content standards for the use and export of coal in global market
- Change in technology of coal production and coal use in other industries on phases of coal excavation, coal cleaning, use of coal in thermal power station by means of modern thermal power systems that increase the productivity of coal use, increasing quality of coal and control of waste management
- Deregulation concerning changes in legislation to include the private sector and proliferating competitiveness in the domestic market
- Changes in investment structure in favor of the private sector and to the disadvantage of state owned enterprises through subsidy cuts, privatization policies accompanied by practices and closures
- Fuel transfers in electricity production through the introduction of new alternative resources to coal

### **3.2. Comparative evaluation of changing Turkish charcoal production and use of charcoal in the energy sector**

Coal remains the most widespread fuel used in electricity production and is estimated to preserve its place until 2030, while it is expected to be compensated by natural gas (Tamzok and Torun, 2005). 85 % of the world coal production consists of hard coal and 15 % of lignite (WCI 2007; Tamzok, 2007). The primary use of coal appears to be for electricity production with 69% of world coal production and this share is expected to increase in 2030 (WCI 2003; Tamzok, 2007).

The use of coal is foreseen to increase in 2030 due to contracting oil and natural gas reserves worldwide (IEA, 2007; Tamzok, 2007). Tamzok (2007) states that the accelerated growth of world coal production in the period 2003-2007 period justifies this point and this growth of production is accounted for by especially Asia-Pacific countries due to their accelerated electricity demand. He adds that China, the third country with an important magnitude of coal reserves, remains the first country responsible for coal production as well as coal consumption with a share of 38.4% in world coal production. The USA and Russia being the first and secondary countries in terms of magnitude of coal reserves, he states that the core coal producer countries in the world are China, the USA, India, Australia, Russia and South Africa, Australia being the leader in coal exportation in this first group. Furthermore, he adds that the Asia-Pacific countries Japan, South Korea and Taiwan rank first among coal importing countries worldwide.

The dominant role of coal in energy use has become limited to its use in electricity generation, steel, cement and chemical industries worldwide (Demirbaş, 2000). Demirbaş (2000) states that the alternative resources of petroleum products and natural gas have compensated coal in energy use in terms of its market share. He has also comments that the reason behind the continuing role of coal for energy use is due to its maintenance of coal markets and its appreciation in the newly emerging markets.

Change in coal production is observed in different forms in the world. Tamzok (2007) states that the decline in coal production is observed in the developed countries, especially European Union countries because they prefer natural gas in electricity production. Apart from the sharp decline in charcoal production in Germany, Britain and Poland, the distribution of charcoal production has not changed seriously in the three decades covering the period between 1973 and 2003 (IEA 2003; Tamzok and Torun 2005)<sup>21</sup>. Although world charcoal production

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<sup>21</sup> The 93 % of charcoal production is performed by 11 countries including China, USA, India, Australia, Republic of South Africa, Russia, Poland, Indonesia, Ukraine, Kazakhstan and Colombia (WCI; 2005b in Tamzok and Torun 2005, p.3). The first six charcoal producer countries have been determined to be China, USA, India, Australia, Republic of South Africa

has remained stable in terms of distribution, charcoal consumption has changed in different countries (Tamzok and Torun 2005).

Tamzok (2007) stresses that coal is profitable due to its consistent and slow price changes, which is a result of its broad reserves and increased competitiveness created by the newly emerging actors in coal markets, such as China, Indonesia and Russia in the last twenty years. He also draws attention to the increases in coal prices that are much smaller than that of petroleum and natural gas within a relative consolidation in the world market. The decrease in firm number, the increase in production, and the merging intra-firm structure are the stated emphasis points related to the coal sector.

Demirbaş (2000, p.1244) mentions the geographically strategic condition of Turkey within major energy routes by stating that Turkey is an “energy bridge between the major oil producing areas in the Middle East and Caspian Sea regions on the one hand and consumer markets in Europe on the other”. Accordingly, Bosphorus Straits of Turkey can be highlighted as a strategic shipping route in the world energy route network.

Turkey has a 1.3 billion ton charcoal reserve, 560 million tons of which are observable and 8.3 billion tons of which are lignite reserve (Tamzok and Torun, 2005). The charcoal reserve is concentrated in Zonguldak Coal Basin in Zonguldak, the production of which is managed by (Türkiye Taşkömürü Kurumu, Turkish Charcoal Institution, [TTK]), a state owned enterprise following changing ownership and management within the basin.

On the coal fuel source potential of Turkey, Demirbaş (2000, p.1244) comments that “Coal is a major fuel source for Turkey, used primarily for power generation, steel manufacturing and cement production”. The change in charcoal production of Turkey follows a rising profile that deeply declines after 1980. Tamzok (2007; 2005) explains the change in Turkish charcoal production by stressing that the amount of charcoal production starting from the Ottoman period, when the mines were

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and Russia (WCI 2005 World Coal Institute (WCI) (2005b), Coal Facts, 2005 edition, London.; Tamzok and Torun 2005, p.3).

managed by foreign capital, became 600000 tons in the period of the Republic of Turkey when it transformed to 3 million tons in 1940 during the period of ETİBANK ownership. He further points at the severe decline in Turkish charcoal production after 1980 just after a production of 8.5 million tons in 1974. The decline in national charcoal production in 1980 is striking due to its timing as a breaking point for change in the national economic system.

Turkey faces a growing demand for energy and composed major energy consumption due to its demographic and economic growth (Demirbaş, 2000). The relationship between the use of domestic energy resources in energy production and supply safety in energy management puts the emphasis on the efficient use of domestic energy resources and their production (Tamzok and Torun 2005).

As an essential input in industrial production, the safety and cheapness of energy use matter in terms of production costs as a productivity constraint. Consequently, Tamzok and Torun (2005) remark that the situation for Turkey is conflicting due to the lack of rational energy planning and management, despite the available national energy resources. However, they state that the fact that Turkey has directed its energy policies toward electricity production that relies on imported natural gas is threatening in terms of supply safety in energy production and vulnerability to any energy crisis in the world. Moreover, Tamzok and Torun (2005) and Tamzok (2007) emphasize that the increasing rate of use of natural gas in electricity production (nearly 1% in 1985 and 45 % in 2005) and imported liquid fuel have paralleled the decreasing rate of use of domestic lignite in electricity production. Consequently, distortion in the share of domestic resource use is stressed with the now 55% share of imported coal use in electricity production (Tamzok, 2007). Likewise, 1998 remains remarkable for use of coal in electricity production in Turkey due to the increasing import of natural gas and decreasing domestic lignite production together with decreasing use of domestic lignite in electricity production (Tamzok and Torun, 2005).

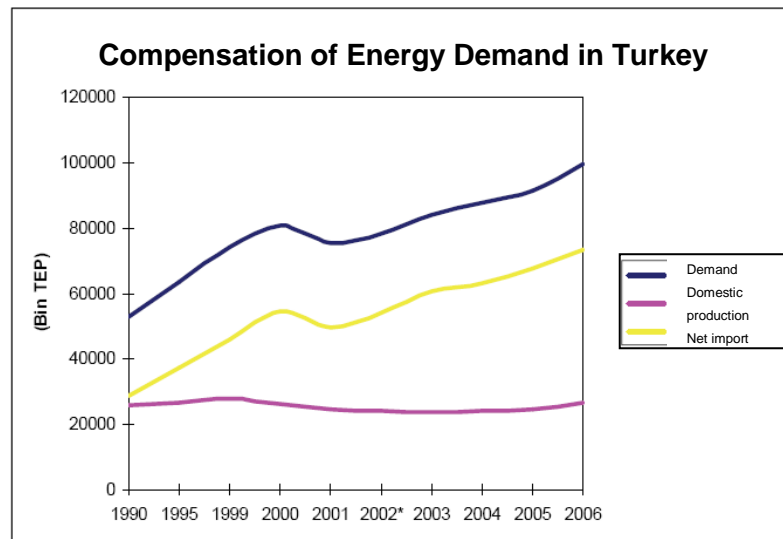


Figure 2. Compensation of energy demand in Turkey

Reference: Adapted from (World Energy Council [WEC], Turkish National Committee, 2007)

Figure 2 shows that domestic energy production with the tendency to decrease cannot sustain energy demand in Turkey. Rather, the exceeding demand is met with energy import that is likely to increase. The need for charcoal used in the energy sector is also met with imported charcoal used primarily in the industry sector according to the values for 2006 for Turkish coal production and consumption (WEC, 2007).

The share of charcoal as primary energy resource in Turkey reveals a steady and slow incline between 1973 and 1990 while it declines after 1990.

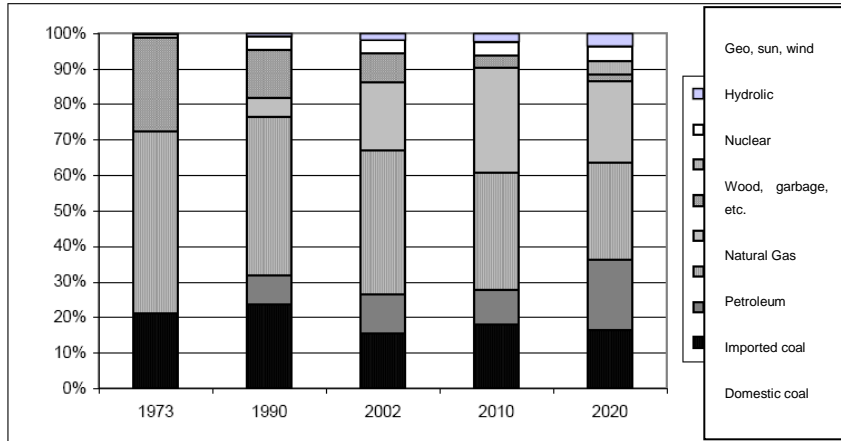


Figure 3. Distribution of primary energy supply to resources

Reference: Adapted from (Tamzok and Torun, 2005, p.6)

Indirect reference: IEA 2005

The charcoal use in electricity production in Turkey has been on a steady decline since 1973 as observed from Figure 3.



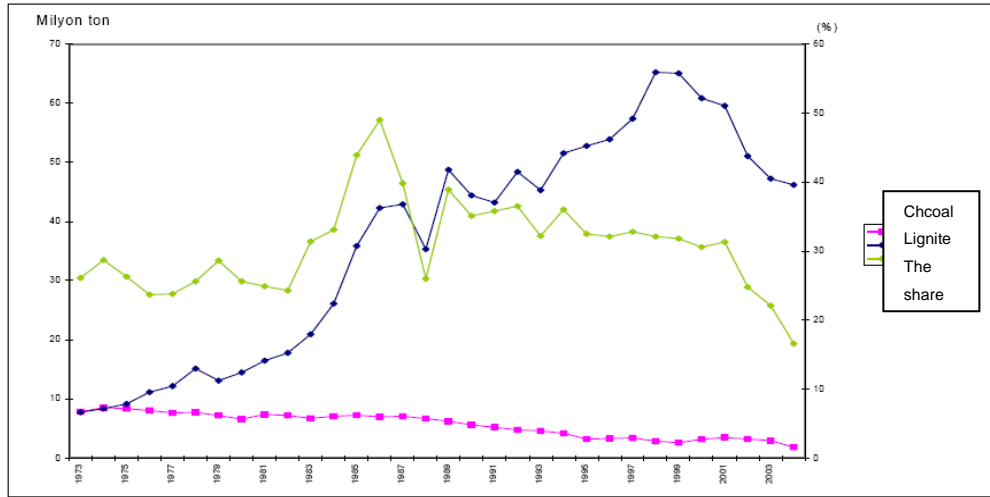


Figure 4. Turkish charcoal and lignite production and their share in electricity production for each year

Reference: Adapted from (Tamzok, 2007, p.15)

Indirect reference: WEC/TNC, 2003; TKİ, 2007

It can be observed from Figure 4 that the first oil crisis in 1973 has motivated a protectionist strategy on charcoal production which can be observed in rising employment. We can also monitor the deep decline in labor evident after 1980 consistent with declining production. Additionally, it is seen that this decline continued after the early retirement period between 1991 and 1995 followed by the 2001 crisis, until the decisions on new labor employment in 2006.

Demirbaş (2000) remarks that oil, natural gas and high quality coal are imported energy sources in Turkey. Additionally, he mentions that Turkey has now become an importer of hard coal from Australia, the United States, South Africa and the former Soviet Union which is to be used in heating and power in Ankara for three large municipalities in order to eliminate the pollutive effects of lignite burning.

Energy policies, a major component of national economic restructuring, is affected by changing national policies in relation to agreements with supranational institutions (IMF; WB) and the European Union accession period in Turkey (Tamzok, 2007) and further national economic model changes. Tamzok (2005) comments on the restructuring of the mining sector by emphasizing the ceasing

fixed capital investment to public enterprises as a factor in its declining productivity and in its exhausting condition within deregulative developments. The following section presents an in-depth evaluation of the restructuring process of Zonguldak charcoal production in Zonguldak-Bartın-Karabük Industrial Region in the context of the restructuring process of Turkish economic models involving changing policies on development via industrialization, state owned enterprise system, labor, and energy policies with their contingent relationships.

### **3.3. Industrial restructuring in coal mining industry in Zonguldak Region in context of Turkish national economic restructuring**

Zonguldak, which is the only charcoal producing city with mono-structured production system by the state owned enterprise TTK until recently as a component in industrial region of Zonguldak-Bartın-Karabük is investigated with reference to the transition process characterized by restructuring of the region and the firm in context of changing national economic system, changing development strategies and its repercussions on old industrial regions.

The restructuring process in Zonguldak is shaped by reorganization and restructuring in charcoal production owned by the state owned company as well as by transactions within the wider heavy industrial region with complementary industries like iron and steel manufacturing and coal-burning thermal power stations. The socio-spatial dimension in understanding Zonguldak reveals itself in urban restructuring in the context of changing urban set-up interacting with socio-economic procedural changes.

Certain stages or perspectives with diverse relational impacts on evaluation of the deindustrialization process and foundations for a construct of a decline process for TTK and charcoal production in Zonguldak have emerged. The first perspective relies on impacts of the globalization process on Turkish national system in terms of reorganization of production the process with the emergence of new division of labor and rising economic sectors that function as motors to growth and development. This perspective is composed of two emphasized dimensions, one of

which is the change in public economic/fiscal policies and relationally changing policies related to the public enterprise system in terms of change in subsidy and investment structure by starting contraction and privatization processes on these institutions. The proliferation of sectors of finance, banking, tourism, etc., the motivation of transnational capital to places with unorganized cheap labor in localities, which lead to decline and deindustrialization in old industrial regions in parallel developments within globalization process seem complementary processes. The deregulation and restructuring process that has taken place in the Turkish national system to the deindustrialization process in Zonguldak is due to changing policies in public investments and subsidy transfers to state-owned enterprises and simultaneous construct of a discourse on decline and contraction in the 1980s and privatization in the 1990s, with a relative emphasis in efforts to create public opinion.

The economic model shift in Turkey in 1980 that signifies a transition from an import substitution to an export-led development model, a transition to a more open economy in a neoliberal climate that is revealed in adjustment programs underpins the socio-economic context of this impact in the 1980s. However, starting with The Morgan Plan, a plan which involves privatization processes and models of Turkish State Owned Companies after 1986, privatization policies have dominated the agenda and catalyzed the deindustrialization process in Zonguldak and shaped the impact assessment of socio-economic restructuring of Turkey on Zonguldak.

The second stage within the first perspective interrelates with national domestic production and market with the liberalization of markets, especially in the energy sector as an input to industrial production as the reflection of the globalization process and its liberalization effect on trade and finance capital flows. Availability of cheap imported coal forms a relation of reason to the deconstruction of input-output linkages within old geographical-industrial regions, in this respect. The use of cheap imported coal in iron and steel manufacturing in Zonguldak starting from the early 1970s marks the break off in the domestic geographical cluster by making the industries independent of space. In addition, liberalization in the electricity sector interrelates with declining domestic production rates in electricity production through coal led thermal power stations and it reveals relatively expensive electricity in

industrial production due to vulnerability to price changes that decrease competitiveness of industries in national economy.

It is interesting to observe the proliferation of this change reflecting on new investment structures in Zonguldak by the recent application of (Enerji Piyasası Düzenleme Kurumu, Energy Market Regulatory Authority, [EPDK]) giving license to and subsidizing private thermal power plants mostly operated with imported coal.

The changing legislative frame considering public areas, private firms on charcoal production as well as electricity production with imported coal in private thermal power plants restructured the industrial and investment based landscape in Zonguldak.

The second perspective to critical evaluation of deindustrialization in Zonguldak interrelates with the change in production and usage capacity of charcoal as an export good in the global market during the globalization process. The changing organization in production at the firm size, new (clean) technologies together with content change regulations within global market for charcoal, productivity constraints with deepening competitiveness in global market under globalization process are also directly taken as a catalyzer in the restructuring process in Zonguldak, both in domestic production of charcoal as well as the changing national policies on the use of charcoal as an energy resource. Availability of other energy uses and proliferation of use of natural gas in developing countries by WB energy policy<sup>22</sup> formulations in national policies are all taken as dynamics in restructuring of charcoal production, that is, the economic base of Zonguldak, in this respect.

In consistency with perspectives to critical evaluation of the restructuring process, the relational base involving periodical economic models, development strategies, industrialization policies, the place of charcoal production and interlinkages between iron and steel manufacturing, coal burning thermal power plants and

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<sup>22</sup> The reader may review World Bank, [WB], 1993 Energy Efficiency and Conservation in the Developing World. A World Bank Policy Paper, Washington, D.C.(1987) for further information.

charcoal production will be investigated in the context of the first perspective. The restructuring process within the state owned company, TTK is given additional emphasis for the period after 1970, especially 1980, as the date signifying the start for national structural adjustment.

### **3.3.1. The periodical economic models of Turkey and their impacts on coal mining industry before 1970**

The period before 1970 in Turkey provides insight to main strategies, policies and tools in industrialization attempts to evaluate them with reference to their relations mainly with structural characteristics, labour market and legislative regulations. We capture the opportunity to grasp the place of the coal mining industry in the industrialization process within a developmentalist context and further relate its links with heavy industry and the energy sector. This period represents an establishment period to be referred to later while informing structural changes that would bring impacts at multi dimension and form the background for the economic restructuring process in Turkey.

#### **3.3.1.1. The period between 1923 and 1950: Etatism and investments in rapid industrial growth**

The main theme of the period between 1923 and 1950 presents the state as the investor and the entrepreneur in development through industrialization.

The period between the years 1830-1922 is stated to witness the first stage of a national capitalism within the war and revolution process (Boratav 2003). As Bayar (1996) declares, the late 1920s brought a period in which the Turkish state primarily owns the responsibility for capital accumulation.

Boratav (2003) characterizes the society in 1922 as a semi-colonial society. He further defines the period between years 1923 and 1929 as the reconstruction of the economy under open economy, which comprises no significant industrialization

period incorporating export of raw material and import of industrial consumption goods. Conversely, he adds that there were no regressions in big public firms, but they rather reduced in number. He further draws attention to 1923 attracts for characterizing a period of national economy and the occurrence of developing the local capitalist class beside a tendency to become open to international investment within certain limitations.

The period between 1923 and 1950 is characterized by etatism. The state owns the responsibility of investment and production in non-agricultural industry in the 1930s, while public enterprises act as engines of economic growth by the declaration of the related law in 1934 as a date informing rapid industrial growth from then (Makal, 2002). Public owned enterprises have played important roles in social structure considering the labor market and relatedly spatial structure of localities. Makal (2002) points at the major role of public owned enterprises in social development in terms of provision of education, health, cultural activities and accommodation during the statist economic development period of 1930s' Turkey. It is also stressed that the legislative developments brought by the Work Law in 1936, enhanced the structure of public owned enterprises, their activities and the statist economic development structure while strengthening permanent labor formation within a classless society vision of etatism (Beşeli, 1992; Makal, 1998).

Industrialization policies of the period and insights on the coal mining industry characterizes legislative and institutional set-up for industrial intensification.

Engin (1999) points out that the goal of development in industrialization through the textile, mining and energy sectors remained for the industrialization process in 1936. He further stresses that the first iron and steel factory, an important component of Zonguldak-Karabük industrial region, was constructed and had its heydays until 1961. He remarks that the declaration of the Law on Support for Industry, namely *Teşvik-i Sanayi* in 1942 remains an important step in national industrialization.

After the abolishment of the semi-feudal tax of Aşar in 1925, the institutional foundation of financement of industry and mining is introduced by the establishment

of *Sanayi ve Maden Bank* in the same year (Boratav, 2003). Boratav (2003) stresses that the function of the bank was to enable transfer of industrial establishments to the private sector and to support the private industrial and mining firms with credits or partnerships. Underlining the effect of the establishment of the bank on the development of coal mining industry, he characterizes the period with reference to the announcement of Lozan Pact and the Big Depression in 1929.

During the Great Depression in 1929, the state internalizes responsibility for economic development through production of goods apart from its regulatory role which reveals an enunciation of statism in Turkey (Bayar, 1996). The 1930s are stated to signify protectionist state-led industrialization, namely the first period of industrialization (Boratav 2003). The nationalization of foreign investment and the state functioning as the investor and owner of production in the areas outside agriculture allowed the start of development plans after 1934. Accordingly, the first five-year plan (1933) reflects the statist approach. Bayar (1996) notes that autarchy and rapid industrial development defined the strategies to overcome the depression after the 1930s. He further stresses that the establishment of state owned economic enterprises started and were soon to become holding companies (Bayar 1996). The 1932-1939 period is ends by witnessing the increased production value of mining and manufacturing due to the increase in production in both the public and private sector (Boratav 2003).

The period when Zonguldak Coal Basin was managed by foreign and minority capital changes with the establishment of Republican of Turkey and with the decision to transfer the ownership of management of charcoal production to national capital in 1925, which came on the agenda during the Izmir İktisat Congress (Tamzok, 2005). The reflection of statist intervention in development of the mining sector is observable in the establishment of the (Maden Tetkik Arama, General Directorate of Mineral Research and Exploration, [MTA]) institution in 1935 (Kuruç 1993; Tamzok 2005). Soon, all the pits are nationalized and assigned to ETİBANK while their management is handled by the public enterprise, (Ereğli Kömür İşletmeleri, Ereğli Coal Enterprises, [EKİ]) (Tamzok, 2005).

Boratav (2003) highlights that in the period 1932-1939, the share of added value of the sectors that took advantage of the Teşvik-i Sanai law increases such that the added value of the private industry and mining reach 78.2%,6.2 % higher than its former value. He also acknowledges that this period indicates a clear increase in the number of employed people in private industry and mining.

The second five year plan (1938) reflects industrial deepening. Bayar (1996) states that Zonguldak-Karabük region is decided to become a heavy industrial growth pole built around coal, steel and cement and serviced by its own Black Sea Port. He also adds that power generation, strict controls on private sector, public investment and oversized bureaucracy resulting in increasing government deficits characterize the period. State intervention in all aspects of society remain the main theme according to Bayar (1996).

By 1939, Boratav (1932) points out the additional employment values double in amount when compared with 1932 (Boratav 2003). He further declares that producing and sustaining industrial goods in the domestic market has been adopted in the 1940s, because of the decreasing cost of raw material at the international level. He comments that this occurrence has created the foundation of international expertise system.

### **3.3.1.2. The period between 1950 and 1960: from the protectionist state to resolution**

The main theme that distinguishes the period is characterized by ad-hoc statism in the creation of the industrial base with the priority on urbanization together with the industrialization process. The main emphasis is based on the transition from the former closed economy and protectionist state to resolution and the rise of free import, deficits and investments in infrastructure.

The period between 1940 and 1945 witnesses the Second World War characterized by economic recession in general and a period of work obligation, namely *iş*



*mükellefiyeti*, for the labor that coincides with the second work obligation period in Zonguldak Coal Basin (Boratav 2003; Zaman 2004).

Boratav (2003) comments that the period between 1946 and 1953 witnesses a different experiment on joining the world economy. He points at the exclusion process of the socialist movement through closures of leftist parties as well as that of trade unions that share similar perspectives with these parties from the legal politics near the end of 1946. He further expands on the date 1946 as defining a closed, protectionist, inner-led and dependent economy in terms of external factors and also internalization of the thought that development without external aid is impossible. Moreover, he stresses important occurrences and declarations of laws<sup>23</sup> together with the introducing of village institutions. What remains on the agenda is market-led development which is characterized by being open to markets and giving priorities to agriculture, mining and investments in infrastructure (Boratav 2003).

Market-led development started to introduce a new kind of development that the former closed economy, protectionist state and closed in economic policies have resolved and free import has risen according to Boratav (2003). He emphasizes the rise of deficits beside the evolution of a credit and foreign investment dependent economy. He defines the years between 1946 and 1953 as the years of agricultural development corresponding to an endeavor to integrate with the world economy by means of expertise on raw material production. He furthermore points at an important increase in deficits and import which enhanced import dependency beside an increase in real wages of employed people peculiar to the 1946 - 1953 period.

Industrialization policies of the period 1950-1960 and contributions to the coal mining industry proliferated the private sector beside the public sector on energy, coal, cement and sugar which until are the leaders in development and hold an important share in public investments in that period although a decline process for state owned enterprises starts.

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<sup>23</sup> (varlık vergisi), (toprak mahsülleri vergisi), (çiftçiyi topraklandırma kanunu)

The years after the 1950s define the period when mechanization in agriculture is revitalized (Boratav 2003). Demir (1988) states that mechanization and population growth are evident in rural areas whereas urban areas are attractive in terms of increasing labor demand due to the industrial growth through foreign aids. Consequently, he characterizes this period by rural-urban migration. Migrate from rural areas to urban areas are villagers who own no property, unemployed partners and seasonal workers (Keyder, 1989 ; Demir, 1998). Likewise, Makal (2002) acknowledges that waged labor in Turkey in the 1950s transforms from temporary seasonal labor of peasant workers to a new type of labor.

The 1950s reflect the expansion of capitalism within a rapidly growing infrastructure and expanding public investment together with high growth rates (Bayar 1996). According to Boratav (2003), 1950 introduces the incline of the trade unionism movement followed by the period between 1950 and 1953 when decline in number, value added and the share in output of public enterprises in the form of declining employment and wage schemes are observed. He also adds the main developments characterizing the 1950s are the start for the privatization period in manufacturing industry; inclining exogenous development and centralization of capital. He further distinguishes the period between 1954 and 1961 by a condition of being locked-in and adaptation when limitations on import and liberal external trade policies come to an end and also when the saving idea that public firms should be transferred to private sector is demystified and public investments are enlarged.

Bayar (1996) explains that ad-hoc statism concentrating only on the creation of an industrial base, and hence complementing and supporting industrial structure, are dominant for the period between 1950 and 1960. He sees this period as a transitory phase that private sector later takes advantage of. Especially the public sector in energy, coal, cement and sugar production areas are stated to act as an important leader in development and the share of public investments within the GDP per capita increases according to Boratav (2003). He attracts attention to the striking effort to make a joint between the public and private sector. Bayar (1996) also states that due to the lack of private investment, economic development relies on state-owned economic enterprises and their efficiencies increase until 1958, when

the economy enters a crisis. The priority given to private sector in investments in manufacturing industry is replaced with the public sector which owns the management of investment in infrastructure and in intermediate and investment goods.

The period between 1946 and 1960 witnesses the dominance of investments made in Zonguldak Coal Basin with the Five Year Industry Plan (1945) by Tamzok (2005). He remarks that the mining sector is one of the areas that public investments are directed at within policies of the period considering the liberalization attempt in trade, the proliferation of the private sector and economic development through accumulation of capital by enlarging public investments in 1947. Consequently, the vision of EKİ in 1945 is reported as the formation of a permanent, qualified labor and increasing coal production in Zonguldak through investment in socio-economic, cultural services although this decision would increase coal prices (Makal, 2002).

The Barker Report (1951) is important to observe the historical developments and changing policies concerning Zonguldak Coal Basin. Tamzok (2005) states that the policies that emphasize the mining sector overcomes the barriers of private sector management of the mines and withdrawal of support for development in mining. He also affirms that soon, in 1951, equal rights are granted to public and private enterprises in the management of the mines by the declaration of the Law on Subsidization of Capital Investments No: 5821<sup>24</sup>. Further, the Mining Law No: 6309 is put on the agenda in 1954 while the management of the mines is transferred to (Türkiye Kömür İşletmeleri, Turkish Coal Enterprises, [TKİ]) in 1957.

By the end of the 1950s, industrialization is found to be a solution to Turkey's problems by putting an emphasis on heavy, capital-intensive industry. The role of state owned enterprises increases in this process although their deficits will rise in the following days (Bayar 1996).

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<sup>24</sup> Sermaye Yatırımlarını Teşvik Kanunu No: 5821

### **3.3.1.3. The period between 1960 and 1970: Planned period in industrialization**

The main theme prior to the period is the emphasis on central planning and an import substitution led development model until the late 1970s. The early 1960s until the late 1970s involve a planned period in industrialization. The 1960s are characterized by central planning and thus development by import substitution in order to accelerate economic development. Bayar (1996) stresses that the role of the state in the economy appears once again.

The 1962-1976 period is defined as a closed in and dependent economy (Boratav (2003). He remarks that economic policies are based on planning. He further states that the three five-year plans are effective on investment policies that reflect on populist redistribution policies, an important amount of foreign support and import substitution industrialization, also characterizing this period. The right to organize, to make collective agreements and to strike are on the agenda for labor by the 1961 Constitution (Demir, 1988). From 1963 onward, there is a dynamic syndicate movement and regime of collective agreement supported by the right to strike together with an increase in real wages (Boratav 2003). Nevertheless, variation in terms of social security and wages are observed between those working in import substitution industries in big firms and those working in small firms (Demir, 1988; Keyder, 1989).

Industrialization policies of the period and contributions to the coal mining industry involve the proliferation of domestic resources and state owned companies within a protectionist reaction to the first and second Oil Crises.

Erdemir, the second iron and steel factory in the Zonguldak-Ereğli\_Karabük industrial complex is established and specialized in the manufacturing specialized profile of steel in 1961.

### **3.3.2. The periodical economic models of Turkey, their impacts on coal mining industry and the state owned enterprise, Turkish Charcoal Enterprise (TTK) after 1970**

The period after 1970, especially the period starting with 1980, brings striking occurrences in terms of investigation of economic restructuring, hence, structural changes and their repercussive impacts. Turning points that acknowledge industrial decline, deindustrialization process within deregulation, disinvestment and deunionization processes are observed. The period starting with the 1990s reveals intense attempts for privatization and integration with the global world accompanied by an institutional restructuring process toward supraregional competences.

#### **3.3.2.1. The period between 1970 and 1980: The period before economic model change for Turkey**

The main theme signifying the period can be described as facing with recession and crisis. The period, 1977-1979, signifies the recession followed by crisis in the world economy. Starting with 1968, foreign income, devaluation and liberalization of the trade regime are the main occurrences (Boratav 2003). 1977 has characterized growing external debt in the Turkish economy (Bayar 1996). Industrialization policies of the period, insights to coal mining industry and TTK reveal a start for deindustrialization and decline processes.

The third five-year plan (1973-77) is aimed at remarkable growth in industry. By the end of the 1970s, economic restructuring has taken place within a transition from import substitution to export- driven economy (Bayar 1996).

1970 is remarkable as it informs the start for the use of imported charcoal in iron and steel manufacturing and distortion in input-output linkages within the domestic market and the domestic industrial complex. İsdemir, the third iron and steel factory is established in 1974 in İskenderun, another port city in the Mediterranean region. Zonguldak experiences its heydays of coal mining industry managed by a single public firm until the mid 1970s when it receives in-migration of labor.

According to (Genel Maden İşleri Sendikası, Syndicate of General Mine Works, [GMİS], 2007), 1970 signifies the start of steady decline in coal production in Turkey by TTK concurrent with the start of the use of imported coal in the iron and steel manufacturing sector in Turkey. This date can be determined to signify the detachment within a geographical cluster founded in input output linkages in domestic market in the Zonguldak region. GMİS (2007) also remarks that 1970 also signifies the start for contraction in labor force in TTK and changing productivity rates for the coming years.

The Law No: 2172 proposing the management of the mines by the state appears on the agenda in 1978 under the new constitution (1961) which takes natural resources under guarantee (Turan, 1983; Tamzok 2005).

### **3.3.2.2. The Period between 1980 and 1990: Development model change within the restructuring process**

The main theme defining the period is the collapse of the developmentalist state, economic and political crisis and reinforcement of urbanisation going beyond industrialization.

The 1980s in Turkey's development history stress a reform program of economic liberalization which means a shift from the public to the private sector and greater freedom to the market accompanied by economic, social, and political transformations (Bayar, 1996). The period between 1981 and 1988 is defined as a post crisis period in terms of adaptation to international competitiveness and emerging income distributions (Boratav, Yeldan and Köse, 2000). The 1990s signify instability and a period of uncertainties.

The start for liberalization and a structural adjustment process, also financed by the international community for the Turkish economy to operate under an "open economy", characterize 1980 according to Boratav, Yeldan and Köse (2000). They state that the succession of the 1980s is based on the earlier foreign exchange crisis and reforms to integrate with the world markets as a response. In addition,

they remark that minimizing the individual and social cost of labor remains a source of pressure for Turkey to adapt to competitiveness at the national level. Consequently, the period between 1983 and 1987 reveals suppression on wage incomes and a decrease in labor costs (Boratav, Yeldan and Köse 2000).

Boratav, Yeldan and Köse (2000, p.3) state that the impulse behind the period between 1980 and 1988 is “commodity trade liberalization” as a strategy for integrating with the global markets and secondly, “the exchange rate subsidies and direct export subsidies” as one component that allows the advancement in exports and encourages macro economic stability. Thirdly, they point out that this process reveals repression on wage incomes while catalyzing the emergence of antagonistic measures taken for organized labor. Consequently, this process contributes to start for a deunionization process on the labor side.

The period between 1980 and 1988 witnesses the dominance of the effectiveness of capital. According to Boratav (2003), it is the locked-in condition in the growth in production and a rapid inflation conjecture that characterize this period beside the emergence of a different class of businessmen. The neoliberal program declared on 24.Jan. is asserted to intend to weaken the strong syndical movement (Boratav, 1998; Boratav, 2003). Devaluation, the price increase of public enterprises and the enduring of price control form the backbone of this program in addition to the 1982 Constitution and the social agenda that follows declares to exhaust the weak and conflicting sides of the syndicate movement (Boratav, 2003). Likewise, Bayar (1996) comments that the 1982 Constitution has blocked and decreased the initiatives of unions through becoming obliged to keep away from all political activity and diminishing all their relations with the political parties. As a result, Boratav (2003) finds the year 1988 striking as it represents the ineffectiveness of the syndicates. He also adds that the real wages have decreased after that accompanied by a process of populism in order to enhance a classless society. He sees this as the period when the survival strategies of the urban poor start to search for solutions outside employment areas to further inform informalization in urban economy.

Apart from changing economic parameters and the social agenda, Boratav (2003) states that the 1980s signify the dominance of bourgeoisie ideology on society. He points out that 1978 and 1980 are important as they represent the enormous fall in the use ratio of productive capacity in the industry. Denoting the relapse of the current productive capacities, he, moreover, suggests that the industrial growth in 1980 is due to heightening in capacity usage ratios of firms. Increasing export in industry specialized in labor and resource intensive goods is one of the elements of the period between 1980 and 1998 (Boratav, 1998).

1980 serves as a breaking point in development for Turkey and the world. It is the start of a transition from import substitution development policies to market-led development policies in a neoliberal climate. The shift in public investment from manufacturing to infrastructure is stressed apart from trade regime reform, devaluation of Turkish lira, support for a flexible exchange rate policy, the promotion of export and import liberalization (Bayar, 1996; Boratav, 1998). Bayar (1996) further relates the crisis condition to fiscal policies in 1987 and draws attention to the increasing unemployment after the military coup in 1980.

1980 witnesses a period in which urbanization goes beyond industrialization (Boratav 2003). Industrialization policies of the period, their contributions to the coal mining industry and TTK reveal dynamics and components of the restructuring process that have severe effects on state owned enterprises.

Signifying both economic and political crisis in Turkey, 1980 represents a start for state enterprises and state industry. The starting period introduces a restructuring process developed on the shrinkage of the public sector and rising neoliberal policies calling for an economic and political crisis in 1980 and the beginning for market-led development (Boratav, 1998). Boratav (2003) stresses that the price policies of the public enterprises become an area of conflict and of critical decision making in terms of redistribution and source appropriation with an attitude toward shrinkage of the public sector in industry. He also states that state industry has the function of providing the main inputs to other areas of the economy, especially to the private sector.



Boratav (1998) stresses the period starting with 1980 by denoting that the ceasing subsidies for public enterprises that once were the main actors of state-led industrialization and creation of economic base, proliferated regardless of their increasing deficits. He signifies describes the period between 1980 and 1989 by efforts to create public opinion on the withdrawal of the state from industrial management. Further, he draws attention to the year 1984, which represents the withdrawal of privileges of public enterprises on taxes, customs and credits and simultaneously, to the period when public enterprises started to reveal technological corrosion and decreasing productivity. Consequently, he stresses that the neoliberal policies of 1980 reflect on decreasing scale on production and density of capital for enterprises by using old and labor-intensive technology and unqualified labor. Accordingly, he suggests that the purpose of the contraction of the state and of the reduction of state intervention in industry, especially manufacturing industry, is the dominant discourse of 1985 whereas the period between 1980 and 1989 starts the discourse of state on privatization.

Likewise, Boratav (2003) mentions 1985 as remarkable to emphasize the financial crisis of the public enterprises system by relating it to the decisions with respect to the shrinkage in the investments of the national treasury in the financial stock of public enterprises to further lead them to obtain inner and external loans as investors and to carry the burden of an important amount of interest. Emphasizing technological corrosion and regressions in productivity for public enterprises in the industry sector, he also mentions the rise in the cost of wages which form one of the basic factors that lead public enterprises to financial crisis in the period 1989-1993.

The inability to make fixed investments and rising deficits are the main developments of the period between 1980 and 1990. Rising export rates and real GDP do not reflect on fixed investments (Boratav, Yeldan and Köse 2000). Boratav, Yeldan and Köse (2000) point at the declining share of manufacturing investments and the increasing private manufacturing exports through price incentives and subsidies. They comment that low savings together with stagnant investments, high fiscal costs, and tax erosion are complemented by extreme pressures on public expenditures and increased demands for deficit financing through foreign

borrowing. They further remark that production and investments are affected negatively due to increased foreign debt accumulation at the cost of increasing export earnings which result in the incline in public deficits.

There exists a relationship between use of coal and liberalization of the electricity sector as an outcome of restructuring of the sector under globalization process (Tamzok 2007).

The post-1980 period signifies the liberalization of electricity production as well as the change toward a liberal economic model (Tamzok, 2007). Changes occur in the use of coal, in production levels of coal accompanied to changes in energy policies peculiar to this period. Tamzok (2007) states that coal is used as a fuel input in electricity production and industrial production beside heating in household use. He stresses that the post 1980s witness the adaptation of WB energy policies in Turkey on the one hand and changes in coal production on the other. He notes that the period reveals the decreasing charcoal production by the state owned enterprise TTK, while production of lignite increases significantly due to protectionist strategies against the oil crises in 1973 and 1979. Consequently, he states that this increase in lignite production continues until 1998 when natural gas is introduced in the domestic energy market. Furthermore, the replacement of the new Mining Law No: 2840 declared in 1983 with the Mining Law No: 2712 is stated to propose the return of ownership of previously nationalized mines to previous private owners excluding specific mines (Tamzok, 2005).

The period starting with the year 1980 is the start of the disinvestment period for the industry, which lasts through the 80s intensifies especially after 1987 in Zonguldak. The disinvestment period leads to the pacification of the firm while realizing further restructuring in production by upgrading technology and providing rehabilitation with the aim to increase productivity; however, the only investment that can be made is to renew the old equipment and machinery used in production (GMİS, 2007). Zonguldak-Bartın-Karabük Regional Development Plan as a responsive attempt to the decline in the industrial region is prepared in 1986, when the establishment of TTK as a restructured institution from (Ereğli Kömür İşletmeleri, Ereğli Coal Enterprises, [EKİ]) as reorganization in management of charcoal production is

achieved in 1983 (GMİS, 2007). Due to the ceasing subsidies for the public enterprises, TTK uses structural funds of the WB and Japan EXIMBANK for restructuring and rehabilitation in the period starting with 1990 (Zaman, 2004).

### **3.3.2.3. The period between 1990 and 2000: increased instabilities**

The main theme of the period after 1990 is increased uncertainties and insustainabilities within intensifying international competitiveness. The period between 1989 and 1999 is defined as a post crisis period in constraints on adaptation to competitiveness and distributional patterns of income (Boratav, Yeldan and Köse 2000).

Decreasing power of unions in industrial relations and in public life become certain. Bayar (1996) states that strong but uneven growth with high inflation, due to supplementing the requirements for public firms, characterizes the macroeconomic performance of the 1990s. In addition, he remarks that monetary and fiscal policies are brought within a goal of economic growth and industrialization.

1989 is important for many events in relation to trade unions and employment. Boratav (2003) mentions one of these occurrences as strikes in the iron and steel industry, SEKA and Zonguldak which are realized by labor working in the public sector. By stressing that although the wages of labor and officers increased, he states that 1989 signifies the loss of jobs in the private sector accompanied by deunionization and the spread of employment types in which employment laws could not be enforced. He also acknowledges that the syndicate movement settled down due to the unemployment threat which is observed in the evident decline in the total number of registered employed people.

1989 is defined as the new populist period with the lowest real wage earnings of the period. Boratav, Yeldan and Köse (2000) discuss main policy responses for the period after 1990. They firstly stress hot money inflows after the Turkish Lira becomes convertible in foreign exchange markets to compensate rising public expenditures, and secondly, deregulation of foreign capital transactions as

responses within the new economic system. Thirdly, they mention the changing cost considerations in industrial output and assert that delayed restructuring of the public prices against an inflationary economic medium make it possible to form a surplus for the private sector. The fourth response is based on labor market changes. Boratav, Yeldan and Köse (2000) point at massive lay-offs and deepening marginalization in the labor market as a characteristic of labor market adjustments throughout the 1990s as the fourth response peculiar to the period.

The post-1989 model is characterized by unsustainability and instability in terms of macro economy and fiscal policies according to Boratav, Yeldan and Köse (2000). They define the 1994 crisis with its consequences for the depletion of short-term funds, contraction of production capacity and decline in industrial output.. They further mention two responses to this contraction: one is the evident changes in income distribution and the deepening of transfer of the surplus from the industrial/real sectors to the financial sectors, and the other is the industrial sector's dependence of export performance on savings on wage costs, which keep the decrease in wage costs and the increase in export earnings.

Industrialization policies of the period and insights to coal mining industry and TTK have emphasized contraction and privatization pressures from the state as coding the discourse on decline.

The 1990s have signified and introduced a period of instability and uncertainty whose dominant agenda is privatization in addition to the diminishing average protection ratio for local industry (Boratav 2003). Moreover, Boratav, Yeldan and Köse (2000) clearly point out that the distributional dynamics of the Turkish economy are molded by globalization during the period considering 1980 and 1998 as it is the case elsewhere.

The rationalization, rehabilitation and restructuring program of TTK appears on the agenda in 1990 accompanied by a reduction in employed labor (Zaman, 1994). The period between 1991 and 1995 witnesses early retirements with the increasing mobility of population within the province (Erkin, 1999). Efforts on creating a discourse of decline on Zonguldak coal mining industry are evident during 1991.

The big strike and walk in the political history of Turkey reveals a pro-active local response to the created discourse on decline and deindustrialization policies in 1990-1991 in Zonguldak (GMİS, n.d). The declaration of Zonguldak as the privileged region in development does not result in investments to be made in the coal mining industry.

As the TTK Report of (Genel Maden-İş Sendikası, General Mine Work Syndicate, [GMİS]) states, TTK is in a state of inability to realize production corresponding to its capacity due to labor lay-offs through early retirements and insufficient investments by means of ad hoc and inconsistent economic and political policy formulations (GMİS, 2007). The significant increase in coal import and decline in coal production clearly picture the situation that caused Turkey to become a supply dependent country in the iron and steel industry.

1990 indicates the pressure on privatization, especially in the mining sector. Tamzok (2007) mentions this pressure by referring to the mining meeting of the Ministry of Energy and Natural Resources in 1993 to draw attention to decisions on the abandonment of investments to further lead to the decrease in productivity due to the inability to realize technological upgrade, declining employment as well as decreasing services compensated by the public enterprises. According to the meeting, the following policy propositions are adopted by Tamzok (2005, p. 9) as below:

the down-sizing of all pits, their assignment to the private sector by leasing and selling of the central atelier and transport vehicle to private sector, the selling of license to private sector where TTK has no production or assigning them to the private sector through royalty.

One of the evident occurrences peculiar to the period after 1990 involve the decisions on privatization for thermal power stations belonging to TKİ together with the related pits; for the two iron and steel factories, İSDEMİR in İskenderun and KARDEMİR in Karabük, and the banking section of the ETİBANK (Tamzok, 2005).

Change in investment policy and change of actors in investment primarily affect the mining and energy sector, thus charcoal production. Tamzok (2007) attributes the declining coal production primarily to the liberalization of the electricity sector due to

its impact on decreasing investments in thermal stations indirectly and which further lead to the decline in coal production, especially for lignite. He bases the reason for declining domestic lignite input linkages to electricity production on the changing policies of the proliferating private sector to investment in stations rather than the public sector. He further binds the concerns on domestic coal production and its relation to electricity production from a wider perspective to lack the of a national energy policy and strategy on the one hand, and to the outcomes of adaptation of WB policy formulations in a national energy context without manipulating or adapting them to the national dynamics of Turkey, on the other. He nevertheless criticizes the fact that the impacts of the proliferation of the private sector in electricity production under state guarantee has not enabled restructuring or technological upgrade in the context of restructuring in electricity production.

Since the 1990s, dependency on natural gas in electricity production has dominated the agenda with declining investments that depend on domestic energy sources and renewable energy sources since they were replaced by imported sources (Tamzok, 2007). Tamzok (2007) clearly asserts that the primary size of trade deficits in Turkey are due to the import of energy and this situation prevents distributional policies and their reflections to the real sector in Turkey. He further states that using imported energy has resulted not only in increasing trade deficits, abandoned supply safety and utilization of domestic energy sources in electricity production, but also in the use of expensive electricity due to imported natural gas dependency. Expensive energy use in the industrial sector has also been denoted to lead to a decrease in competitiveness dynamics. The passivation of MTA as an institution has almost resulted in the cease of exploration for coal especially after 1990, due to the changing legislation through Mining Law No: 3213 (Tamzok and Torun, 2005). There are obstacles to investments in the coal and electricity sector by the private sector due to legislative regulations that pose high risks for investors in these sectors and the ongoing ambiguity in this context (Tamzok, 2007).

1994 represents the legislative restructuring specific to Zonguldak for the legitimization of the selling of buildings and land owned by TTK. The pressure of discourse on decline of the state continues and is revealed in pit closures and contraction dictation on the agenda. 1997 informs the economic crises and

expanding operations of private firms in Zonguldak (Tuncer, 1998). Regression in production in the metal industry, including iron and steel industry, starts in 1998.

#### **3.3.2.4. The period after 2000: intense integration with the global world**

The post-2000 period is founded on the rapid and exaggerated privatization of some strategic sectors, especially for the 2004-2005 period (TMMOB, 2008).

The period between 2000 and 2005 is characterized by the restructuring program of TTK including new labor employment and working at deeper distances in coal mining production. Private firms operating on royalty areas left by TTK are enhanced with a motivation to decrease production costs. There have emerged changing energy landscapes within the Zonguldak region through private thermal power station investments, some of which are licensed to operate with imported coal (Enerji Piyasası Danışma Kurulu [EPDK]).

Established as a strategic institution to provide supply for domestic iron and steel demand in Turkey, ERDEMİR is privatized in 2005 and the public share is stated to be lost through the privatization of one of the major public enterprises in terms of its importance in industry and economy (TMMOB, 2008).

### **3.4. Conclusion**

The coal mining industry stands at the intersecting ground with the energy sector and are both affected by dynamics that are shaped by global technological change in terms of both changes in coal production technologies and environmental regulations resulting from constraints on sulphur and carbon monoxide emissions. As a strategic sector, the national energy policies and regulations on energy management are closely interrelated with use of coal in the energy sector.

The national economic restructuring process involves coal mining industry because it directly intervenes in the production process as an economic activity through

changes in investment structure and institutional restructuring as part of changing legislative ground. Deregulation, disinvestment, deindustrialization, and deunionization processes define the meso level conceptual relationship between mutual change within national economic restructuring that acts on regional development policies and coal mining industry.

Discussed in this chapter, the parallel change between national economic restructuring and the coal mining industry in Zonguldak, with particular emphasis on the changing policies on state owned enterprise system referring to TTK and on the dynamics in coal production within the Zonguldak region, a micro perspective will be given on the impacts, outcomes, intervention strategies and response capacity dimensions in the next chapters.

To emphasize the period after 1980 and the 1990s, it is considered **a discourse and reinforcement of decline** on TTK in the Zonguldak Region which is evident in the 24 Jan 1980 economic program that also introduces a weakening for organized labor power. The enhanced privatization and down-sizing implications are evident in the 1990s which are characterized by April 5. 1994 economic program which emphasizes the EU accession process while after 2000, integration to supra regional partnerships is emphasized. The reason behind mentioning these characteristics of periods is the observation of repercussive developments in Zonguldak Region as will be discussed in the next chapters<sup>25</sup>.

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<sup>25</sup> The reader may find an integrated construct of chapter 4, chapter 5 and chapter 6 based on decline impacts of deindustrialization and restructuring process in Figure 5.



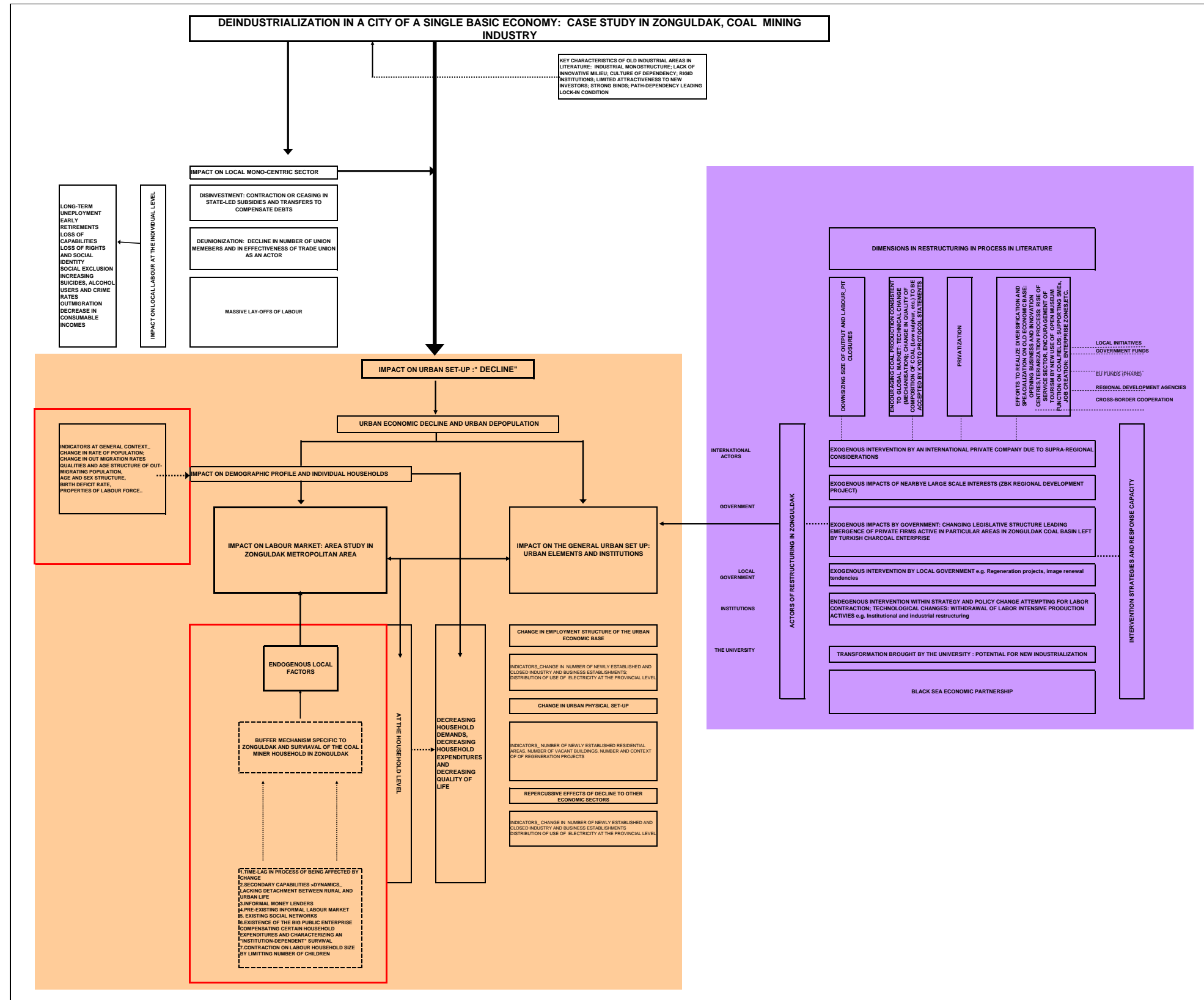


Figure 5. Main approach to studying decline impacts of deindustrialization and the restructuring process in Zonguldak

## CHAPTER 4

### DISCUSSING DECLINE IMPACTS OF DEINDUSTRIALIZATION IN ZONGULDAK IN SOCIO-SPATIAL CONTEXT<sup>26</sup>

Decline in Zonguldak meant intense change revealing both local and regional impacts in diverse dimensions. Zonguldak as a province comprised a geographical production cluster integrated within coal mining industry spatially dominant in Zonguldak Metropolitan Area [ZMA], iron and steel manufacturing industry in Ereğli and previously in Karabük, and coal burning thermal power station in Çatalağzı at the regional level. TTK, ERDEMİR and KARDEMİR and also ÇATES was the main actors of this production cluster. Zonguldak's coal was the major component in industrialization of Turkey and thus Zonguldak is the first industrial city. It also was a strategic region for the energy sector of Turkey. The change and further decline impacts of deindustrialization in Zonguldak can be understood by analyzing it on different scales and from diverse perspectives to present a multi-layer evaluation.

The structural changes of post 1980 that reflect on deindustrialization, deregulation, disinvestment and deunionization have accompanied changing development policies on the one hand, and on the other hand, changing energy policies relating to changes in use of primary resources in energy production. Both structural changes and changing energy policies lie behind the deindustrialization and further restructuring processes in Zonguldak taking place both regionally and locally.

Disintegration within the geographical cluster started with the use of imported coal in the 1970s in the iron and steel manufacturing industry. The spatial separation of Bartın and Karabük from Zonguldak to become provinces reinforced this disintegration.

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<sup>26</sup> Figure 5 can be observed to see the dimensions in evaluating the problematic in Zonguldak Case

At the provincial level, a dual structure appeared which was led by Ereğli and Zonguldak (center) with reference to iron and steel manufacturing industry managed by ERDEMİR and coal mining industry managed by TTK. Meanwhile, TTK entered a process of down-sizing after 1980 and ERDEMİR was privatized in the 2000s. The process starting from a development trajectory based on creation of economies of scale via creation of a heavy industrial region to deindustrialization and restructuring process within a discourse on decline, evident in down-sizing, privatization implementations and efforts for diversification lays the background for considering change in Zonguldak.

The thesis study focuses on the deindustrialization in coal mining industry in Zonguldak by taking into consideration its decline impacts in the single economic base locality, namely Zonguldak Metropolitan Area. Zonguldak Metropolitan Area is composed of the four cities of Kozlu, Zonguldak, Kilimli and Çatalağzı where coal production dominated the local economy. The local history of Zonguldak, especially the metropolitan area of the four cities of Kozlu, Zonguldak, Kilimli and Çatalağzı, demonstrates how socio-spatial change and restructuring as part of national economic restructuring and changing regional development policies in Turkey was experienced by a single economic base industrial region.

#### **4.1. A review on characteristics of Zonguldak: A historical investigation until the mid 1990s**

Zonguldak has unique characteristics both as a region/province in the West Black Sea Region and as a region in Turkey. It is the only region/province that possesses a charcoal basin. Coal production in the basin formed the basic economic activity with complementary industries, iron and steel manufacturing and electricity production in coal burning thermal power stations. Not having a much diversified economic base, coal mining in Zonguldak, in especially Zonguldak Metropolitan Area, affected and manipulated population movements and urbanization process as reflected in the settlement pattern, land ownership of the basin and the specific social structure within the region.

Of the unique characteristics, *the rural labor* having relation of reason with lag in labor class formation and lag in urbanization process was evident (Makal, 2002). This characteristic also reveals a specific buffer mechanism involved in survival strategies through creating a secondary income generation for the labor households. *Obligatory working practices* of coal miners until the early Republican Period are stated as a unique working practice managed by the state (Zaman, 2004; Makal, 2005; Makal, 2007). Such strongly constructed binds with labor and economic activity was transformed and developed by the state enterprise, EKİ embedding in socio-spatial structure of the region integrated with many services, including social and cultural services and urban facilities for one concrete reason: to provide permanent labor through a rotative worker policy in the 1960s (Tekeli, 1965; Makal, 2002; Gündoğan, 2005).

A break is observed in the period before and after 1980 because it reveals a reinforcement of decline discourse. The period after 1990 uncovers deepened decline impacts of deindustrialization and the early restructuring process until the period after 2000 when new developments and new plans considering regional and urban restructuring processes are witnessed.

#### **4.1.1. Zonguldak in its region**

The Black Sea Region, where Zonguldak is located, is far from the national transportation system. Detachment from the Central Anatolia transportation system due to the mountains and the depopulation through out-migration from the region are characteristic. Also, the constraints on agricultural activity due to limited agricultural land in the coastal areas are major features of the region. Zonguldak in the Black Sea keeps important nodes for the regional population with Karabük and Ereğli. Until the 1990s, Zonguldak, Bartın and Karabük formed a whole within the provincial boundaries and within the production cluster whose major components are coal and iron and steel manufacturing. After the mid-1990s, the region was partitioned into three provinces. Zonguldak province as a region exhibits a dual structure formed by Ereğli and the Zonguldak Metropolitan Area. This dual structure

owes itself to ERDEMİR factory in Ereğli and TTK in the Zonguldak Metropolitan Area.

The situation of Zonguldak as a province changed as is seen in the change in its economic, social and physical characteristics with reference to certain periodical events. In this study, the Zonguldak Regional Pre-Plan (1964) and the Zonguldak Metropolitan Plan (1975) are considered as important sources to comprehend the history of Zonguldak within the period 1960-1980. Year 1980, as a break in both national economic model and industrialization announced the start of deindustrialization. Zonguldak, Bartın, Karabük Regional Development Plan (1997) revealed the dynamics behind the discourse of decline and the start of the restructuring process which took place through down-sizing of TTK, privatization experiences in iron and steel manufacturing industry and diversification strategies for the region reflected on the changing role of the state (Devlet Planlama Teşkilatı, State Planning Organization [DPT], n.d.; Gündoğan, 2005).

The change in primary economic structure of the Zonguldak region became apparent in 1829 when coal was found in the basin (T.C. İmar ve İskan Bakanlığı, Turkish Republic Ministry of Reconstruction and Settlement [TCİİB], 1964). It was stated in the Zonguldak Regional Pre-Plan (1964) that the change was founded on a shift from trade activities dominated in Ereğli to coal mining (TCİİB, 1964). Furthermore, coal production was declared to be introduced under management of foreign firms in 1848 in the basin (Gündoğan, 2005). It was also stated in the plan that management of the coal mines and extraction of the coal from the coal basin was started by the French firms in the region whose ownership passed to the Ottomans in 1210. Accordingly, the plan acknowledged that coal miners from Greece, Belgium, Germany, and France came to the basin to work for the period between 1865 and 1900.

Gündoğan (2005) acknowledges that the increasing coal production in Zonguldak led to the change in ownership of coal sites and management of coal production after 1945. Accordingly, he adds that coal production was decided to be managed by (Ereğli Kömür İşletmeleri, Ereğli Coal Enterprises, [EKİ]), a unit of (Türkiye

Kömür İşletmeleri, Coal Enterprises of Turkey, [TKİ]) which owned the mines in Zonguldak in 1957.

Apart from detection of coal and consequently coal production, the strategic decisions on establishment of iron and steel factories of Karabük in 1937 and ERDEMİR in 1960 in the province were critical for economic life of the region. The enhancement of an industrial production cluster in the region occurred consequently, although the prominence was given to the strategic value of the location of the factories rather than the geographical consistency of the decisions.

In the Zonguldak Regional Pre-Plan (1964), Zonguldak is described as the only province comprising a charcoal reserve in Turkey and consequently, it is stated as the only region where the iron and steel manufacturing were dominant. The plan also indicates that the income of the region obtained from the non-agricultural sector was above the average in Turkey, whereas its income from agriculture remained below the average in Turkey in the 1960s (TCİİB, 1964). Additionally, the complex structure of the mining areas that make mining activities difficult were highlighted. Moreover, it was stressed that the topographic assets of the region made transportation links with other provinces difficult while limiting the settlement pattern.

The proposals on specialization of the Ereğli district in iron and steel manufacturing as a center of heavy industry in iron and steel manufacturing at the regional and national levels was brought by Zonguldak Regional Pilot Project in the early 1960s (Gürer, 1964). The main aim for the region in the 1960s was set as the development of industrial branches, primarily coal mining and iron and steel industry in the Zonguldak Regional Pre-Plan based on a concern for achieving consistency with the first five year development plan and coordination between the national plan, the first five year development plan at the upper scales and with urban plans at the lower scales (Yenen, 1964).

The main goals of the Zonguldak Regional Pre-Plan (1964) was declared in the plan report to founded on balancing the relationship between population growth and economic growth in the long term, minimizing income inequalities in the region,

maximizing the efficiency of investments to be made in Zonguldak Region, realizing studies for balancing public and private investments within the region, developing non agricultural economic activities, and enhancing urbanization, developing physical infrastructure of the region.

The topographic characteristics of the region put constraints on available land which is suitable for settlement. It was reported in the plan that only the 33% of the region was suitable for settlement due to topographic characteristics of the region (TCİİB, 1964). It was also declared that the population growth rate of the region remained parallel to that of Turkey whereas the urban population growth surpassed the urban population growth rate of Turkey for the 1960s (TCİİB, 1964).

A major characteristic of the region as part of the social structure was the generation of secondary income for the agricultural workers. According to Zonguldak Regional Pre-Plan (1964) it is a fact that the population working in agriculture expanded their per capita income by additional incomes obtained by working in coal mines. Working in the coal mines served as a tool to generate additional income to the population working in the agriculture sector. Major income inequalities among urban population in terms of agricultural and non-agricultural economic activity resulted in the search for survival strategies for the population working in agriculture sector in this regard (TCİİB, 1964).

In contrast to other provinces in the West Black Sea Region, the urbanization in Zonguldak was faster as was its rate of urban population growth that exceeded the Turkey values in the 1960s (TCİİB, 1964). Unlike the urban population growth rate of the province, the rural population growth rate of Zonguldak remained below that of Turkey in the 1960s in relation with the industrial structure of the region (TCİİB, 1964).

It was explained in the Zonguldak Regional Pre-Plan (1964) that the Zonguldak region in the 1960s had specialized districts, one of which was Çaycuma, where a high density of rural population existed. Additionally, Karabük, a center of heavy industry, was the district with the most accelerated population growth in the 1960s due to the investments made in iron and steel manufacturing. On the other hand,

Bartın was the district with the lowest population growth for the same period (TCİİB, 1964).

It was declared in the Zonguldak Regional Pre-Plan (1964) that out migration from the region continued in the 1960s reaching over 10000 population settlements. The in-migration to the region mostly originated from Trabzon while out-migration of the population was mostly towards Ankara and Istanbul for the same period. It was added that the period between 1950 and 1960 reflected an increase in in-migration to the region. It was interpreted in the plan that the one month in the mine, one month in the village working practice, peculiar to rotative working practice, had a decreasing effect on the rural-urban migration (TCİİB, 1964).

Zonguldak Regional Pre-Plan (1964) emphasizes that Zonguldak and Karabük are the two settlements that exhibit metropolitan properties relying on the daily flows among working places and residential areas. Further, it was highlighted that the highest percentage of the economically active population belonged to agriculture whereas the low rate of service sector and the low rate of female labor participation stayed striking for the 1960s (TCİİB, 1964).

According to Zonguldak Regional, Pre-Plan, (1964), the coal production in the basin was 61.000 tons in 1865 while it reached 200.000 tons in 1898. After modernization in coal production by the French Societe d'Heraclie also responsible for the construction of the Zonguldak port and the railway in Kozlu and Kilimli, coal production was declared to reach 904.000 tons (TCİİB, 1964).

The coal production centers within the region were stated to be Zonguldak, Kozlu and Ereğli reflecting previously primitive extraction methods, high transportation costs and economic activity only in the coast areas. Again, in the first stages of coal mining as an industrial and economic activity a limited production and use of cheap imported coal from the UK, Cardiff and New castle was on the agenda. The Zonguldak coal basin for the first time witnessed a production of one million tons after the First World War in 1926 (TCİİB, 1964). Mechanization, the development of transport facilities and enlargement of the port area were on the agenda in Zonguldak in the post Second World War Period. It was added that coal production



in the basin could continue for another 150 years, that the coal reserve was used below capacity and that it was possible to find a larger market for coal.

The complex geological structure of the basin remained as a characteristic that made production difficult and in addition the content of coal was composed of additional schist which required filtering and washing in washeries before sale according to Zonguldak Regional Pre-Plan. It was stated that the high slope as well as multi-sectional structure of the grains made the mechanization difficult in the region and this caused that profitability relied on the increase in production workers. There were two coal washing components of TTK, one in Zonguldak and one in Çatalağzı to transport coal by seaway and motorway (TCİİB, 1964).

According to Zonguldak Regional, Pre-Plan, a disorganized settlement pattern was dominant in the 1960s until a linear macroform arose along the coast with increasing densities between Bartın, Çaycuma and Devrek. The proximity coal beds, agricultural land and land suitable for housing, and forestry areas were stated to indicate the intensifying densities within the settlement pattern. Accordingly, in the 1960s, the Devrek Çaycuma and Bartın area were the most densely and highly populated area due to the existence of coal beds, soil suitable for agriculture and land suitable for settlement. It also was declared in the Zonguldak Regional Pre-Plan that the urbanization in the region was delayed based on the observation that urban settlement could not be developed except some second degree urban centers despite a hundred year coal production within the region. Kiray (1964) relates the delay of urbanization with **the rotative worker** policies enabling temporary living in the city in addition to returning to villages. Further, this was shown as the reason beyond the low productivity both in industrial and agricultural production.

The reason behind the lagging service sector in the region for the period between 1935 and 1940 was stated as the imbalance between private and public sector activities in the region (TCİİB, 1964).

#### **4.1.2. Zonguldak as a coal mining city**

Zonguldak was the first industrial city and yet the first city of Turkey. The strong bind between coal mining and the socio-spatial pattern in Zonguldak was evident especially in Zonguldak metropolitan area comprising the four cities of Kozlu, Zonguldak, Kilimli and Çatalağzı. Coal was existential both for the industrialization and urbanization process for Zonguldak. The difficult topography, the geological constraints originated from the tasma areas and specific property ownership were the major components to affect the social and economic processes of change. Apart from the complex topography and ownership pattern, the forestry areas limited the settlement area while the coastal area served as an opening to the Black Sea.

Coal production described the path dependent economy of Zonguldak while dependency on a mono-sectoral firm that managed the industry affected the urban social structure. Zonguldak transformed from an old fishing village to a cluster of cities after the discovery of coal in the basin. A metropolitan effect in the region was caused by the establishment of the coal enterprises (TCİİB, 1964). The period of the EKİ in the 1940s reflected evident developments in the urbanization process of Zonguldak while it enhanced the social structure of the population through proliferating socio-cultural activities.

The current coal production in the basin as well as the current spatial settlement pattern took its current form with reference to Tezkere-i Samiye in 1911 in Zonguldak (TCİİB, 1964).

Zonguldak city was the only city with a population between 50.000 and 100000 in the West Black Sea Region and furthermore it was the only province receiving net migration from other provinces in the 1960s (TCİİB, 1964). It was declared in the Zonguldak Regional Pre-Plan that it was mining as an economic activity that mostly affected demographic characteristics and population movements within the region. Further, the obligatory working practices of the active population and rotative labor policies were evident in the region. The rotative labor policies were stressed to

cause the condition of the rural population stability due to secondary income generation of the rural coal miner through working in the mines (TCİİB, 1964).

The legislative constraints on land prevented the development of an urban settlement pattern. This issue of legislative limits on the urban land enhanced squatter housing on treasury land and municipality land (TCİİB, 1964). According to TCİİB (1964), 50 % of the total Zonguldak settlement area was squatter housing in the 1960s. It was stressed that squatter housing population formed 29% of the urban population in the region in the 1960s. The advice of the regional preplan report was to have the perquisite of following rational land policies. The relationship between coal enterprises, labor and the legislative burdens in front of the enlargement of the borders of the settlement was declared to reinforce squatter housing within the region (TCİİB, 1964).

It was concluded that state owned EKİ's taking over of the trade activities was the main reason for the underdeveloped trade activities within the region (TCİİB, 1964). The regional pre-plan report clearly asserts that a problem of unbalance existed between employment and the population in the region. Daily trips between work and home were affirmed as the basic factor in determining settlement policies and also in giving the metropolitan character.

Zonguldak metropolitan area represented the first metropolitan public administration and the first case for public administration of union of municipalities. Zonguldak Metropolitan Area Development Plan involved the period between 1960 and 1980 and proposed linear spatial development for ZMA. Gündoğan (2005, p.79) mentions the purpose of the plan as "creating a modern hierarchy of centers involving a compact center". He further stresses the major points of the plan as transforming Zonguldak to a regional center for the West Black Sea Region in the form of a compact center within a modern hierarchy of centers in linear settlement form, taking hold of the private ownership on land in ZMA so as to take advantage of the aggregated urban economy and benefiting from an economy of scale.

The Zonguldak Metropolitan Area Development Plan pointed out dimensions of uncertainties affecting the settlement pattern and development strategies due to

lack of clear determination of definite coal reserve borders and tasman impact area, lack of a program on coal production and uncertainties on investments to be made in the region (ZMABBÖBa, 1975). Zonguldak Metropolitan Area Plan saw the dominance of public sector ownership as an advantage in realizing development decisions within the metropolitan area due to zero cost of land and authority on manipulating land uses. Proposing a housing program for the metropolitan area, the plan emphasized the continuation of construction on land with tasman danger.

According to the housing program made for the period between 1975 and 1995 in the ZMA Development Plan, social and economic structure of households in Zonguldak Metropolitan Area were signified by a rurally originated out migration in the 1970s (ZMABBÖB, 1976). Zonguldak city center was defined as a center serving both the metropolitan area and the region (ZMABBÖBa, 1975). It was expected in the plan that ZMA would continue to receive in-migration until 1980 by increasing its metropolitan activities while losing its agricultural activities.

ZMA in the 1970s was defined to have consistent population size to reflect economies of scale in the Zonguldak metropolitan Area Development Plan. According to the plan, development of physical infrastructure was proposed with particular emphasis on pollution of water resources due to industrial disposes . In addition, Rehabilitation and revitalization was proposed for the housing areas (ZMABBÖBa, 1975). It was further stressed that the main obstacle in the way of the emergence of the region as a center and a node for goods and services was the undeveloped transportation links (ZMABBÖBb, 1975).

Eventually, coming to the 1990s, the statement in Zonguldak Province Report summarized the situation of the city just before the intense restructuring process in Zonguldak as follows: “The Zonguldak central district in economic and social lives identified with coal and TTK has been observed to be at the crossroads” (DPT, 1990, p.1). This statement was found to be true in the years to follow.

Monitoring change in Zonguldak especially concentrating on the period between 1960 and 1980 creates questions about how Zonguldak with its endogenous potential and characteristics was affected. Further, what was the cost of change

and at what dimensions could such impacts and outcomes in the socio-spatial context be observed. The next chapter answers such questions. Decline impacts of deindustrialization investigated mainly by bringing together statistical data and the comments of the interviewees within the available information on change in Zonguldak.

#### **4.2. Decline impacts of deindustrialization on the whole urban set-up: Urban economic decline and urban depopulation**

Decline in Zonguldak was rooted in the social, economic and political lives of many people perpetuating in their daily lives and further changing their culture and life styles. Decline impacts of deindustrialization were integrated into the daily lives of citizens of Zonguldak<sup>27</sup> The increasing out migration from the region was defined as below:

Zonguldak as a city of hope experienced a decadence. While Zonguldak was *gurbet*<sup>28</sup>, the local population living in Zonguldak has become *gurbetçi*<sup>29</sup>

The decline in Zonguldak was also defined through experienced retrogression in cultural life and it is noted that the intelligentsia of Zonguldak become a chaos in time. It is declared that even the loss of both the intelligentsia and the embedded local knowledge occurred<sup>29</sup>.

Zonguldak, an industrial region as a province, entered a deindustrialization process after 1980 and are still experiencing the consequences of industrial decline and transformation brought by this process. Located on the only charcoal basin of Turkey, Zonguldak metropolitan area depended on charcoal production managed

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<sup>27</sup> The Informant G.Y.

<sup>28</sup> *gurbet* means the place to where one goes to turn back, *gurbetçi* is the one who goes to *gurbet*

<sup>29</sup> The Informant İ.M.

by the state owned enterprise, TTK. Zonguldak Metropolitan Area including the four adjacent cities of Kozlu, Zonguldak (center), Kilimli and Çatalağzı have represented how a single economic base metropolitan area has experienced socio-economic and socio-spatial restructuring associated with decline impacts of deindustrialization.

Coal production has been existential for Zonguldak metropolitan area; thus, both social structure, economic structure and spatial structure have strong binds with the basic economic activity of coal mining. Decline impacts and outcomes of deindustrialization are examined by monitoring the impacts on the whole urban set-up with particular emphasis on urban economic decline and urban depopulation.

The impacts of deindustrialization in Zonguldak, whose local economy is not much diversified, have been basically evident in demographic change and population outflow from the region and unemployment associated with the down sizing process of the mono-centric firm, TTK. Hence, urban depopulation is evaluated by monitoring changes in out migration rates from the region and declining population growth rates. Further, urban economic decline is focused on via the decline process experienced by the local mono-centric firm and thus decline in coal production. General impacts on local population are drawn on with particular interest in changes in the labor market in the coal mining industry and their households<sup>30</sup>. Changes in the labor market are evaluated through assessment of changes in labor participation rates and employment schemes with reference to sectoral distribution. The impacts on general urban set-up are investigated with reference to changing socio-economic provincial indicators of Zonguldak in comparison with sub regions of TR8 West Black Sea Region comparatively.

Monitoring parameters of urban depopulation and urban economic decline, decline impacts of deindustrialization in Zonguldak center district and specifically ZMA become more evident when compared with Zonguldak, Bartın, Karabük Region as

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<sup>30</sup> The reader can find in-depth evaluation of impacts on and responses from the coal miner households as subject to the area study in chapter 5.

well as the West Black Sea Region at the regional dimension<sup>31</sup>. Apart from available statistical data at the regional and provincial level, interviews made with informants were used to evaluate decline impacts of deindustrialization in Zonguldak Metropolitan Area.

Observation and evaluation on impacts and outcomes of deindustrialization in Zonguldak serve to explore change and restructuring processes over diverse dimensions and reveal mutual interactions and underlying mechanisms in relation with wider restructuring processes. These dimensions, particularly, were determined to be the decline process in the coal mining sector, the local mono-centric firm, the labor market and their households in the first stage. Consistently, these dimensions lay within context dependent relations with changing national policies on investments in state owned enterprises, on energy policies and further down-sizing process of the firm in addition to privatization experiences of the two basic iron and steel factories, KARDEMİR and ERDEMİR.

Zonguldak region is the first region for which a regional plan was prepared in Turkish planning history. The regional plan served as one of the main tools of state intervention in the planned economic development process characterizing the 1960s in Turkey (Gürer, 1964). It was specific due to its role in the industrialization process of Turkey and in a development process led by the developmentalist state in the 1960s.

Planned to be a heavy industrial pole dominantly composed of coal mining and iron and steel manufacturing in the 1960s for Zonguldak region/province, Zonguldak metropolitan area is an interesting base for observation on how a state owned enterprise has been embedded in the socio-spatial development process of a locality in a dominant single economic activity. It is a fact that this relationship has diverse dimensions in social, economic and spatial structure and patterns as well. The change and restructuring process in Zonguldak, hence, serves as a milieu to

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<sup>31</sup> The high unemployment rate of 9.1% in Zonguldak Center for 2000 is striking when compared with Zonguldak province (5.2%), Zonguldak Bartın Karabük Region (5.4%), the West Black Sea Region (5.7%) and Turkey (8.9%) and gives insights to decline.

observe transformation in strong binds within economic activity and social structure, within industrial production and spatial pattern. It is a region that is rigged out by loops of demographic tendencies, of limits to residential development, of labor within organized labor power, capability and hard working conditions all related to a basic reference, the Coal Basin.

Local characteristics particular to Zonguldak have been effective in coping with decline impacts of deindustrialization. In other words, local idiosyncrasies of Zonguldak can act as buffer mechanisms in facing decline and can reduce the intensity of these impacts. One of the characteristic local inputs in evaluation of change in Zonguldak Metropolitan Area have been attributed to its existence as a single economic base locality revealing strong binds and insularity. It is due that repercussions of decline impacts become much more intense in this kind of localities. Furthermore, this kind of local economic base comprises path dependency concerning a single economic base and socio- spatial structure attached to it. Nevertheless, the rural labor as an important characteristic of social structure and labor structure in the locality has given a major insight to restructuring process by revealing buffer mechanisms to face decline at the household level on the one hand and also softening lock-ins in the restructuring process on the other. Long term dependency on a single sector managed by a mono-centric, vertically integrated state firm reveals the tradition of expectancy on external intervention such as government aids. This characteristic also reveals the weak entrepreneurial capacity and limited ability in generating endogenous potential within the locality. Thus, this limited potential affects response capacity at the local institutional level.

Decline impacts on the whole urban set-up have been observable in evaluation of urban economic decline and urban depopulation. Impacts on local economy, on the labor market, on the demographic profile and individual households remain characteristic when pulling the curtain behind decline discourse and different forms of verification for it. As already discussed, the deindustrialization period after 1980 with deepening dynamics of restructuring after 1990 have been major developments as origins of creation of impacts on local economy and local population. The key event against the discourse reveals itself with the big strike of the coal miners in 1990-1991 as a reactionary and pro-active action from the labor



side when down-sizing deepened with implications of early retirement, lay-offs of labor and pit closures. Apart from general socio-economic indicators for statistical analysis, especially impacts on the labor market in relation with restructuring in TTK and national policies enhancing deindustrialization, deregulation, disinvestment, deunionization and privatization can be emphasized. That is where the focus can be directed to the most directly affected group and their households to observe the impacts, outcomes and change by their relational conceptualization at the wider dimensions also involving urban change.

Looking through an inner objective to the change in Zonguldak, an informant remarks that:

The decline in employment size.. The new generations becoming unable to find jobs... The fall in purchasing power of the retired people... All of those reveal major social, economic and political consequences in Zonguldak<sup>32</sup>.

As a brief introduction, change in Zonguldak reveals such symptoms for the period between 1975 and 2000 in terms of data at the province level (Turkish Statistics Institute a [TÜİK], 2002):

- decreasing annual growth rate of population
- age structure getting older
- decreasing average size of households
- increasing unemployment rate
- decreasing labor participation rate
- decreasing rate of population working in industry
- increasing rate of population working in service sector
- decreasing rate of retired people, increasing rate of students
- increasing out migration signaled by increasing rates of (-) net migration (its peak value is -73.8% in 2000)

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<sup>32</sup> The Informant, İ.M.

#### 4.2.1. Impact on demographic profile and individual households

Demographic changes including demographic movements have been closely linked to the impacts of decline on individual households. The impacts of decline on individual households can mostly be stressed as the repercussions of unemployment and relatedly the decrease of the household income in terms of declining purchasing power. Most of the population movements hide behind the motivation to overcome this kind of crisis conditions.

An informant<sup>32</sup> snapshots the change in situation of the households as:

Parallel to the economic incapacibilities, depression has aroused within households. They have lost their tomorrow. This was the case for period between 1980 and 2001, the years of crisis.

The demographic change in Zonguldak can be characterized by transformation of a young, dynamic and a relatively homogenous population into an older and heterogenous population (Erkin, 1999). Consequently, the transition of Zonguldak region as attracting in-migration to a region losing population due to out-migration is remarkable. The downturn in receiving population, often with hope to work in the pits has had links with the deindustrialization process in the coal mining industry.

An informant denotes that “This city is a city where there is a reserve for production”<sup>33</sup>. However, the current situation of the city has been described as “almost a city of pensioners”. Similarly, another informant explicates as “The accelerated in-migration to Zonguldak who mostly became employed population before 1980 has turned out to be high rates of out-migration from the region”<sup>34</sup>.

The social and economic structure particular to Zonguldak has been defined with its relations to the situation of the households and the population movements by an informant as below:

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<sup>33</sup> The Informant, G.Y.

<sup>34</sup> The Informant, İ.M.

The community in Zonguldak is nested with the mines. The pits are hope for everyone for sustaining a living. The people living in Zonguldak have the expectation of working in the mines and therefore they are not ready to work in another sector and they have not acquired any other occupation. After the downsizing of TTK, due to the decrease in the number of the coal miners/labor and the lack of re-employment in place of them, everyone has become unemployed. Unemployment increased extremely after this process. Because of the permanent unemployment of the community, they become economically vulnerable; they start to face psychological problems in their households. As a result, these people have become obliged to leave Zonguldak gradually. The ones losing hope of finding a job in the mines start to out-migrate from the region. This process of down-sizing in TTK has also started a movement of migration simultaneously in Zonguldak. Therefore, when you look at the population of Zonguldak now, they are in İstanbul, Ankara, Bursa, Gebze, Antalya and they work there and they are obliged to make their living there. The down sizing of the mines has enormously affected Zonguldak. The economic structure of the community has deteriorated. They find themselves in problems concerning their cost of living<sup>35</sup>.

Another informant related the high out-migration rates from the region and the change in number of associations in Zonguldak:

The out-migration has become a major problem in the region. While Zonguldak was a city composed of many associations from diverse provinces, associations of citizens of Zonguldak have begun to appear in other provinces<sup>34</sup>.

When reviewing the census data, the demographic change mainly concentrates on change in characteristics of demographic profile, household size and population movements. Declining population growth rates accompanied by accelerated out migration rates can be pointed out as striking for Zonguldak province compared to other provinces in the West Black Sea Region. It was stated in the Census of Population (2000) that the population is getting older with reference to the comparison of population pyramids belonging to 1955 and 2000 (TÜİK b, 2002).

The main reason behind declining population growth rates is explained as out migration based on high rates of unemployment<sup>36</sup>. Further, the decrease in population is related to the fact that Zonguldak lacks working areas other than coal mining<sup>37</sup>.

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<sup>35</sup> The Informant, V.Ç.

<sup>36</sup> The Informant, H.Ö.

The separation of Bartın and Karabük from the Zonguldak region after 1990 by their ecoming provinces affected the data concerning population change observed in Zonguldak. However, data on migrational population movements help in assessing the declining population for the same period. The decline in the population growth rate is remarkable, especially after 1980 and 1990, while 1990 acts as a breaking point to emphasize the declining size of population according to Provincial Indicators for the period (1980-2003) (TÜİK a, n.d.), as can be seen in Figure 6. The data in Provincial Indicators for the period (1980-2003) shows that the deep decline in population growth between 1990 and 2000 parallel to the increasing population density is evident, as can be seen in Figure. 6 and Figure. 7 (TÜİK a, n.d.).

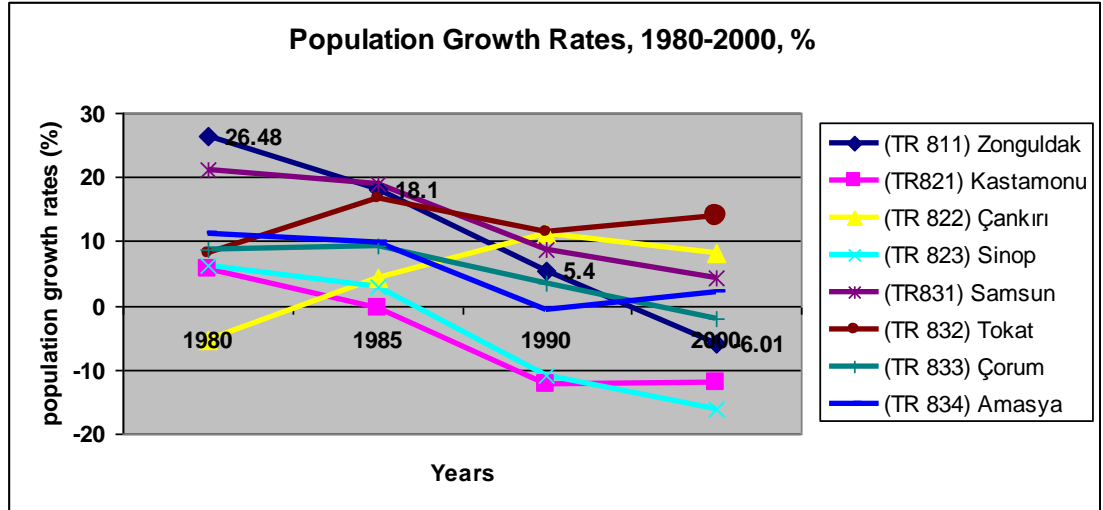


Figure 6. Population growth rates, 1980-2000

Reference: TÜİK a, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

<sup>37</sup> The Informant, G.Y.

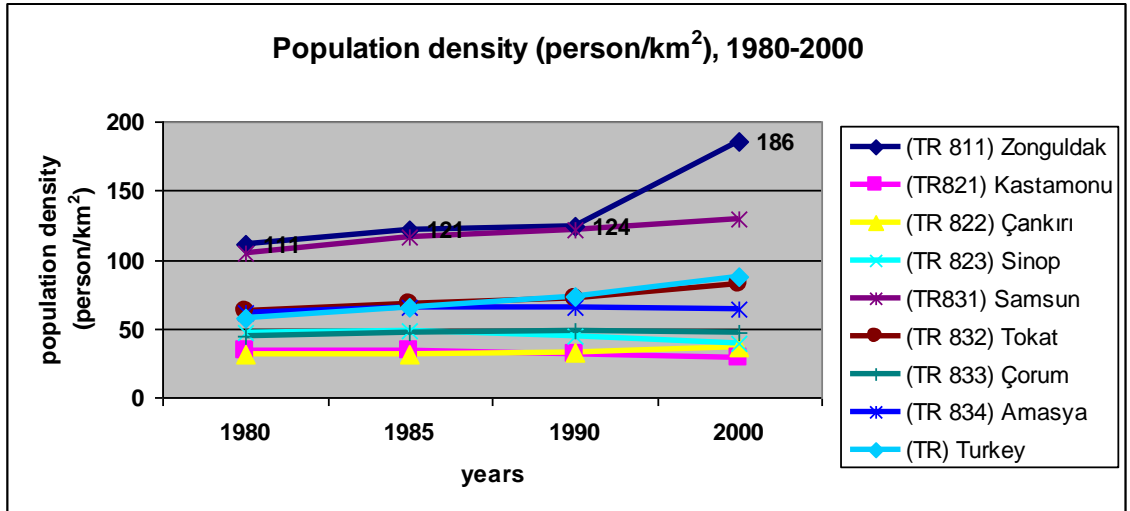


Figure 7. Population density, 1980-2000

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

On the one hand, a steady increase in city population growth rate appears in the period between 1980 and 2000, and the 1985-1990 period has the highest value within that period, as can be observed in Figure 8. On the other hand, Zonguldak had the lowest degree of city population growth rate within TR8 region (West Black Sea Region) after 1990.

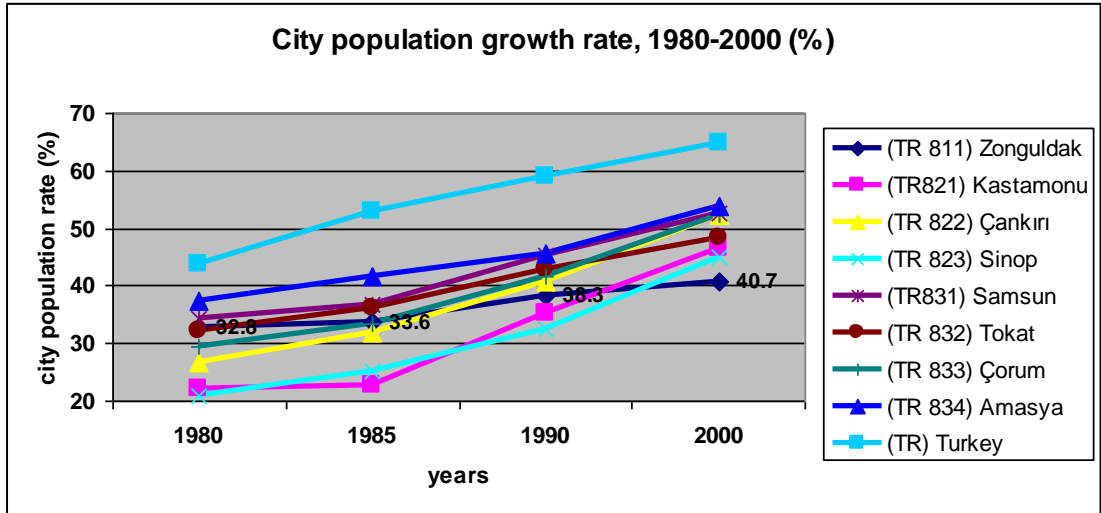


Figure 8. City population rate, 1980-2000

Reference: TÜİK a, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

When evaluating migration in Zonguldak between 1975 and 2000, the decline in in-migration and the incline in out-migration resulting in decreasing net-migration values are remarkable (TÜİK b, 2002, TÜİK c, n.d.). Consequently, the out migration rates from the Zonguldak province increased after 1980, accelerating for the period 1985-1990 and further deepened for period 1995-2000, as shown in Figure 9 (TÜİK c, n.d.).

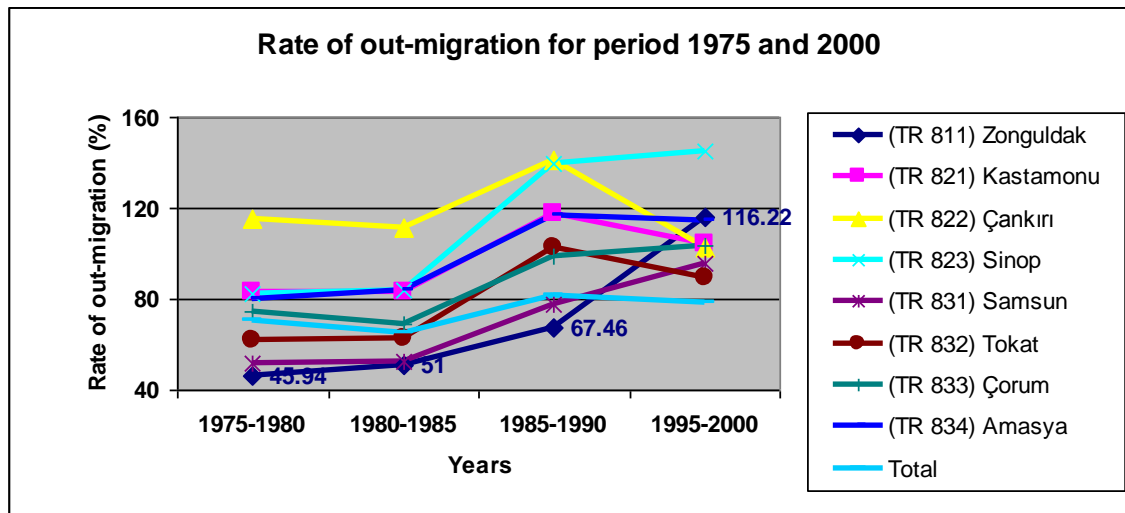


Figure 9. Rate of out migration for period 1975 and 2000

Reference: TÜİK c, n.d. 2000 Migration Statistics. (No.2877). Ankara.

A more detailed investigation on population movements was made for Zonguldak based on the migration data for the years 1990 to 2000. The ones who migrated to Zonguldak province in 1990 have predominantly come to Zonguldak center and representing 16.37 % of the total number of migrating population to Zonguldak province. 0.46% rate represents the size of the population migrated to district centers whereas 7.79% represents subdistricts and villages of Zonguldak. The population migrated to Zonguldak province have mostly come from Zonguldak subdistricts and villages (19.94%), Zonguldak district centers (11.31%), İstanbul province center (7.23%), Zonguldak province center (6.54%), Ankara province center (3.69%) and Çankırı province center (3.14%). The population that migrated to Zonguldak province center have mostly come from Zonguldak district centers (21.08%) and Zonguldak subdistricts and villages (16%), İstanbul province center (7.43%), Ankara province center (5.54%) and Trabzon district center (2.56%) (TÜİK).

The out-migration data on Zonguldak province for year 1990 shows that out-migration was evident mostly from Zonguldak province center by a rate of 23.78%, followed by Karabük district center (10.74%), Ereğli district center (7.93%), Bartın district center (4.73%) and Zonguldak subdistricts and villages (4.72%). The

direction of the out-migrated population from Zonguldak province center mostly was to İstanbul province center by a rate of 25.14% in total out-migrated population from Zonguldak province. İstanbul province center was followed by Zonguldak subdistricts and villages (7.98%) and Zonguldak district centers (7.78%). The out migration from Zonguldak province center mostly was to İstanbul province center (23.62%) in total outmigrated population from Zonguldak province followed by Zonguldak district centers (14%), Zonguldak subdistricts and villages (7.11%) and Ankara province center (4.61%) (TÜİK).

The data on migration statistics is detailed and compatible with neighbourhood borders. Thus makes it possible to comment on migrational population movements for the Zonguldak Metropolitan Area (ZMA) consisting of Kozlu, Zonguldak, Kilimli, Çatalağzı. Gelik also was included for evaluation of the data for ZMA. The in-migrated population within ZMA mostly was to Zonguldak center district from Zonguldak subdistricts and villages followed by Zonguldak districts (9.89%), Zonguldak province center (9.47%) and Ankara province center (4.40%). The in-migrated population to Zonguldak province mostly come from Zonguldak subdistricts and villages (18%) followed by Zonguldak district centers (12.34%) and İstanbul province center (10.08%) (TÜİK).

Within the total in-migrated population to ZMA, for the year 2000, the out-migrated population from Zonguldak center district was 63.69 % whereas that from Kilimli center was at a rate of 14.82%, that from Kozlu center at a rate of 16.93%, that from Çatalağzı at a rate of 2.84% and that of Gelik at a rate of 1.72% (TÜİK).

The region yielding the highest value of out-migrated population within Zonguldak province was Zonguldak province center. The ratio of Zonguldak province center in total out migrated population from Zonguldak province was 33.29%. This rate was followed by Ereğli district center with 13.33 %, Devrek district center with 9.15%, Çaycuma district center with 8.45 %, Çaycuma subdistricts and villages with 7.62%, Devrek subdistricts and villages with 6.78 %, Zonguldak subdistricts and villages with 5.76% and Ereğli subdistricts and villages with 4.57%. The out-migration of the population from the Zonguldak province center become dense in Kilimli center



(3.36 %), Bursa, Yıldırım district center, İstanbul küçükçekmece center (2.01%), Ereğli center (1.87%) and İstanbul Bağcılar Center (1.83%) (TÜİK).

The rate of people in-migrating to Zonguldak to work in mining and quarrying remained 5.89%, while the rate of people in-migrating to Zonguldak to work in manufacturing industry was 8.65% in 2000. The highest rate of people in-migrating to Zonguldak is seen in the sector of community, social and personal services, 51.35% (TÜİK). The change in local economy was observable following the population movements concerning Zonguldak.

As a concluding remark, it is consistent to remark that the net migration rates for Zonguldak become very different comparing the periods 1975-1980, 1980-1985, 1985-1990 and 1995-2000 reflecting values of 10.8%, -20%, -29.4% and -73.8% (TÜİK c, n.d).

As can be seen in Figure 10, the average household size has slightly contracted, mostly acceleratingly for the period 1990-2000 while the total fertility rate has the tendency to decline, most rapidly for the period between 1980 and 1985 , and for the period after 1980.

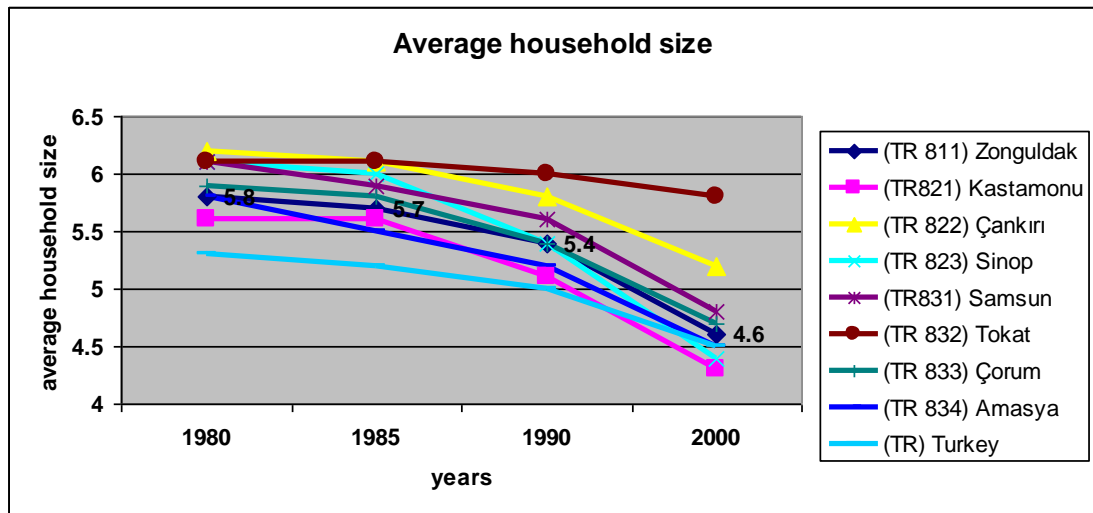


Figure 10. Average household size, 1980-2000

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

The age dependency ratio also tends to decline after 1980 in stable terms after 1980, as can be observed in Figure. 11.

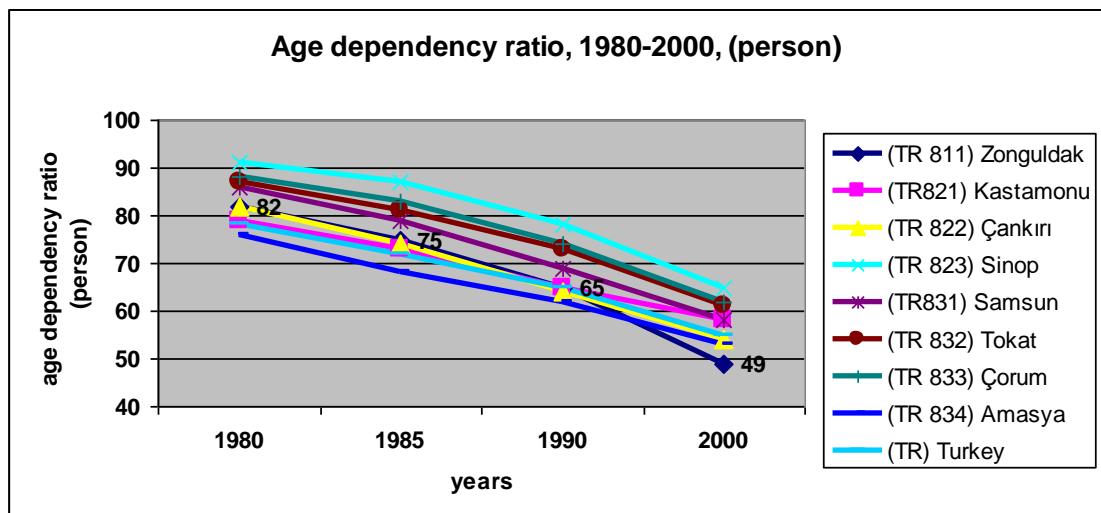


Figure 11. Age dependency ratio, 1980-2000

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

Particular to further demographic characteristics of Zonguldak, both the infant and child mortality rates for the period 1980-2000 declined (TÜİK a, n.d.). The ratio of population by literacy is high and increasing in Zonguldak for the period 1980-2000, just above the Turkey values (TÜİK a, n.d.). The rate of university graduates increased after 1980, accelerating for the period 1985-1990 and deeply inclining for the period 1990-2000, in consistency with the general Turkey values and TR8 (West Black Sea region), as can be seen in Figure12.

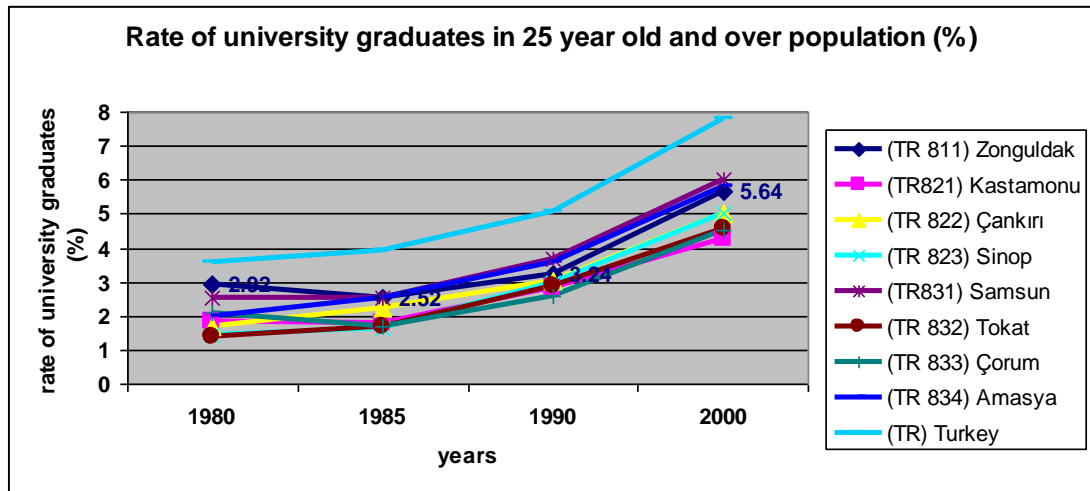


Figure 12. Rate of university graduates 1980-2000

Reference: TÜİK a, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

The changing demographic characteristics and further depopulation through out migration has links with changes in the economy. The next chapter is based on the decline impacts of deindustrialization on local economy and local labor within a context of a downsizing process of TTK.

#### **4.2.2. Impact on local economy and on local labor: an emphasis on down-sizing process of TTK**

The decline impact of deindustrialization in the coal mining industry has obviously reflected on the declining number of employed coal miners who act as a major group in the social structure of the city and, hence, the local population. In operational means, the coal miners have formed the only independent factor in determining produced output and thus, profitability in coal production in Zonguldak as a perquisite in deep underground mining. Yet, the unemployment brought by lay offs and early retirement policies in Zonguldak have affected the social structure of the local community which deepened in household survival strategies and also reflected on depressive impacts in terms of psychological circumstances. These consequences have been repercussions of the down-sizing of the mono-centric firm of the single economic base of coal mining.

An informant mentions the issue saying that:

There was an ongoing shrinking in the number of coal miners working in the pits. New coal miners were not employed in place of the retired workers<sup>38</sup>.

The fact that unemployment is probable to transform into long-term unemployment is owed to the socio-economic structure of the locality of a single economic base. Although the private mining firms which would become active in the 1990s served to introduce a relatively small employment size for the locality, the conditions and rights of the miners would become harder in terms of working practices.

The unemployment has also meant a transformation in the local characteristics of rural labor. An informant asserted that the down-sizing of the mono-centric firm has also brought changes in the perception of Zonguldak as gurbet<sup>39</sup>. He also explains that:

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<sup>38</sup> The informant, V.Ç.

<sup>39</sup> the place where one goes, works and then returns to the village.

The first generation managed to return to the villages and sustain their rural life. The second generation that has cut their relations with rural life stood in the middle and did not know what to do or where to go when they became unemployed<sup>40</sup>.

He further characterizes the social depression of the period as “emergence of depressed generations in a period when great unemployment was dominant”<sup>40</sup>. Moreover, the change brought by the down-sizing of TTK was interpreted as “the demolition of a culture and a life style peculiar to TTK in former times” from the perspective of an informant<sup>41</sup>.

Of the basic impacts on local economy, local labor and further individual households, changes in employment structure can be discussed in addition to changes in employment and unemployment rates, respectively. Obviously, this issue can be considered part of institutional change especially for a mono-sectoral economy historically managed by a mono-centric firm, as in Zonguldak Metropolitan Area.

When looking at the issue by monitoring the statistical data for Zonguldak at the provincial level, the unemployment rates belonging to 1980 and 1985 stay higher than the Turkey values when it approaches the national unemployment rate for 1990 and eventually remains below it by 2000 as shown in Figure 13. The intense decline in terms of employment schemes in Zonguldak is observed before 1990, when a new period of restructuring started to appear both regionally and locally and also in terms of coal production and urban regeneration, especially in Zonguldak Metropolitan Area with an emphasis on Zonguldak province center. It might be useful to point out that the university was established in Zonguldak in the 1990s and became an actor in enhancing service sector employment in Zonguldak.

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<sup>40</sup> The informant, İ.M.

<sup>41</sup> The informant, H.K.

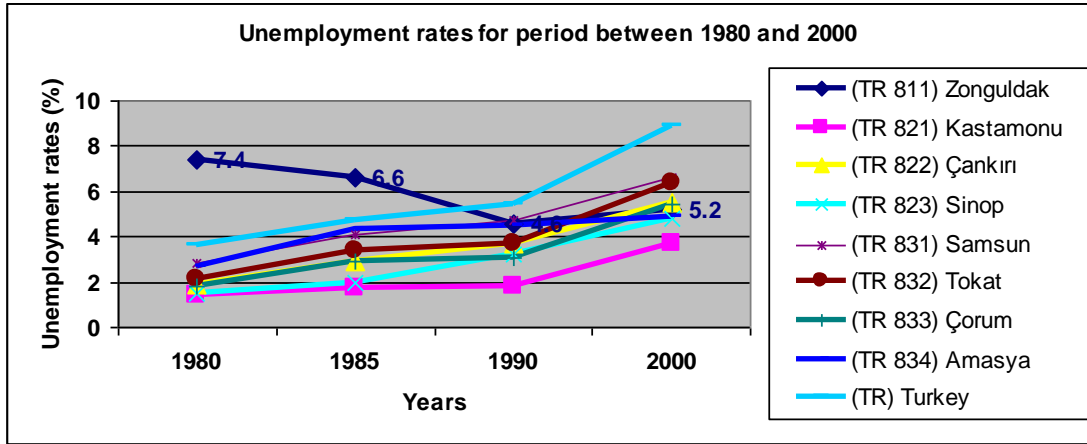


Figure 13. Unemployment rate, 1980-2000

Reference: TÜİK a, n.d.

The steady decline of male labor force participation together with female labor force participation, which first increased until 1990 and decreased after 1990, illustrate the decreasing total labor force participation rate between the years 1980-2000 in Zonguldak Province (TÜİK b, 2002). The decrease in employed labor working in TTK between years 1942-2004 is also emphasizing within the locality as can be observed from Figure 14 (TTK web site).

It can be observed from Figure. 14 that the first oil crisis in 1973 motivated a protectionist strategy on charcoal production observed in rise in employment while deep decline in labor was evident after 1980, when the economic model changed. Moreover, after 1986, the Morgan bank Plan on privatization and consensus on unproductivity of the TTK firm, and also after the early retirement in the 1991-1992 period, followed by 2001 crisis until decisions on new labor employment in 2006, labor declined (TTK web site).

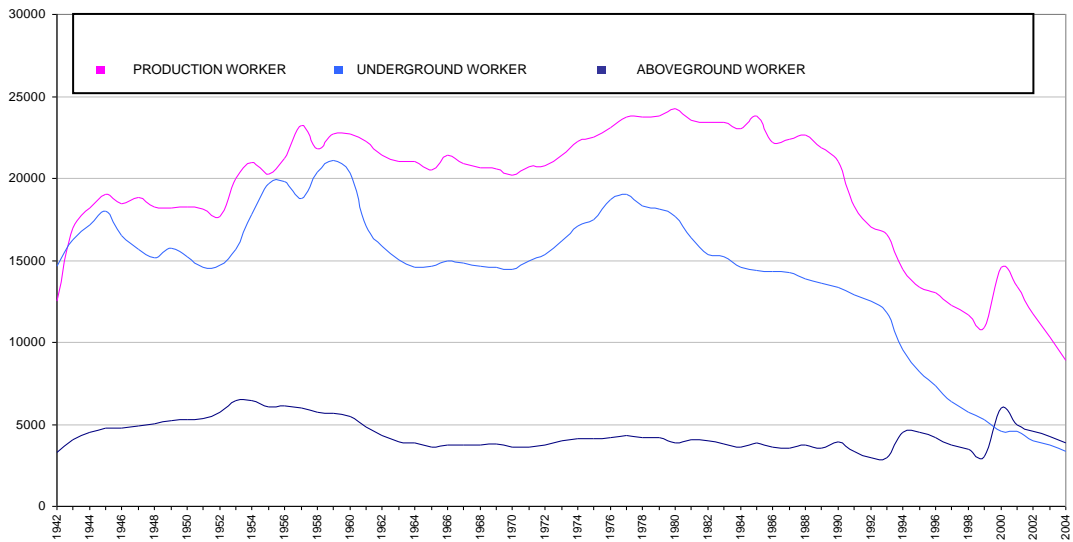


Figure 14. Decline in number of employed labor for TTK for period, 1942-2004

Reference: TTK web site

According to data in TÜİK a, (n.d.) the labor participation rate in Zonguldak has the lowest values within TR8 region for 1980 and 1985 also laying behind Turkey values for the concerned years when it reached a nearby value in 1990 followed by a decrease as for TR8 in 2000 as shown in Figure 15.

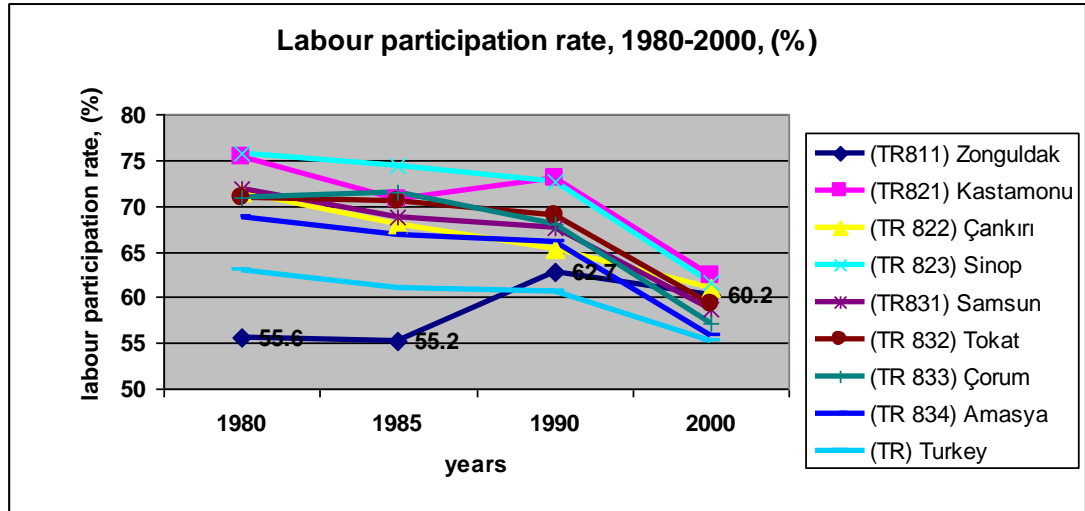


Figure 15. Labour participation rate, 1980-2000

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

Zonguldak held a higher share of industrial workers in the total employed population than TR8 Region, excluding Karabük in 2000, as shown in Figure 16. The share of industrial workers in the total employed population stayed above the figure for Turkey and TR8 region, even for the period 1980 and 2000. Within the Zonguldak province itself, the share of industrial workers in the total employed population in Zonguldak severely declined after 1980 when it slowed down keeping a tendency to decline between 1990 and 2000. The share of industrial workers in the total employed population in Zonguldak in 2000 was lower than that of Karabük followed by Bartın with a difference of more than 10% within the TR811 region.



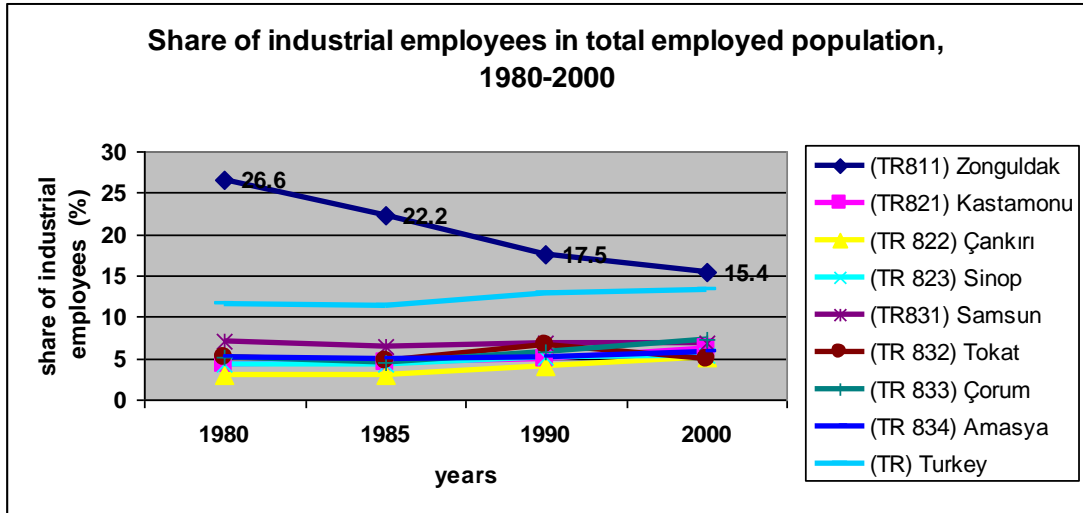


Figure 16. Share of industrial employees, 1980-2000

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

The share of annual rate of manufacturing industry workers and value added in manufacturing industry in Zonguldak also had a higher profile of values than the TR8 Region for the period 1980-2002 as is shown in Figure 17. Share of annual rate of manufacturing industry workers in Zonguldak shows periods of decline and relative stagnancy for the period between 1980 and 2002 and deepens for the period 1990-1995.

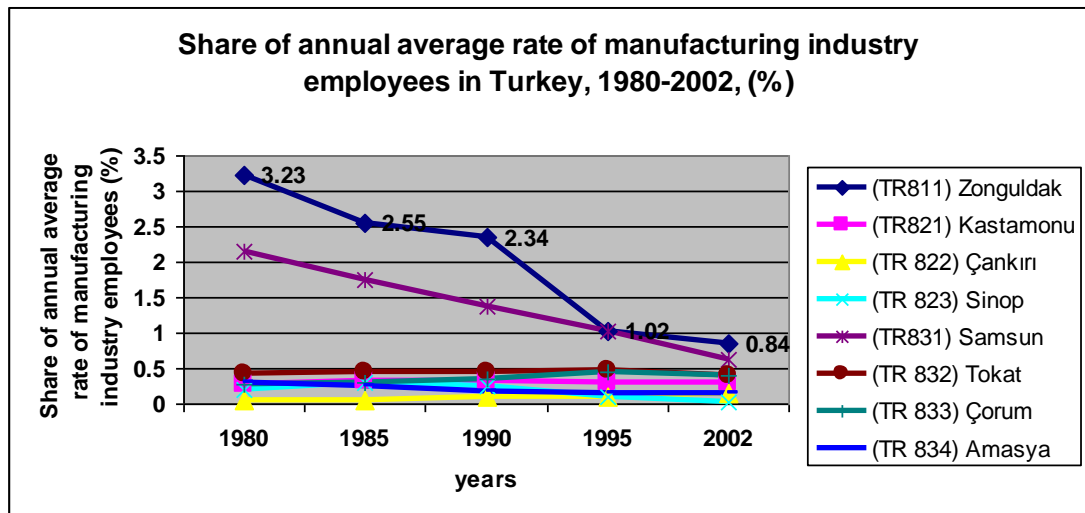


Figure 17. Share of manufacturing employees, 1980-2000

Reference: TÜİK a, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

The share of value added in manufacturing industry in Zonguldak declined until 1995 after which it increased for the period 1995-2002, as is shown in Figure 18 (TÜİK a, n.d.).

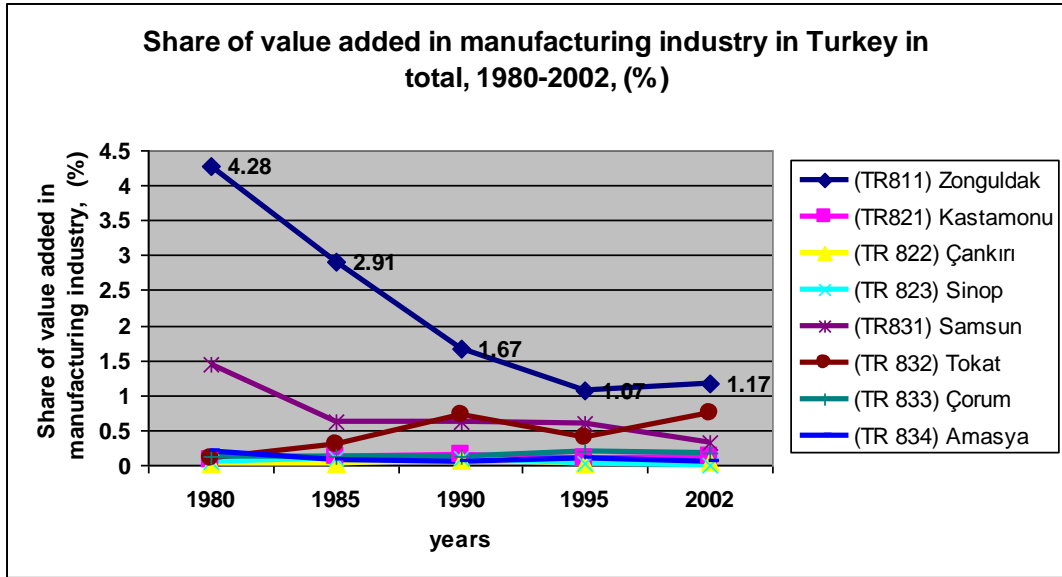


Figure 18. Share of value added in manufacturing industry

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

The share of mining and quarrying average number of workers in the total employed population increased by 7.06 % for the period (1995-2000) while this share declined profoundly by 9.55% and remained 2.41% in 2000 as illustrated in Figure 19.

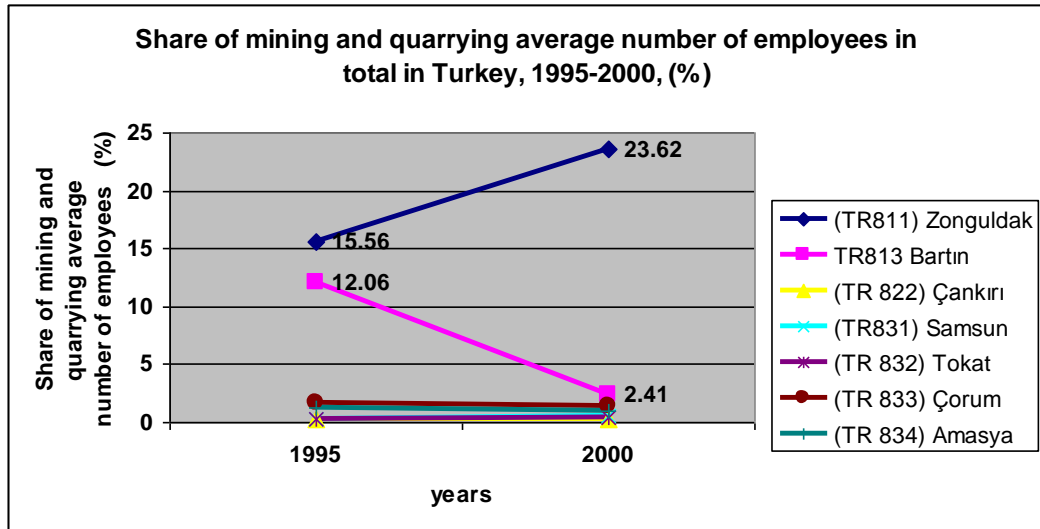


Figure 19. Share of mining and quarrying average number of employees, 1980-2000  
Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

Value added of mining and quarrying sector in Zonguldak increased by 3.28% between 1995 and 2000 in comparison with the values for Turkey as shown in Figure 20.

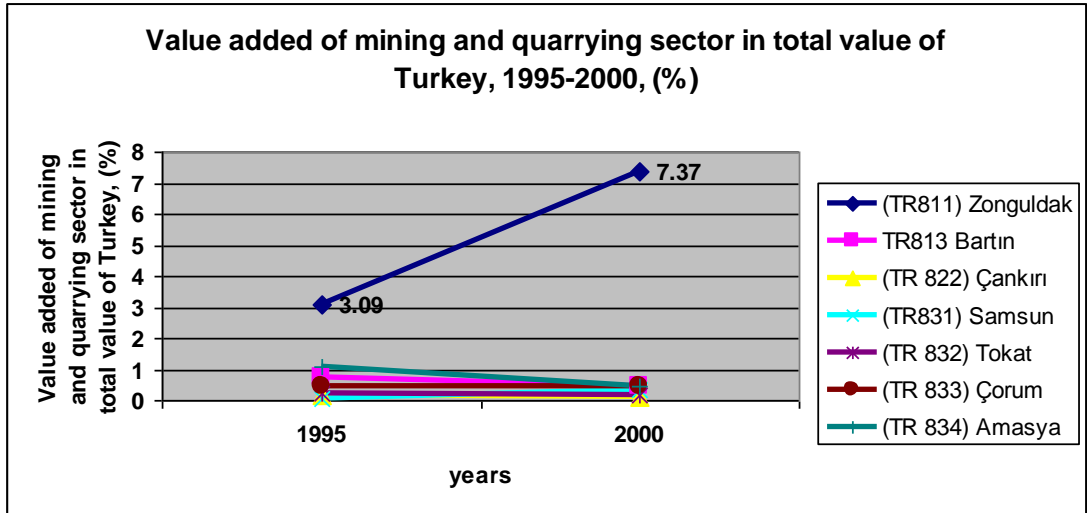


Figure 20. Value added of mining and quarrying sector, 1995-2000  
 Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

Returning to the scale of the metropolitan area, urban economic decline in relation with the down-sizing process of TTK can be said to have major impacts on the whole urban set-up, in particular to the labor market. This can be once more linked to the dominant single economic base structure of the metropolitan area. Consistent with the periodical evaluation of socio-economic restructuring and its impacts on TTK and charcoal production, certain profile changes can be summarized.

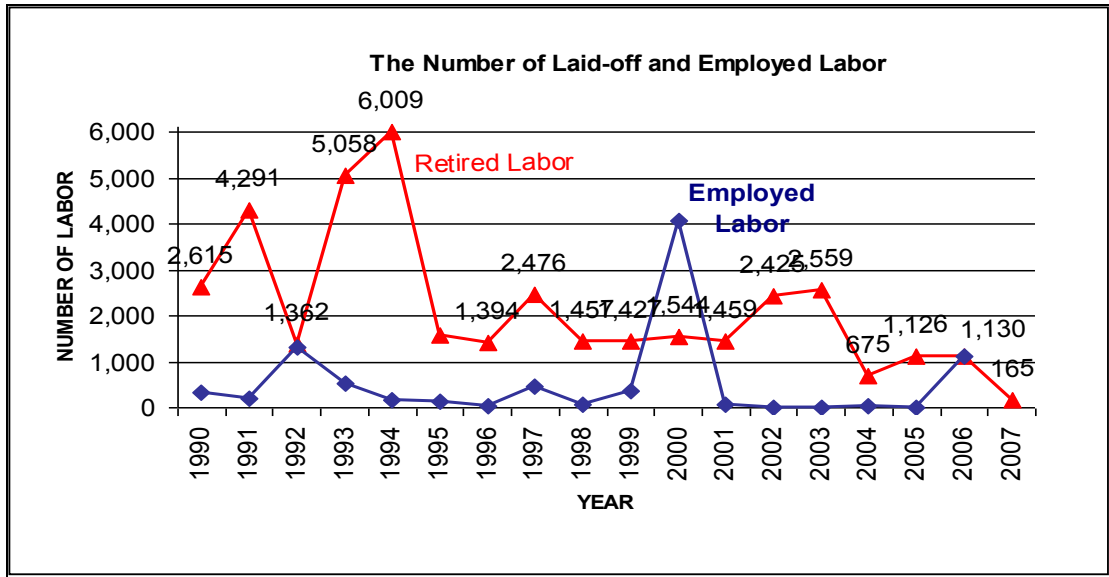


Figure 21. Change in number of employed and retired labor, 1990-2007

Reference: GMİS, (2007, Mayıs). TürkiyeTaşkömürü Kurumu Raporu,

2000, 2001, 2006 new employment decisions of TTK are evident while the 1990-1995 period signifies a very high rate of retired labor as observed from Figure 21.

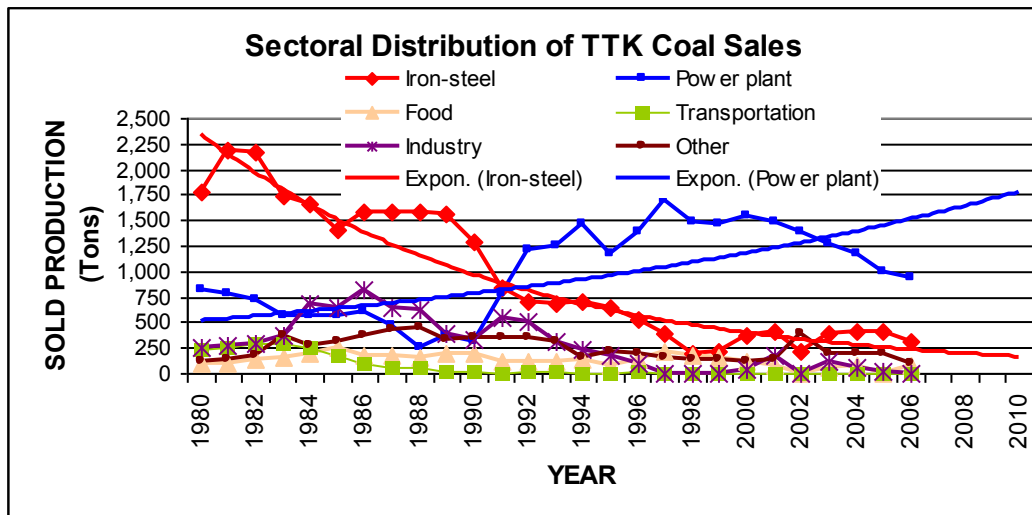


Figure 22. Change of sold coal within its distribution in complementary industrial sectors

Reference: GMİS, (2007, Mayıs). TürkiyeTaşkömürü Kurumu Raporu.

To evaluate the interlinkages within the geographical industrial region considering Zonguldak, it is important to view that the input relation to iron and steel manufacturing sector experienced a deep decline after 1983 and 1985 with an increase in the decline rate, which deepened in 1990 and reached its lowest values in 1998 followed by 2002 and 2006 for the period after 1980 as shown in Figure 22.

The interlinkages with thermal power plants increased between 1990 and 2000 with declining rates in 1996 and 1999 in comparison with the period between 1980 and 1988, which showed a sharp decline until 1990 and a relatively steadily decreasing rate of input linkage after 2000 compared with the period between 1990 and 2000 as seen in Figure 22.

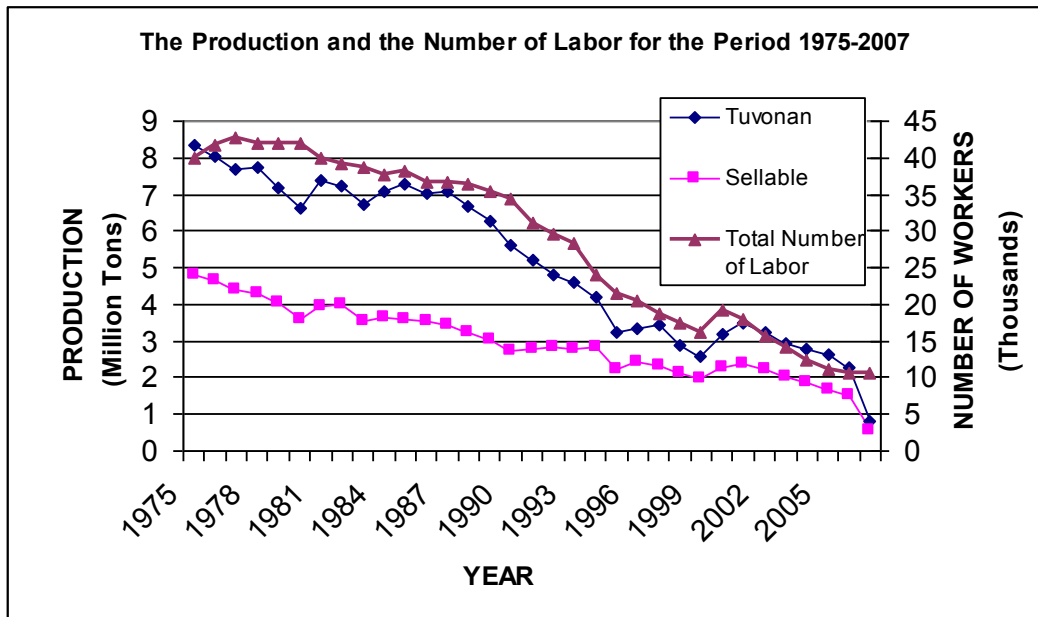


Figure 23. Change in TTK coal production and number of labor between years, 1975- 2007  
Reference: GMİS, (2007, Mayıs). TürkiyeTaşkömürü Kurumu Raporu.

The post 1980 period shows the decline in sellable production of coal in TTK with breaking points of decline in 1981, in 1984, in 1991, during the 1997 crisis and the 2001 crisis as observed from Figure 23.

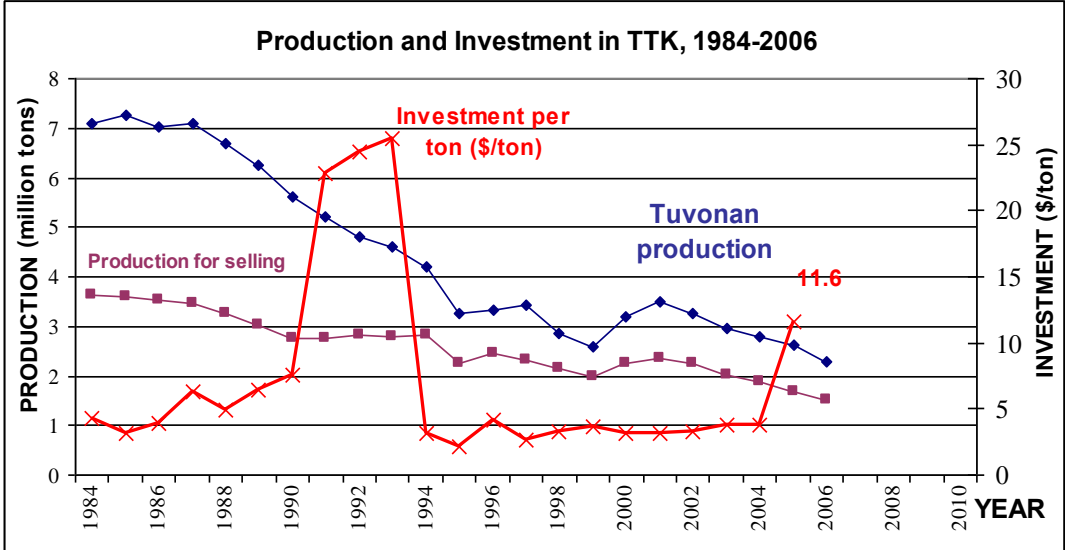


Figure 24. Change in coal production and in investment in TTK  
Reference: GMİS, (2007, Mayıs). TürkiyeTaşkömürü Kurumu Raporu.

Figure 24 clearly points out the restructuring program started for TTK after 1990 with WB and JAPAN EXIMBANK credits (Zaman, 2004, GMİS, 2007).



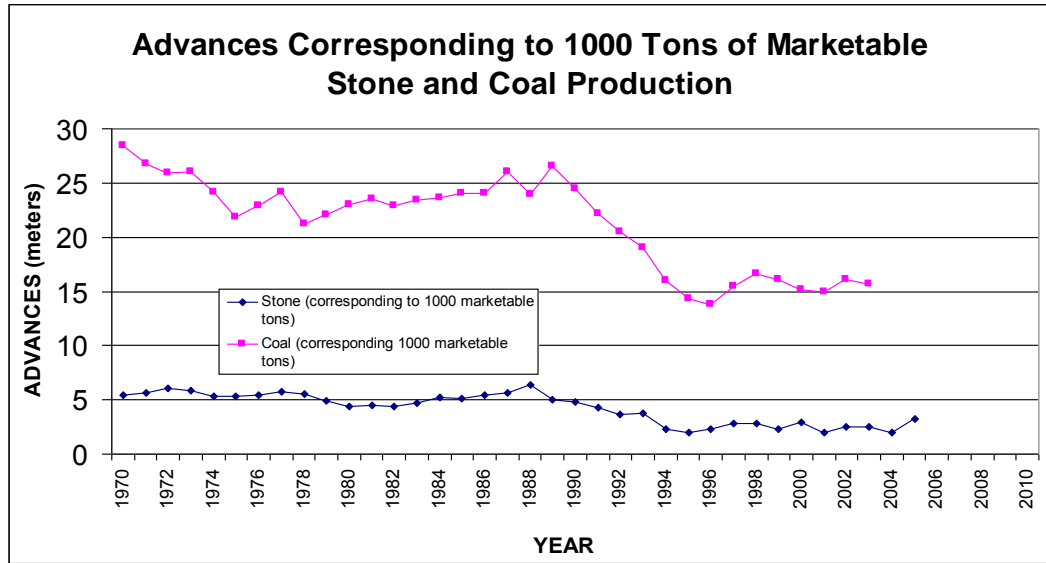


Figure 25. The advances in marketing coal and stone compensating 1000 tons sold production

Reference: GMİS, (2007, Mayıs). TürkiyeTaşkömürü Kurumu Raporu.

1988 is a remarkable breaking point for the decline in the firm in terms of operational advances as seen in Figure 25.

#### 4.3. Impact on urban elements and institutions

The downsizing of TTK and the decline impacts of the deindustrialization attached to this process have also involved further changes in urban elements and institutions. Briefly, the changes in employment structure of the urban economic base are associated with changes in economic sectors other than coal mining and also changes in urban physical set-up have completed the investigation of decline impacts of deindustrialization in Zonguldak.

#### **4.3.1. Change in employment structure of the urban economic base**

The impacts of deindustrialization on urban elements and institutions which form the general urban set-up can be considered by monitoring changes in urban economic base parallel to changes in employment structure, the further impacts of this change on economic sectors other than coal mining and also on urban physical set-up. This cumulative evaluation sheds light on the socio-spatial change in Zonguldak Metropolitan Area.

Decreasing employment in industry and increasing employment in the service sector is remarkable in evaluating the basic change in employment structure in Zonguldak by 2000 (TÜİK b, 2002). Unemployment, especially long-term unemployment, was affirmed to accompany this evaluation (Ersoy and Şengül, 2000).

Of the statistical data which would give contributions to the changes in employment structure particular to Zonguldak was monitored. Basically, the data involved per capita electricity consumption and industrial electricity consumption and the share of agricultural employees.

Per capita electricity consumption in Zonguldak which exhibited values above TR8 Region for the period 1985-2002 indicate an increase that accelerated after 1995, as shown in Figure 26.

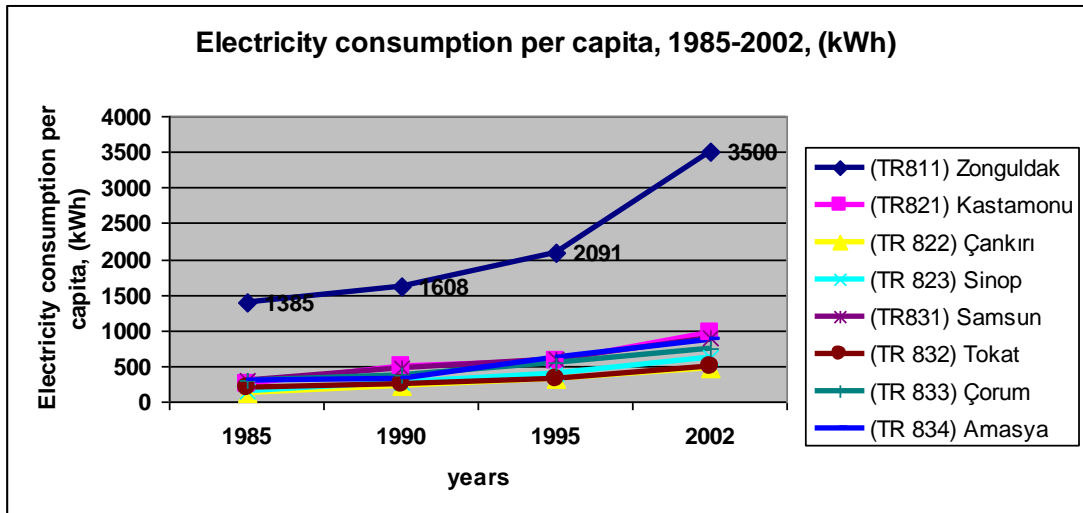


Figure 26. Electricity consumption per capita, 1985-2002

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

The change in the value of per capita industrial electricity consumption showed a stagnant figure when it accelerated after 1995, as shown in Figure 27.

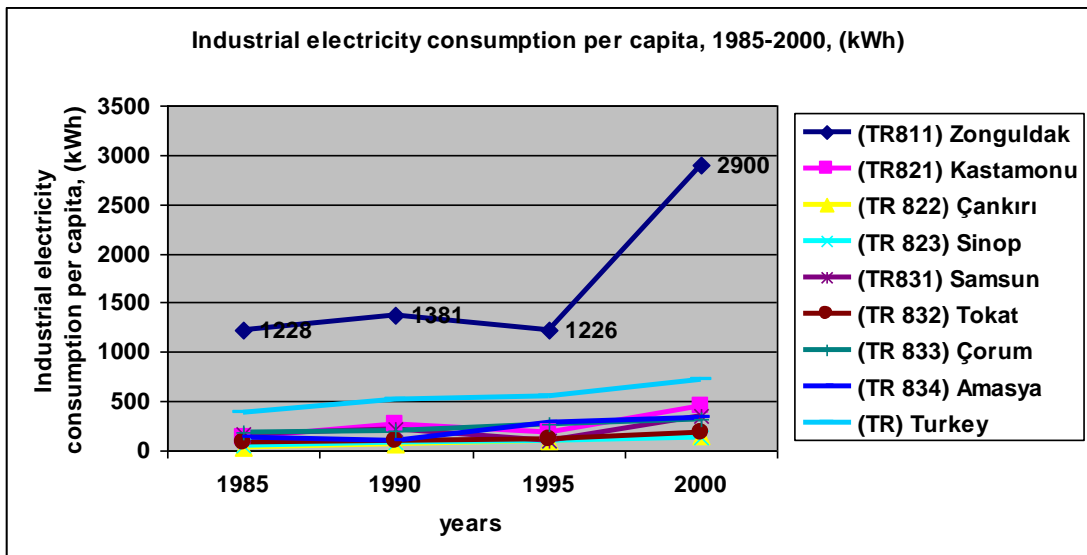


Figure 27. Industrial electricity consumption per capita, 1985-2000

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

The share of agricultural employees in total employed population (%) in Zonguldak increased at a slow pace during 1980-2002 which has the lowest values within TR8 region that remain above Turkey values for 1990 and 2002 (TÜİK a, n.d.) Nevertheless, the period witnessed an above 50% rate in employment base. The crop production value slowly increased for the period 1995-2002 representing the lowest values in TR8 Region (TÜİK a, n.d.). There was no significant change in the number of tractors per 1000 people in Zonguldak for the period 1995-2002, with the exception of an increase between 1995 and 2000. The period between 2000 and 2002 signified a non significant decrease in agricultural credit per capita (YTL) (TÜİK a, n.d.).

It is observed that the numbers of persons per bed and per doctor declined between the period 1995 and 2000. This period coincided with the opening of the Faculty of Medicine in Kozlu, in Zonguldak, which attracted a population of students and faculty to the region (TÜİK a, n.d.).

Additional information on the level and use of financial resources and also the change in investments were considered to evaluate changes in the economic structure of the region at the provincial level reflecting changes in employment structure. Firstly, the GDP (\$) increased and left behind TR 8 West Black Sea region in 1990 when it exceeded the Turkey values in 2001 (TÜİK a, n.d.). This can be interpreted with regard to the separation of two provinces from Zonguldak and further the increase in out migration after 1990 in distributional terms. Bank deposits per capita (\$) in Zonguldak increased for the period 1990-2002 and accelerated mostly between 1995 and 2000 (ibid). Bank credits per capita (\$) in Zonguldak for the period (1990-2002) have shown a decline for the periods 1990-1995 with a more steep profile compared to the period of 2000-2002, and an incline for period 1995-2000 (TÜİK a, n.d ).

Budget revenues per capita (YTL) started to increase after 1995 and to profoundly accelerate in the period 2000-2003 as shown in Figure 28.

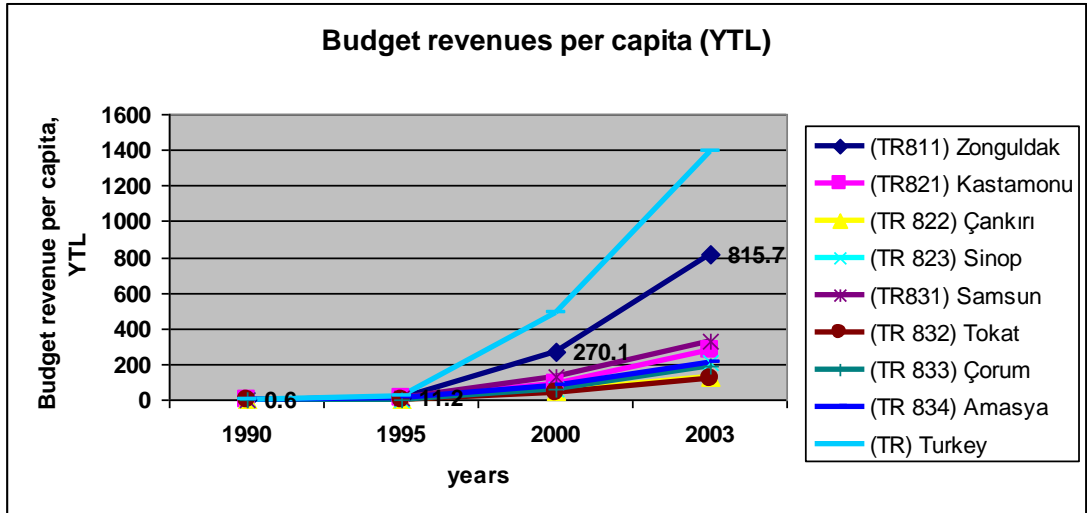


Figure 28. Budget revenues per capita, 1990-2003

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

The rising public investment per capita in Zonguldak for period 2000-2002, continued to increase with a slower pace until 2004 as shown in Figure 29.

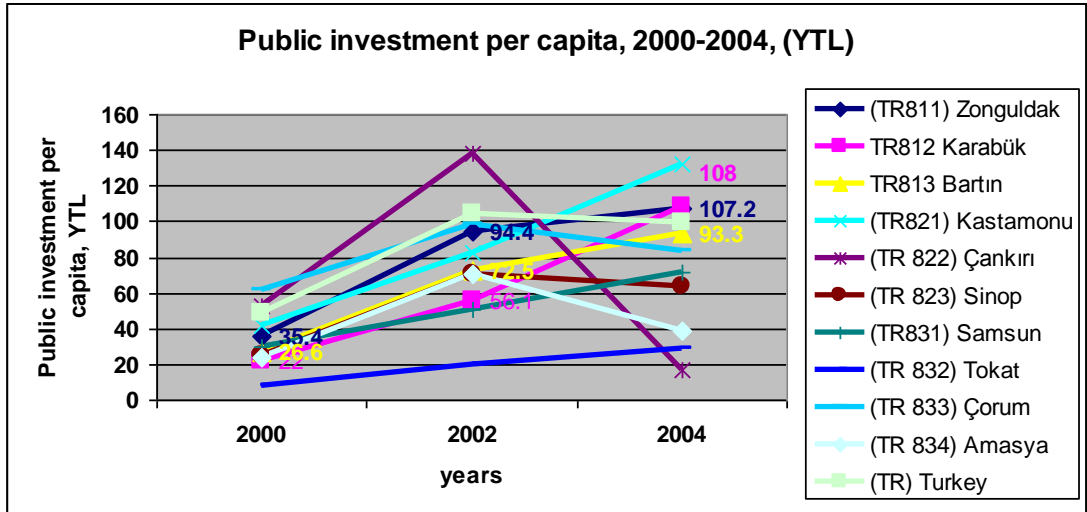


Figure 29. Public investment per capita, 2000-2004

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

The amount of investment incentives per capita (YTL) in Zonguldak show a considerable incline from 2000 to 2001 when it reached nearly four times the previous value with reference to Figure 30. The 2001-2003 period witnessed a sudden decline in terms of amount of investment incentives per capita in Zonguldak by falling to a value of 3 times less the former value and lagging behind Kastamonu in TR8 region.

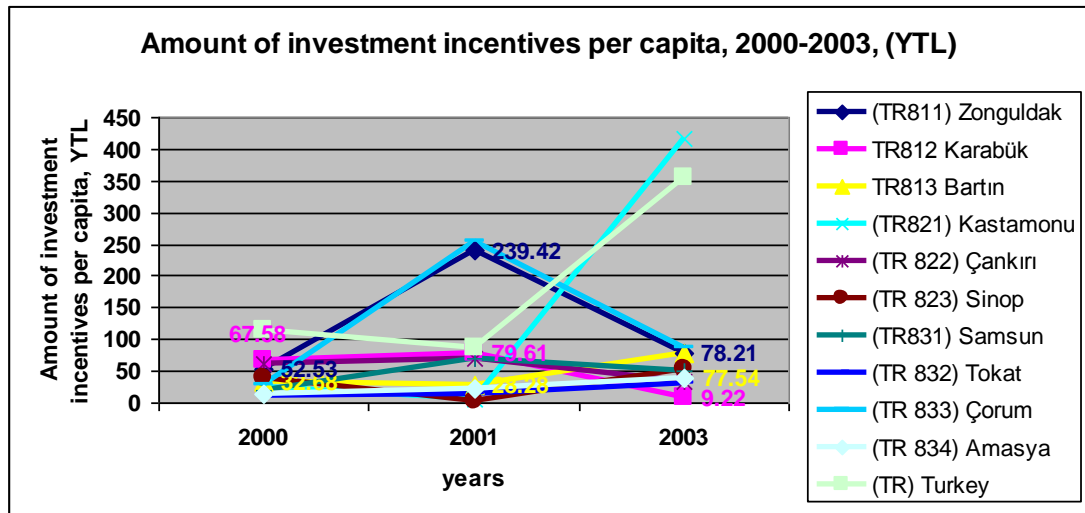


Figure 30. Amount of investment incentives per capita, 2000-2003

Reference: TÜİK a, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

Imports per capita (\$) in Zonguldak, for the period 1995-2003 increased and decreased to almost its former value in 2001 when it increased more than 2 times its former value in 2003 (TÜİK a, n.d.). The 1995-2003 period exhibits the highest values compared with both TR8 region and the Turkey values of imports per capita. Exports per capita (\$) in Zonguldak for the period 1995-2003 increased between 1995 and 2000 and further continued to increase at a slower pace until 2003 (TÜİK a, n.d.).

Change in the employment structure of the urban economic base has mostly emphasized the rising service sector in the urban economic base. Nevertheless, the

available data was at the provincial level. The foundation of the university in especially Zonguldak center enhanced the changing structure of the local economy by transforming from dependency on industrial production to service sector based on consumption led activities. Additional data on the use and level of financial resources provide information about the restructuring process' deepening after the 1990s and its realization in the 2000s through the new private investments, especially in the energy sector at the regional and also metropolitan area scales.

#### **4.3.2. Impacts on other economic sectors other than coal mining**

The decline in the single economic base has obviously created changes in other economic sectors mostly owing to population movements, unemployment and declining purchasing power of households.

An informant commented on this issue using these words:

TTK was an actor that sustained the economy of a whole city. The decline brought by downsizing of TTK has hit every one including the small trade and other households<sup>42</sup>.

Another informant described the decline impacts of deindustrialization that reflected on other economic sectors in urban life as below:

When the people don't have purchasing power, the trade in here will not find anyone to sell any good. For the traders to sell goods, firstly the people have to have an income. What happened was that the tradesmen who could not sell their goods have chosen the way of shrinking their business. As a result of shrinking their businesses more and more, they pulled down their shutters. Hence, they started to look for jobs somewhere else. The closures in trade were remarkable. There was a decline in terms of both population and also the number of working places. The community slowly started to abandon this place<sup>43</sup>.

The change of economic activities for both Zonguldak region as a province and Zonguldak Metropolitan Area can be observed in the graphs based on comparison

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<sup>42</sup> The informant, G.Y.

<sup>43</sup> The informant, V.Ç.

of location quotients for each economic activity for the years 1990 and 2000 as below:

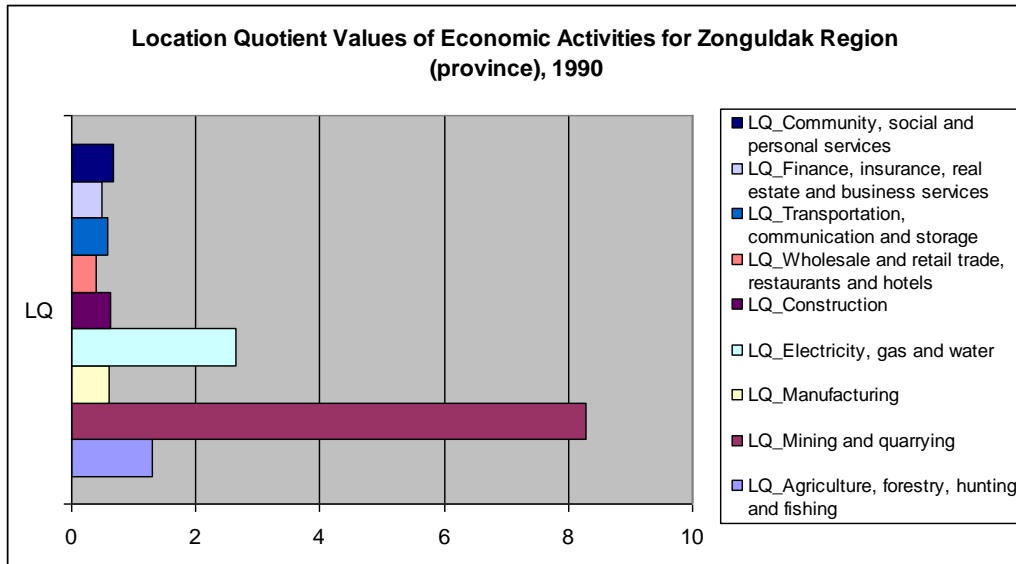


Figure 31. LQ values of economic activities for Zonguldak Region, 1990

Reference: TÜİK

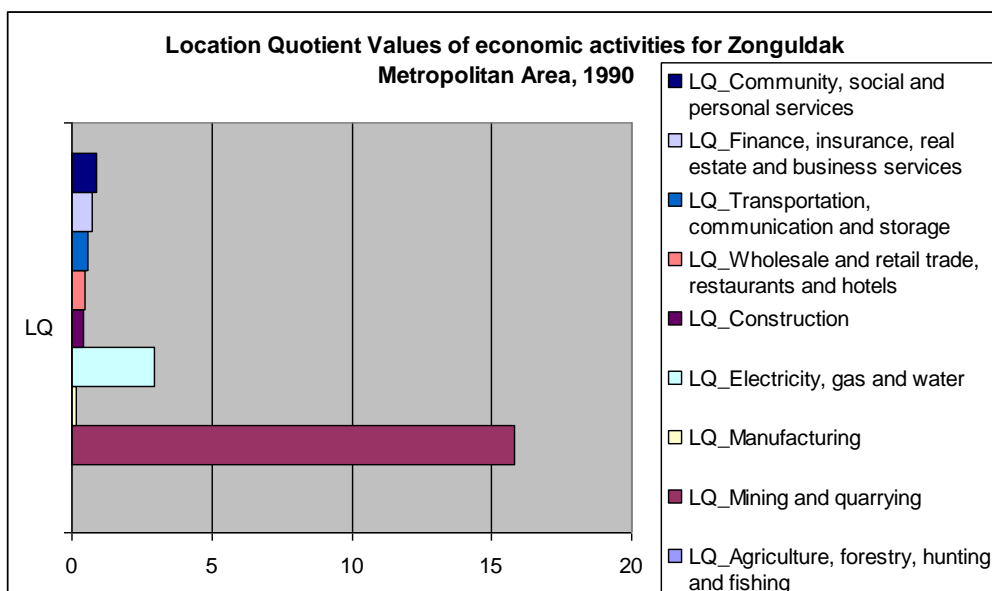


Figure 32. LQ values of economic activities for Zonguldak Metropolitan Area, 1990

Reference: TÜİK



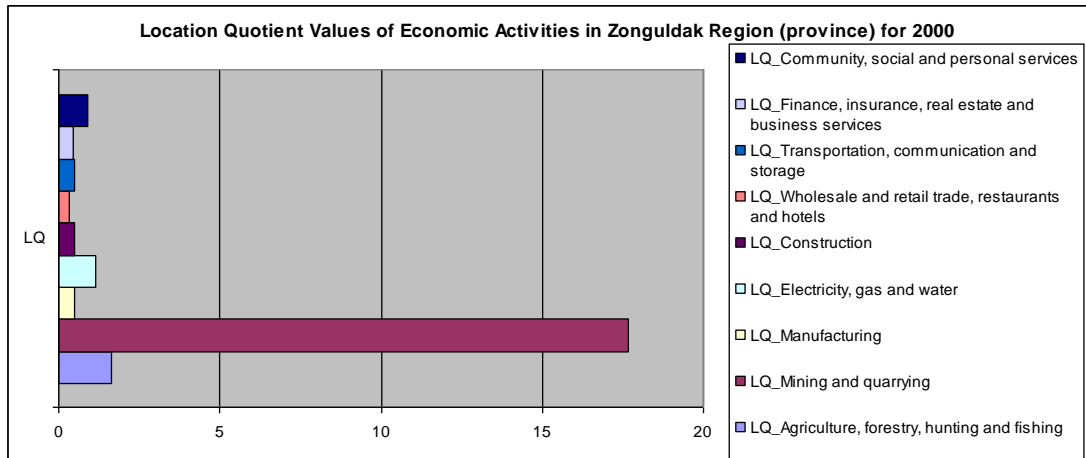


Figure 33. LQ values of economic activities for Zonguldak Province, 2000

Reference: TÜİK

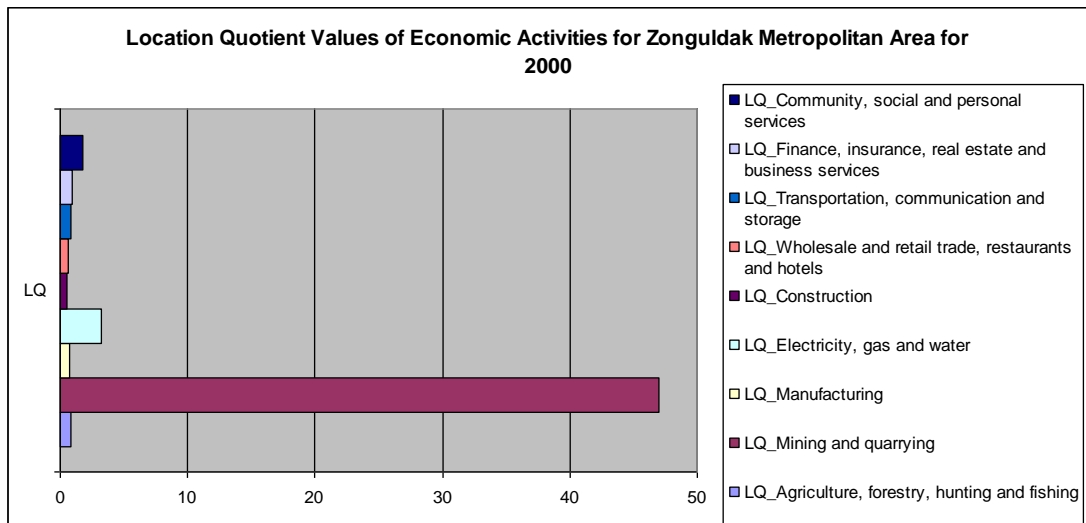


Figure 34. LQ values of economic activities for Zonguldak Metropolitan Area, 2000

Reference: TÜİK

It can be concluded that the single economic base character of the local economy in Zonguldak Metropolitan Area continues to exist. Coal mining in ZMA involves the

down-sizing of the TTK but is compensated by the production activities of the private firms through royalty implications. Yet, the activities of the private firms have been enhanced by the disintegration in the vertically upgraded firm, TTK through subcontracting for services that belong to particular phases in the production process coming to the 2000s.

#### **4.3.3. Change in urban physical set-up**

The changes concerning the urban physical set-up are remarkable both as part of the socio-economic change in Zonguldak and also as a component that directly affects the process of this socio-economic change. The spatial change gives us the opportunity to directly observe the decline in terms of abandoned buildings, polluted sites and the changing context of the urban landmark, namely the old washery area near the port indicating a transition evident in the old industrial structure and its relation particular to urban land. This hides in itself the steps for transition in urban identity and urban life which reveals itself in the changing land use pattern and various urban activities by new urban actors especially in Zonguldak Center.

As they include the decline impacts of deindustrialization and the urban restructuring process, the changes in property pattern on urban land have played an important role in observing the devolving of urban land that was previously owned by TTK to municipalities to achieve changes in land use. This also mirrors the demolition of certain social activities formerly handled by the TTK as part of the deindustrialization process.

An informant explains the relationship between changing social and economic structure of the TTK and the spatial change in urban land by saying that:

TTK has chosen to shrink its public houses. These areas have revealed the municipality some activity areas...More than 50% of urban land consists of accoutrement of TTK such as schools, vice versa other than working spaces. In the older times, TTK has had social units in Zonguldak. The policies enforcing downsizing of TTK have led the demolishing of these socio-cultural activities. The

reflection of this downsizing process to the city and the plans has been the selling of the urban land abandoned by TTK<sup>44</sup>.

It was interesting to observe the materialization of deindustrialization on certain urban activities spatially scraped in every day routine of the local community. This observation was declared by an as the “emergence of a cafe culture as a result of long term unemployment caused the early retirement period”<sup>45</sup>.

Disinvestment on urban space was an evident fact brought by deindustrialization. An informant related this fact to the demolition of investments of TTK on urban space and consequently, the emergence of a major gap for compensation of these investments for the period to follow<sup>45</sup>.

The changes observed in urban physical texture provide contributions into aesthetical degradation or degradation in terms of life standards associated with decline impacts of deindustrialization on space. An informant stressed the issue by pointing out “the transformation of some specific dwellings that have aesthetic forms, such as twin and row houses to outmoded dwellings inherent to squatter houses” in this respect<sup>45</sup>.

Environmental pollution was stated as an indicator of observed decline impacts of deindustrialization in Zonguldak. This fact was affirmed to be related to cheap and poor quality coal with reference to informal production activities in the basin, which is usually in heating. Apart from environmental degradation, the tasman problem and consequent deformation was shown as the reason behind the current poor infrastructure and also the problem of upgrading and maintaining it<sup>45</sup>.

Impacts of decline in urban physical set-up was discussed in terms of environmental degradation and accumulated problems of a lagged legitimization

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<sup>44</sup> The informant, G.Y.

<sup>45</sup> The informant, H.K.

process of the squatter housing on urban land in the new plan for Zonguldak center. High land values due to property relationships have remained characteristic in nearly every period for Zonguldak. The apparent change in monitoring the data show the hints of the start for the urban restructuring process. The number of residential units per 100 people in Zonguldak for the period 1984-2000 increased considerably and reached its peak value in 2000, and was above that of TR8 region, as shown in Figure 35 (TÜİK a, n.d.).

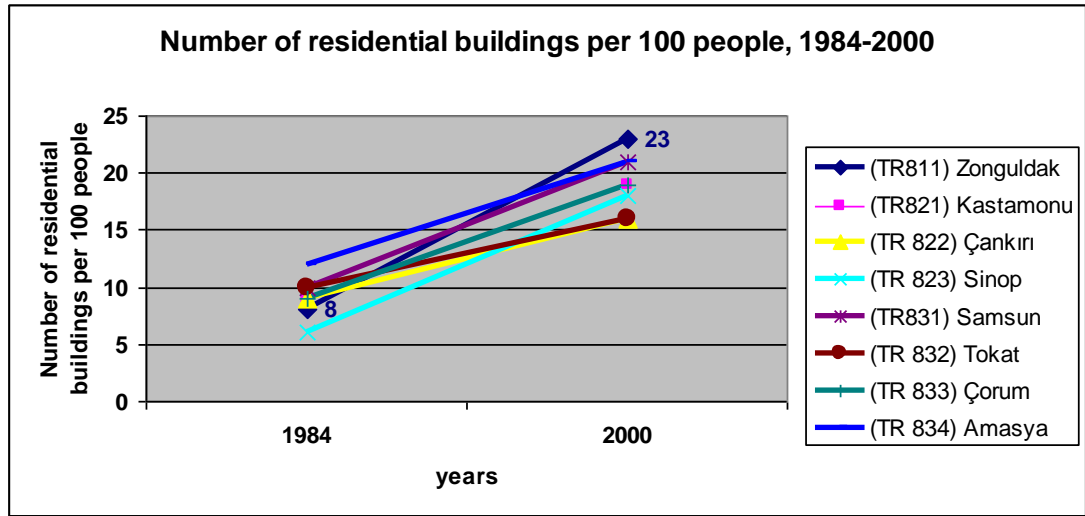


Figure 35. Number of residential buildings per 100 people, 1984-2000  
Reference: TÜİK a, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

The number of private automobiles per 10000 people in Zonguldak for the period 1980-2002 shows the increase of automobile ownership after 1990 to 1995 and its accelerating continuation especially for the period 1995-2002 with reference to Figure 36 (TÜİK a, n.d.). This may be due to the new population attracted to the region by the establishment of the university.

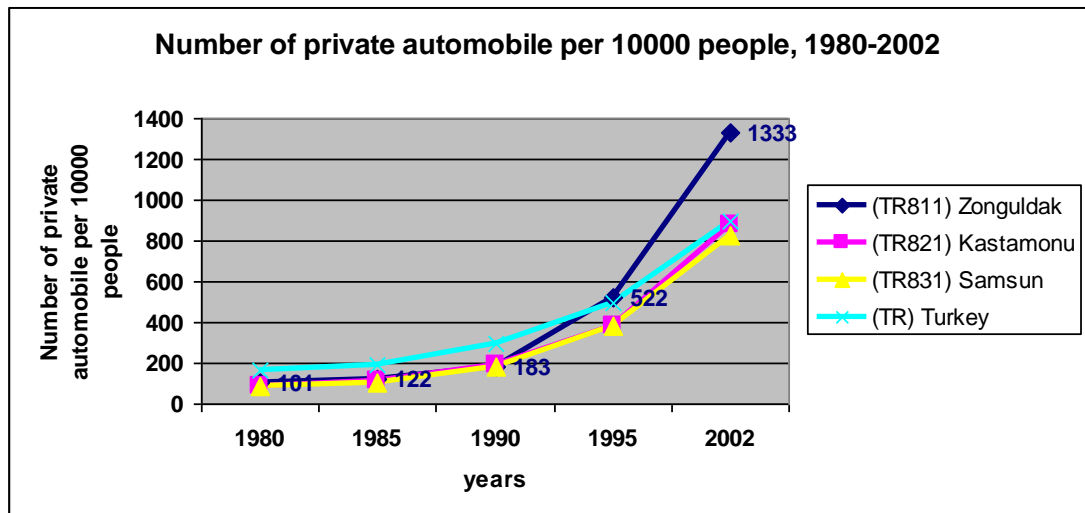


Figure 36. Number of private automobiles per 10000 people, 1980-2000  
 Reference: TÜİK a, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

Particular to the urban restructuring process as will be thoroughly discussed at Chapter 6, municipality expenditures per capita in Zonguldak for period (1985-2002) are observed to profoundly increase between 1995 and 2000 exceeding those of TR8 Region. After 2000, this value increased at a slower pace reaching its peak value within TR8 Region and approaching the Turkey per capita value as shown in Figure 37 (TÜİK a, n.d.).

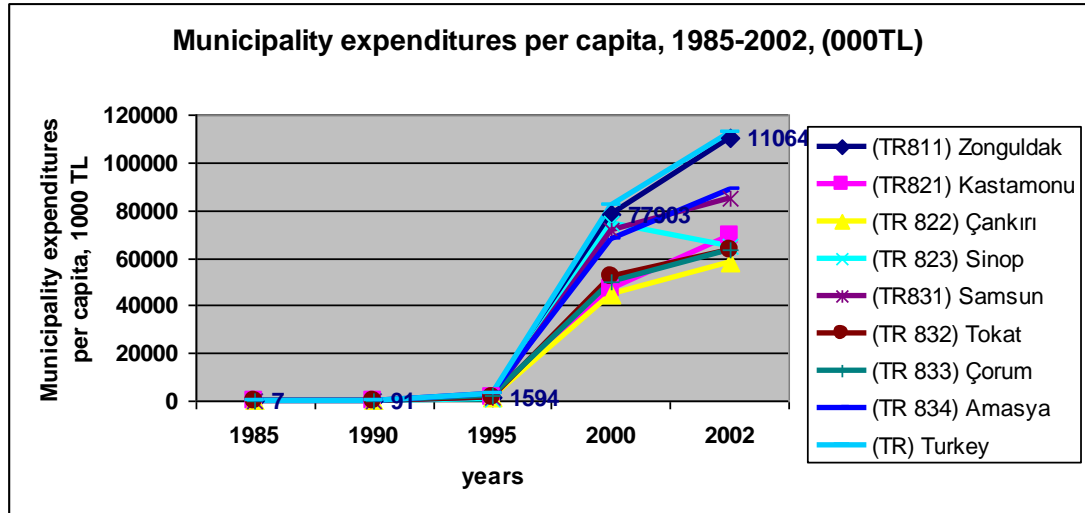


Figure 37. Municipality expenditures per capita, 1985-2002

Reference: TÜİK, n.d. Provincial Indicators (1980-2003). (No: 2902). Ankara.

#### 4.4. Conclusion

The Zonguldak Region has led a vision on formation of a heavy industrial region composed of coal mining, iron and steel manufacturing and energy production through a coal burning thermal power station. Characterizing the intervention of the state owned enterprise system in both industrialization and urbanization processes, the in-migration and young population formed the characteristics of Zonguldak as the first industrial city in Turkey before the early 1970s. The period after 1980 illustrates the decline impacts of deindustrialization especially in Zonguldak metropolitan area through down-sizing of the mono-centric firm which is associated with deepened disintegration in the production cluster from iron and steel factories and further witnesses unemployment and out migration as part of the restructuring process which is externally defined by natural down-sizing. Discussed within the chapter the decline impacts of deindustrialization in Zonguldak cover a multi layer evaluation starting from the mostly affected labour, their households at the micro level to economic and demographic constraints at the regional and urban levels.

The decline impacts of deindustrialization in Zonguldak have share features of other cases of old industrial regions that face deindustrialization. Of the most common parameters, high unemployment rates and out migration rates remain characteristic when monitoring demographical and economic change that result from the deindustrialization process. Especially on the scale of Zonguldak Metropolitan Area, the economic structure that is path dependent on a single basic economy of coal mining managed by the mono-centric firm TTK reveals how intensely the socio-spatial structure has been affected by the down-sizing of TTK. Before continuing on the restructuring process that involves industrial and urban restructuring layers in addition to regional economic restructuring, an insider view to the decline impacts of deindustrialization in labor households and their strategies in coping with these impacts would provide insights into how endogenous characteristics embed in responses to decline impacts of deindustrialization. Certain strategies would be found to reveal that buffer mechanisms also affect the pace of restructuring in Zonguldak. The next chapter is based on the analysis of the questionnaire survey in ZMA to investigate these issues.

## **CHAPTER 5**

### **DISCUSSION OF THE PROBLEM OF RESPONSE TO DECLINE IN ZONGULDAK FROM THE PERSPECTIVE OF COAL MINER HOUSEHOLDS**

Decline in Zonguldak Metropolitan Area has probably hit the coal miners and their households most. Especially, when considering the decline impacts of deindustrialization in a single economic base region, namely Zonguldak Metropolitan Area (ZMA) these impacts on labour would appear with deeper intensities.

#### **5.1. Area Study in Zonguldak Metropolitan Area**

This chapter is based on the decline impacts of deindustrialization in Zonguldak on coal miner households and their responses to these impacts as well as their survival strategies. The answers to these points of concern have been achieved through an application of a questionnaire survey during a field study in ZMA. The purpose for the field study was particularly to collect intangible and qualitative information on the miners and their households which is not available in the yearly household consumption surveys and household labour statistics obtained from TÜİK. This layer of research provides the opportunity to add an insider view to the research within the locality. Further, place specific local characteristics particular to the labour and certain household strategies that reveal buffer mechanisms against decline impacts were accessed. The components of buffer mechanisms form the keys to comment on the slow or quiet restructuring process that act as inputs that slow the pace or intensity of the restructuring process within the locality.

The questionnaire survey does not have the objective of making generalizations but to investigate change in terms of impacts on panel trestle production



workers, as the core group in coal production process, their households and their subjective information toward change in Zonguldak. The study brings together the information on the panel trestle production worker and his household by considering space through using address data in formation of the sample.

### 5.1.1. The Structure of the questionnaire survey

Decline impacts of deindustrialization on labor market have been investigated by administering a questionnaire survey in Zonguldak Metropolitan Area in 2007 which is specifically based on panel trestle production workers who work in Kozlu (in Kozlu), Üzülmöz (in Kozlu) and Karadon (in Kilimli) local TTK hard coal enterprises<sup>46</sup>.

The questionnaire<sup>47</sup> is a stratified type of questionnaire targeted at the **households of production coal miners, namely panel trestle production workers** of TTK **who** work under hard conditions. Underground coal mining has been characterized by the activity of production workers. This group is determined to be the group that best represents the direct experience of change in the labor market in coal mining due to the direct relationship between efficiency of coal mining and the activity and number of underground production workers.

The basic reference in formulating the size of the sample was the available address data taken from TTK records in 2006. A quota sampling of 13% was eventually realized from the production workers who work in the three TTK firms (Kozlu, Üzülmöz, Karadon) in ZMA with available address data. The data on addresses of

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<sup>46</sup> More than eight months was spent on manipulating questions to become more effective in reaching direct knowledge referring to the problem of the study. A pilot study was realized with 30 coal miners working in the Kozlu and Karadon mining firms of TTK. The pilot study helped to simplify questions and evaluate the proposed options. The preparation of the questionnaire questions was completed in April 2007. The results of the questionnaires were obtained in September 2007.

<sup>47</sup> The final version of the questionnaire can be found in Appendix A.

panel trestle production workers working in TTK was obtained from the computing center (information processing) unit of the TTK in December 2006 . The universe is composed of 2740 panel trestle production workers with address data as the total number of panel workers' addresses were obtained. The sample was chosen from the workers who reside in Zonguldak Metropolitan Area (consisting of Kozlu, Zonguldak, Kilimli, Çatalağzı and Gelik) and whose address data was available from TTK records. Çatalağzı and Gelik have been excluded from the sample due to the incomplete address data and the relatively very small sample size in number of addresses.

At the first stage, a sample of 473 representing 17% of the universe (2740 panel trestle workers) was chosen and distributed in accordance with the weight of total address data for each spatial unit that forms ZMA. A heterogeneous distribution of households was achieved for Kozlu, Zonguldak, Kilimli and marked on each neighborhood schema as coded data according to the address data (please look at Figure 38-40). 352 out of 473 questionnaires returned to form a 13% size sample. The Table 2 shows the distribution of households in ZMA. However, the realized spatial distribution of the questionnaires was not consistent with the designed research due to the inconsistencies in address data with the current addresses.

Table 2. Spatial distribution of the sample <sup>48</sup>

Distribution of the questionnaires	Distribution of the total number of questionnaires	Percentages within the total number (%)	Distribution of 352 questionnaires to be implied	Realized distribution of applied questionnaires
Kozlu	218	46	161	120
Zonguldak (center)	200	42	148	188
Kilimli	55	12	43	44

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<sup>48</sup> Çatalağzı and Gelik is neglected in research due to very low percentages of residing households that have address records.

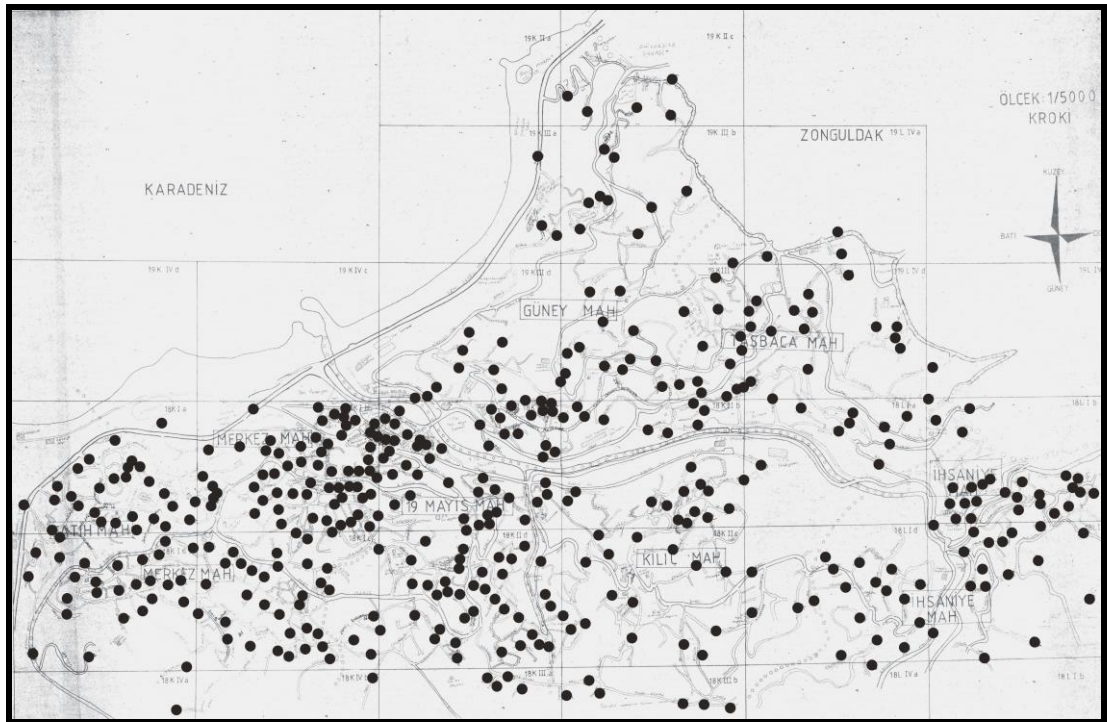


Figure 38. Projected distribution of the panel trestle production worker households in Kozlu

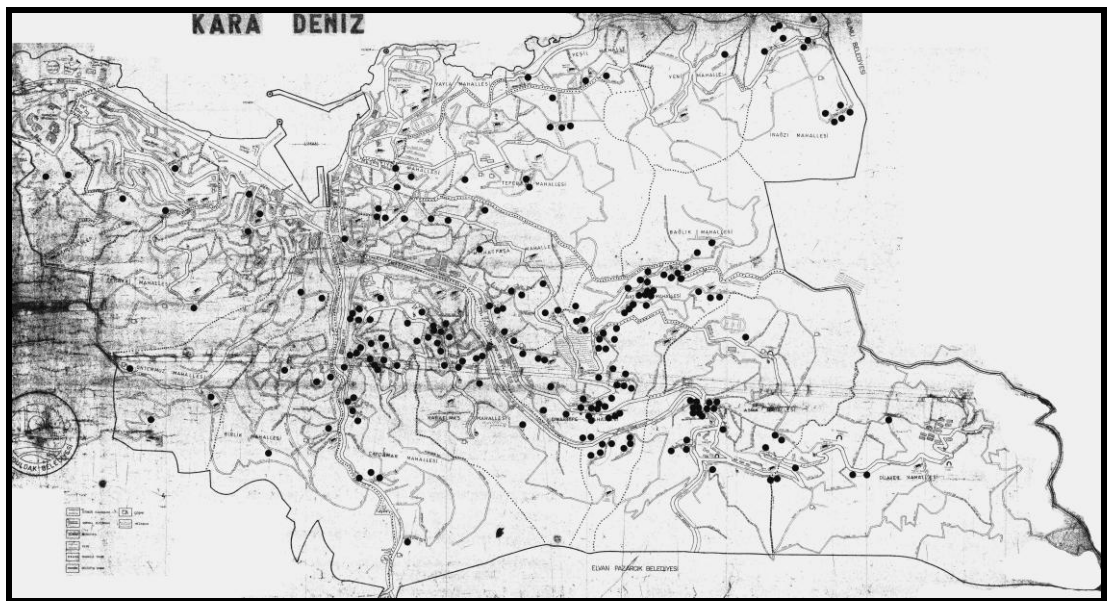


Figure 39. Projected distribution of the panel trestle production worker households in Zonguldak (center)



Figure 40. Projected distribution of the panel trestle production worker households in Kilimli

The following Figure 41 represents the distribution of the realized questionnaires<sup>49</sup>.

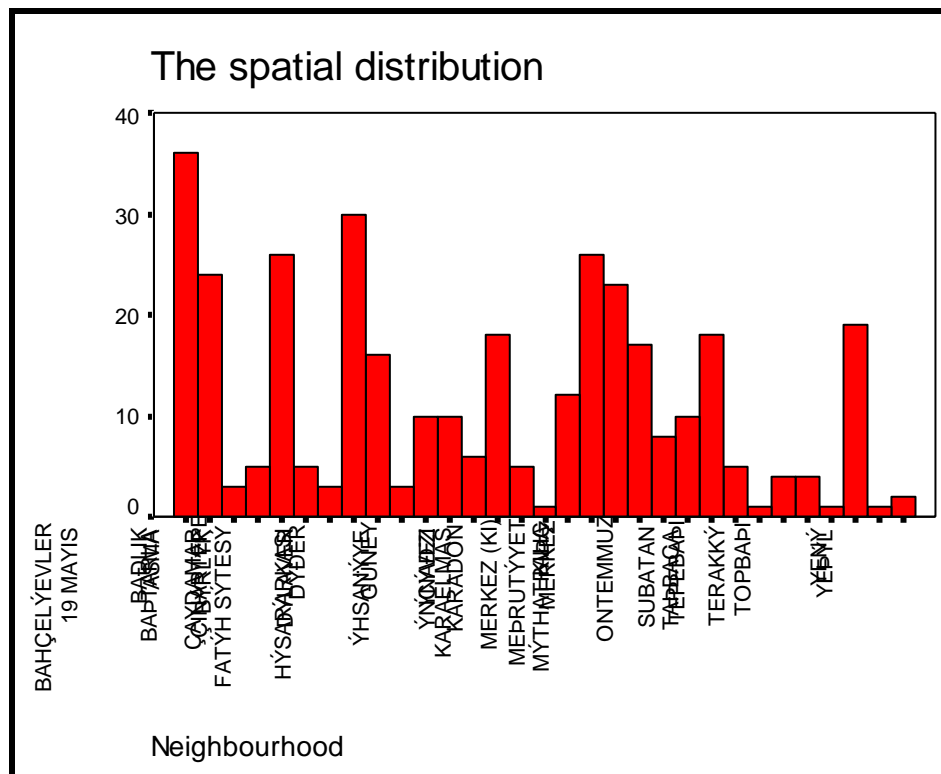


Figure 41. The spatial distribution of the realized questionnaires in ZMA

The target population of the sample is the panel trestle production workers and their households. The panel trestle production workers are with relatively high capabilities who work underground under high risk conditions, and who characterize coal mining working practices. The target population was predicted to be group who were the most profoundly affected by the urban change related to the change in coal mining, which has been the subject of the deindustrialization in Zonguldak and which for a long time was the single economic sector. The questionnaire that was carried out in 2007 focuses on a period where the impacts of 2000 and partially

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<sup>49</sup> Only 4.54% of the questionnaires have been realized outside the ZMA. The data of them has been included to analysis due to its negligible size.

2006 labor hirings had a dominating influence. When the date that workers started working and their age are considered, the reflections of the change in Zonguldak after 2000 on the production workers and their household members can be observed.

The number of panel trestle production workers and their weight in total number of workers can be observed for the period between 2003 and 2008 below in Table 3:

Table 3. The number of panel trestle production workers for period 2003-2008.

	<b>The number of panel trestle production workers for period 2003-2008</b>		
<b>Years</b>	<b>Number of panel trestle production workers</b>	<b>Total</b>	<b>Percentage of number of panel trestle workers in total number of workers</b>
<b>2003</b>	4279	14062	30.4%
<b>2004</b>	3861	12361	31.2%
<b>2005</b>	3277	11249	29.1%
<b>2006</b>	2936	10611	27.7%
<b>2007</b>	2971	10559	28.1%
<b>5.12.2008</b>	2408	9955	24.2%

Reference: TTK

The universe of 2740 panel trestle workers with available address data forms 93.32 % of the total number of panel trestle production workers in 2006. 352 out of the universe represents 11.98 % of the total number of panel trestle production workers in 2006 as found with the returned questionnaires realized in ZMA.

The distribution of the panel trestle workers in terms of place of residence in Zonguldak Center District can be viewed for Üzülmöz, Karadon and Kozlu hard coal enterprises as subject to the chosen sample. It is seen that the majority of the workers reside in the city.

Table 4. The distribution of panel trestle workers in terms of place of residence in Zonguldak Center District

<b>The distribution of panel trestle workers in terms of place of residence in Zonguldak Center District*</b>			
<b>ENTERPRISE</b>	<b>Village</b>	<b>City</b>	<b>Total</b>
<b>Üzülmez</b>	12 3.48 %	333 96.52%	345 100%
<b>Karadon</b>	136 29.50%	325 70.50%	461 100%
<b>Kozlu</b>	36 10%	324 90%	360 100%
<b>TTK (TOTAL)</b>	184 15.77%	983 84.23%	1167 100%

\* The values belong to the values for 18/12/2008

Reference: TTK

Although the sample is not organized with reference to demographical characteristics, the age structure of the 352 panel trestle production workers centered around the 25-44 age interval by 86.36%. In addition, the 25-54 age interval has a share of 95.45 % weight in the sample. Consistently, the 25-44 age interval has a share of 85.58% in Karadon Hard Coal Enterprise; a share of 85.01% in Kozlu Hard Coal Enterprise and a share of 85.28% in Üzülmez Hard Coal Enterprise in terms of average values and with regard to the total number of workers (TTK). When compared with regional data on Zonguldak, the 25-54 age interval corresponds to 43.9% in TR026C and 42.7% in TR026L for 2000, and 41.2 % for both TR026C and TR026L for 2004 (TÜİK, 2002; TÜİK, 2004). The comparison indicates that the sample of the study concentrates on a rather young population. This may be linked to the dominance of population of the 2000 and 2006 labor hirings of TTK within the sample.

Particular to the content of the questionnaire, basic reference events with their dates that led to the formation of the questions can be set as the beginning period



for deindustrialization in Zonguldak signified by 1980. The second basic reference are the year 1990 and 1991 which represent the remarkable strike and walk of coal miners with the trade union as an important local response and resistance to the decline impacts of deindustrialization. The period between 1991 and 1995 reveals the third reference, which comprises the early-retirement period that signifies the pacification of relatively young and capable labor in Zonguldak, the repercussions of which form a multi stage discussion in terms of social and economic dimensions. The fourth reference is the period of deepened restructuring in Zonguldak which, starting from especially second half of the 1990s, causes intense changes in the production process within the coal mining industry and the city. The 1990s were characterized with the increased role of private coal mining firms integrating actively in production within the basin. Moreover, this period signifies the disintegration in the production process in the coal mining industry that was managed by the vertically upgraded state owned enterprise, TTK.

The main aim of the questionnaire survey on coal miner households in Zonguldak was to determine the effects of the crisis condition, namely the decline impacts caused by deindustrialization on households, and to determine the survival strategies and responses to decline. These responses were proposed to also be indicated by the urban change that was caused by deindustrialization process.

Impacts of deindustrialization were examined at three main stages: on the labor market, on the households and the impacts on the city. The questionnaire study does not concern direct effects on either the city or labor market. Rather, direct effects of deindustrialization on the coal miner households are drawn on. The primary concern was to obtain information on certain aspects of the impacts of deindustrialization on households. The impact is seen as a result of change and restructuring in the labor market. The primary consideration on the impact of deindustrialization in Zonguldak comprises the direct effects on the households of coal miners in terms of

- the changing demographic profile within their household members
- their changing position in the labor market,
- their changing household consumption demands and income
- their survival strategies and existing secondary capabilities

- their participation in certain solidarity networks
- their use of urban facilities
- the change in their perception and interaction with the trade union
- their visions for the near-future both for themselves and their children
- their visions for the city of Zonguldak.

Urban change draws on an integrated change in the urban socio-economic lives of the local community. Therefore, further questions on the impacts of urban change on other urban residents were asked to coal miners and indirect information was derived from answers to these.

Through the key questions below data was obtained as to how the households of coalminers are affected:

- Have coal miner families been deconstructed?
- Have any aid mechanism been used by these families?
- Have consumption demands and expenditures of these families been reduced?
- Have any decrease in use of urban facilities esp. of those which belong to health and education services been evident within these families?
- Have any member of the households started to participate to the labor market?
- Have the working members of the households searched secondary jobs?

#### **5.1.1.1. Demographic profile**

Panel trestle production workers are part of the underground workers group. The realized questionnaire results indicated that the sample was composed of mostly the group of diggers involved in coal excavation<sup>50</sup> (92%) and fortifications workers who support the coal excavation process with a small proportion (%8). It has to be

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<sup>50</sup> The underground coal production has been characterized and defined by working practice of the digger (Informant: H.B.)

emphasized that specialization among different group of workers was not aimed at and the questionnaire was designed to be administered to panel trestle production workers in general.

The majority of the 352 panel trestle production workers were between the ages of 20 and 40 (81.7%), were born in Zonguldak (67.3%), married (92.9%) and have had primary school education (54.5%). The majority of the workers who were not born in Zonguldak had come to the city with the purpose of working (92%) during 2000 and after the 2000 period (69.57%) and were again from the Zonguldak-Bartın-Karabük region (71%). Almost half of the workers coming to Zonguldak had come from Bartın (46%). The relation between the TTK hirings following the year 2000 and the large number of workers who had come to Zonguldak to work was clearly observed. As will appear also in the later parts of the questionnaire analysis, Zonguldak underlines a characteristic which signifies the effect on the labor flow to the city and relatedly on household survival strategies with its creation of employment opportunities.

Almost half of the panel trestle production workers' households have a 4 person household size (44.32%). A closer look at the households reveals that generally the panel trestle production workers are the head of the household and the majority of the spouses are housewives (97.38%) with primary school education (79.63%).

#### **5.1.1.2. Economic profile: working life, ownership, income and investment**

Approximately half of the households live in rentals (47%) whereas a relatively lower percentage live in their own properties (37%) or live in public house (14%). The relation between mobility within the city, in other words, moving houses and developing survival strategies can be clearly observed. The strategy of decreasing the transportation and accommodation costs is reflected in the reason to move house, with 35% of the individuals expressing their reason to move as to be close to the workplace and another 30% to move to lower rent housing.

The percentage of people who had never gone outside of Zonguldak to work is 70.20% whereas 29.71% had gone outside of Zonguldak to work. This mobility occurred once for the majority (73%), and in most cases was to Istanbul (56.75%). The workers who had been outside of Zonguldak to work more than once had mainly gone to Adana (21%). More than half of the people who had gone outside of Zonguldak to work, found jobs also as workers (52.94%); 15.69% worked in the service sector and 5.88% worked in jobs requiring secondary capabilities. The duration of stay outside Zonguldak was between 1 to 3 years. This fact indicates that working outside the city does not seem to have a short-term and a changeable characteristic. Return to Zonguldak concentrated between the year 1999 and 2001 (47.42%), and the major reason to return was based on the presence of job opportunities (73.47%). The majority of the panel trestle workers work under wage worker status (65.1%) and (32.1%) work as daily wage workers. Almost all the workers work full-day (99.7%) and permanently/in shifts (86.1%). The strategy of going outside of Zonguldak to work was limited to the head of the household and almost none of the other members of the household had left the household or Zonguldak.

Approximately half of the 352 panel trestle production workers had worked for 7 years, followed by the group who had worked for 1 year (14.5%). Once again, this finding is related to 2000 and 2006 hirings. The percentage of workers who started their occupation between the ages of 21 and 26 is rather high (60%), followed by the age group of 27 and above (34%). These data indicate that there are not any workers who start to work in the mine at a childhood age. As will be seen later, this situation is perceived as an opportunity to gain additional non-mining capabilities prior to mining. Reminding of the impact of having experienced working accidents and occupational illnesses due to hard working conditions on the continuing capabilities in terms of both continuing the current working practices and participation in post-mining life, it is important to determine that the 21-26 year old (60%) workers had experienced accidents (53.4%) in their working lives.

It is a well-known phenomenon that coal mining sustains its existence over generations via associating itself with a vicious cycle. Interestingly, fathers of more than half of the panel trestle production workers (63%) worked/are working as mine

workers and the ratio of underground workers (in particular diggers) are higher compared to others and this can be evaluated as more than just coincidental.

The coal miner can be thought as a part of a relatively closed system that exhibits strong binds with regard to relationships between labor and the union, accumulated knowledge leaning on capabilities embedded in labor within working practices, and the formation of social identity that may the potential for resistance to change. However, the rural labor characteristic of the coal miner in Zonguldak and the additional capabilities of the coal miner other than mining are thought to be the components that can break this structure. Therefore, the presence of key additional capabilities in addition to ongoing attachment to the rural is important for developing survival strategies. In this regard, it is interesting to note that the majority of the 352 panel trestle production workers (82%) had worked in different jobs during their working life. Working in different jobs coincides with the period between 1991 and 2000 (59.07%). This indicates that during the period starting in 1990 in which TTK implemented employment contraction as part of the restructuring process (like the other public enterprises involved in mining in the rest of the world) and that ended when hirings started in 2000, the workers built their living strategies on additional capabilities, and hence worked in different jobs. It is obvious that despite additional capabilities and the experience of working in different jobs, working as non-skilled personnel in the service sector was the dominant case for the majority of the workers.

Considering the fact that the majority of the workers was either 1 year or 7 year working labor, the impact of change for the period before and after 1990 can not be evaluated clearly. However, the change in the employment structure and working practice before and after year 2000 can be clearly evaluated. The low percentage of workers who had lost their jobs since they have started working (10.2%) was expected due to the structure of the sample. Almost half of the job losses took place between the years 1997-2000 (38.89%) followed by the period between 1997 and 2000 (30.56%). During the last years, no job losses occurred among the members of the households. On the other hand, working in additional jobs and contribution of these additional jobs to the income is negligible (0.9%).

More than half of the 352 panel trestle production workers involved in the questionnaire owned a house (55.4%) and a slightly smaller percentage (54.8%) owns agricultural land in the village. Agricultural land ownership provides the opportunity to see the village as a tool of assurance in the event that the mines are closed. Among the 351 households, more than 50% (55.7%) have a total household income in the interval 1400-1700 YTL. This is followed by the income interval of 1800-2100 YTL (21.65%) and 1000-1300 YTL (13.68%). The analysis based on the February 2007 price of goods statistics provided by (Türkiye İstatistik Kurumu, Turkish Statistics Institution [TÜİK], the poverty margin of a working person had increased to 115 YTL and the poverty line for a family of four was assessed to be 2235 YTL. Considering that the average household consists of 4 persons and that the head of the household is the main contributor to the household income, it becomes apparent that the income of many of the households are below the poverty line.

The major component of the household income is the salary, wage or the daily wage earned from the current job (98.9%). Among the 352 panel trestle production workers, the major aid received is fuel aid (77.3%). Approximately half of the households receive transportation, clothing and food aid. Almost all of the 352 panel trestle production worker households receive good income<sup>51</sup> (98.6%) which contributes to the overall income and these households receive the good income once a year. Only a minor percentage of the households (2.02%) who provided information on the change of income expressed a major change in their income. The major changes in income took place during the period starting with the year 2000. This covers mainly the period when the majority of the workers started working. Although there was no major change in income in the last 10 years, households had resorted to some main life strategies. The first one of these strategies is to move into lower cost housing (16.24%); the second one is to liquidify monetary savings like foreign currency (15.95%); the third one is to sell the car owned by the household (14.25%), whereas selling a house or land (3.14%), and

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<sup>51</sup> ayni mal geliri

selling furniture (0.85%), had taken place infrequently. Moving in with the family is a strategy which has been chosen rarely (1.42%).

The change in terms of restriction on spendings despite the relatively constant income was evaluated to be related to inflation and low real income, as can be observed in Table 5 that compares wage incomes of the households as their primary income.

Table 5. On inflation and purchasing power relation

INFLATION		September 2007	Compared to the previous month	Previous Month August 2007	Compared to 1 year ago	1 Year ago September 2006
TÜİK	Monthly PPI	1.02 %	↑	0.8534 %	↑	-0.2340 %
	Yearly PPI	4.98 %	↑	3.7227 %	↓	11.1917 %
	Monthly CPI	1.03 %	↑	0.0216 %	↓	1.2853 %
	Yearly PPI	7.12 %	↓	7.3945 %	↓	10.5468 %
İTO	Monthly PPI	0.93 %	↓	1.7193 %	↓	1.2448 %
	Yearly PPI	8.16 %	↓	8.4900 %	↓	9.2625 %
	Monthly CPI	1.98 %	↑	0.4869 %	↑	0.8864 %
	Yearly PPI	11.31 %	↑	10.1116 %	↑	9.7189 %

Reference: Türkiye Cumhuriyeti Merkez Bankası, (Turkish Republic Central Bank) [TCMB]

When the spending items are evaluated, it is seen that during the last 10 years households that had to decrease their health (10.18%), and education (13.07%) expenses constitute the lowest percentage. Cleaning (31.32%), transportation (30.52%) and newspaper, etc. (29.74%) expenses formed the second group of

spending items that had to be lowered. Clothing (38.97%), food (40.69%) and household item (44.38%) expenses are in the group of expenses that had to be lowered significantly. The fact that half of the households had to lower their food expenses underlines the decreasing purchasing power despite the virtually constant level of income, which appears to be an important finding. In addition, more than half of the households (77.49%) stated that they cannot save part of their incomes for emergency spending, which emphasizes their vulnerability.

#### **5.1.1.3. Further impacts and responses derived from qualitative information**

The majority of the 352 panel trestle production workers (81.3%) think that there is a strong bind between the future of Zonguldak and the mining industry. This can be viewed as a judgement for the continuity of the current production process and organizational structure in the future. When asked whether the complete closure of mines would impact the workers' lives or not, approximately half of the group (46%) stated that this would impact their lives, but they would not starve. This points to the the existence of secondary capabilities and survival strategies related to work life. On the other hand, 33.8% of the workers directly relate the closing of the mines with starvation and express their dependency on a single capability as a survival strategy. 6.5% percent was undecided and 1.4 percent expressed other views. Another group of 12.2% stated that closure of the mines would not impact their lives and that they would be able to work in other jobs. When secondary capabilities and work areas rather than mining were inquired, it was found that job opportunities in the service sector are viewed as possible alternatives. The workers who stated that "they would do whatever work was available" only represent a minority of 1.95%. The existence of secondary capabilities is interpreted as a finding consistent with a potential towards change.

The union was seen in a state of confrontation with developing a potential to take part in local development as an actor within the institutional restructuring process that was induced by down-sizing of the firm TTK and the increased number of private firms in royalty sites of the basin. It is important to note that the expectations and views around the worker-union relationships are undergoing a change. In this



regard, almost 50% of the 352 panel trestle production workers think that the union does not have any influence on decision making related to Zonguldak (46.9%) whereas the remaining workers (44%) believe that the union does have an influence (the remaining 9.1% reflect the undecided workers). The fundamental expectation from the union is the improvement of working conditions (87.2%). This is followed mainly by activities to facilitate the adaptation of the workers to working life in their post-mining life (55.4%).

Considering that the fathers of the majority of the workers are also miners, perceptions on inter-generational working practices become important. Almost all of the workers wanted their children not to work in the mines (88.1%). A minor group (9.9%) wanted their children to become mine workers, whereas 2.2% remained undecided.

Among the ones who did not want their children to work in the mines, the majority stated the risk of their children's health being affected due to working conditions as the main reason (79%). This was followed by the workers who did not want their children to work under high-risk conditions (69%) and the workers who wanted their children to choose a career where they can improve themselves (60%). A significant percentage of the workers stated that they would work in another job if they had the choice (83.2%). One of the important turning points in Zonguldak is the private mining companies becoming actors in coal production in the basin after 1989 and their increased effectiveness after 2000. Whether the private mining companies can serve as a buffer mechanism for the TTK workers against recession and unemployment arises as an interesting question. In this regard, when the workers were asked if they see the private mining firms as a job opportunity in the event of retirement or lay-offs, 74.7% said they did not see this as an option and 19.6% did see the private mining firms as an alternative to find employment (5.7% was undecided). At this point, it can be concluded that private mining companies do not function as a buffer against the vulnerability in the working life of the mine workers. Furthermore, the majority of the workers (75.6%) said they would not want to work in the private mining companies even if the circumstances were to force them. Returning to the previous job which indicates the confidence in non-mining capabilities, is the first choice (31.8%), followed by leaving Zonguldak to find

another job (25.3%). The third option was to do agricultural activities mainly due to the tie with the village (%12.2) and finally continue to work as a mine worker elsewhere, hence maintaining the previous capability while choosing to change location.

The percentage of workers who would (47.2%) and would not (45.2%) want their children to live in Zonguldak were almost equal and therefore it was not been possible to evaluate the overall tendency. The majority of the 159 workers who would not want their children to live in Zonguldak, explained the reason of their wish as the lack of job opportunities in Zonguldak (85.53%). Other reasons were the lack of sufficient education opportunities in Zonguldak (52.20%) and the risks posed to human health in Zonguldak (51.57%). The majority of the workers who expressed an opinion (%56.3) considered leaving Zonguldak if they were given the opportunity. The main reason was stated as lack of adequate job opportunities (65.15%) followed by the lack of suitable conditions for human health (46.97%). The group of workers who stated that the city has declined and that they do not have any hope represents a significant fraction (31.82%) among the workers who consider leaving Zonguldak if they had the opportunity.

Another sector that chose Zonguldak as location was evaluated by the workers. 350 out of 352 panel trestle production workers thought that the Lukoil refinery firm that chose Zonguldak for investment locality, would impact their lives from an economical point of view. More than half of the 350 workers (61.14%) indicated that their lives would change in terms of job opportunities. This is followed by a group (27.43%) that thinks that their lives would be affected indirectly due to the impact of this decision on the city.

The group was able to think of an alternate image for the city rather than associating Zonguldak with a fixed image. Among the 351 out of 352 panel trestle production worker who responded, 78.06% stated that they could see Zonguldak only as a pensioners' city. However, 21.94% disagreed with this view. The reasons for both responses are evaluated in the tables below. Almost half of the 274 workers who view Zonguldak as pensioners' city based this response on the

inadequacy of job opportunities (%43.33). The other reasons were stated as TTK itself (22.59%), out-migration (14.07%) and the decrease in investments (13.33%).

The primary factor stated by the 52 people who did give a reason was related to the existence of work opportunities (26.92%). The underlying causes for this may be investigated. A group of 13.46% emphasized the existence of social life. Although it was represented by a small percentage (5.77%), the argument that the pensioners leave the city is important in the evaluation of the problem and with respect to life strategies in the city after working life.

Regarding the near future, when the workers were asked to compare their current situation with that of 5 years ago, the majority stated either that their situation had improved (38.9%) or had not changed (38.4%). The workers stating that their situation had worsened form a 19.3% group. In the question, the criteria they used to evaluate their situation were important and also subjective. From this, it can be concluded that the change in Zonguldak took place gradually and did not occur over night.

The major expectation of workers regarding their lives and Zonguldak in the next 5 years was an increase in job opportunities (25%). The number workers who think tomorrow will be better than today in 5 years (16.80%) was approximately twice the number of workers who think things will be worse in 5 years compared to the current day (8.20%). The number of workers who argue that nothing will change in 5 years (8.20%) was the same as the ones who predicted that the situation will worsen. As it can be understood from the responses, there is hope in the mine workers' perspectives for Zonguldak and the workers themselves.

#### **5.1.2. Analyzing “Decline” in Zonguldak Metropolitan Area: Endogenous local factors and buffer mechanisms specific to Zonguldak**

**Mostly young and low educated panel trestle production worker as the head of household** characterized the 3-4 person household (of more than half of the

whole households) of the panel trestle production worker between the ages of 20 and 40, mostly born in Zonguldak, married and having primary school education. In more than half of the households, spouses of the workers were mainly housewives having primary school education<sup>52</sup>.

**The limitations on capability of production worker to change positions to overview of his capabilities as the head of the household in relation with survival strategies** can be discussed. The low level of education prevents the head of household from working in alternate jobs. Furthermore, working under difficult and risky conditions has a deteriorating effect on an individual's later life and working potential, which creates a vulnerable future for the individual as well as the household. The level of education and the necessity to support the household shapes the nature of the secondary employment opportunities, forces the individual towards low-income employment, and low-security service jobs that require minimal skills. The group of workers who previously worked in these kind of jobs rather the mining industry constitute the majority. The periodical decrease in TTK's employment parallels the number of people who started working in non-mining jobs and the mobility of people who left the city of Zonguldak. This demonstrates the merging of an alternate household strategy for the workers which can be described as "lifestyle dependent on a single institution, TTK"<sup>53</sup>.

**Lifestyle dependent on a single firm/institution can be evaluated via perceived positive externalities of institution-dependent life style.** Institution dependent lifestyle can be seen as a significant and major source of security for the household. Some of the points supporting this view are listed below<sup>54</sup>:

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<sup>52</sup> Table 7, Table 8, and Table 9 in Appendix B can be evaluated in terms of frequency distributions and percentages.

<sup>53</sup> Table 10- Table 14 in Appendix B can be evaluated in terms of frequency distributions and percentages.

<sup>54</sup> Table 15 and Table 16 in Appendix B can be evaluated in terms of frequency distributions and percentages.

- The presence of support coming from the institution could positively affect the purchasing power of the households. In cases where the purchasing power decreases without an increase in income, this type of donations serve as an irreplaceable support mechanism.
- When the structure of the household income is evaluated, the salary earned by the worker as the head of household is the major support. Furthermore, in some cases this is the only source of income. This observation by itself, could reflect the reliance on the institution dependent way of life.
- Working in additional jobs is not common and the members of the household do not choose to contribute to the alternate strategies of the household (e.g. working in jobs outside of Zonguldak). These are two other observations which could demonstrate the degree of dependency of the household income to the institution.
- Despite of the decreasing purchasing power, the workers do not have to limit their health spendings owing to the social insurance. This is another supporting factor of the institution.

**Major components of the household income and the decline in purchasing power of the household are seen as major factors in relation with survival strategies.** When the income levels and property ownership is analyzed from a household income perspective, the first findings reveal that almost half of the households are tenants in their homes and the mobility appears in an attempt to minimize the working and accommodation expenses. More than half of the households hold the ownership of a home as well as agricultural land. More than half of the households with an average of 4 members have an income between 1440 and 1700 YTL, which is considered below the poverty level according to the TÜİK February 2007 report. In almost 50 % of the households (mainly in those which report that the income change is unimportant), it is observed that grocery expenses had to be decreased<sup>55</sup>.

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<sup>55</sup> Table 17, Table 18 and Table 19 in Appendix B can be evaluated in terms of frequency distributions and percentages.

**The future from production worker's perspective, ability to make savings, changing trust and hope from multi perspective are important keys to understand change mostly emphasized in decline impacts and also responses to those impacts at multi level.** More than half of the households cannot save their incomes for future needs. This fact underlines a high level of unpredictable and vulnerable situation for the worker and his childrens' future<sup>56</sup>. **Change in trust for the institution dependent lifestyle** has been sensed due to the answers given to the possibility on losing jobs or closure of mines.

More than half of the studied sample expressed a very close connection between the coal industry and the future of the city. On the other hand, as mentioned above, the majority of the group stated that in the event that the mines were shut down, they would be able to work in an alternative job and support their family. Property and agricultural land ownership and secondary service jobs take precedence in this respect. The workers had already considered the possibility of mines being shut down and alternate investment entering the city. Therefore, it might seem possible for them to consider non-institution related activities from a city and employment perspective<sup>57</sup>.

**Change in the trust for unions as guaranters of of social rights and value of labor were also evaluated.** The number of people who did not believe that the unions have an impact on the decision making for Zonguldak exceeds the number of people who think otherwise with a narrow margin. This indicates that the close relation between unions-institution-workers has started to weaken and the trust in the unions to deteriorate. The major expectation from the unions is improvement of

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<sup>56</sup> Table 20 in Appendix B can be evaluated in terms of frequency distributions and percentages.

<sup>57</sup> Table 21 - Table 24 in Appendix B can be evaluated in terms of frequency distributions and percentages.

working conditions, followed by activities directed towards adaptation to post-mining life<sup>58</sup>.

**Hope for the future generation was as a major point in understanding perspective of the production household on near future.** It has been discussed that institution dependent lifestyle constitutes a security for the worker and his household and that this security is inter-generational in nature. More than half of the study group were members of at the least second generation mine workers, whereas less than half of the workers had parents with non-mining jobs. More than half of the workers stated that they would not like their children to be mine workers. The major concern was mining related health problems and the risk associated with the working conditions. More than half of the workers would rather like their children to choose a career where they can improve their capabilities<sup>59</sup>.

The number of panel trestle production workers who would want their children to live in Zonguldak was similar to the number of workers with the opposite opinion; hence, the general attitude is not clear. The rationale of more than half of the workers who do not want their children to work in Zonguldak is the insufficient employment opportunities in Zonguldak, followed by insufficient education opportunities and unsuitable conditions for human health. When the current education level of the children is evaluated in the same way, the rate enrollment in school with reference to the relevant age intervals shows that half the number of children can continue their high school in the relevant age interval although enrollment in occupation-specific high school is relatively low within the group. The school enrollment rate at the primary, secondary and high school levels yields a highly urban profile, but falls at the higher levels of education. The current condition of education for children shows that capability to creating choices for one's own life through education can be observed for fifty percent of the children. Thus, a

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<sup>58</sup> Table 25, Table 26 can be evaluated in terms of frequency distributions and percentages.

<sup>59</sup> Table 27 - Table 29 in Appendix B can be evaluated in terms of frequency distributions and percentages.

tendency and capacity for breaking the inter-generational cycle of occupation is a potential development<sup>60</sup>.

**Hope for the city was assessed via attitudes toward leaving the city and possible reasons relatedly.** More than half of the workers who expressed their opinion would prefer to leave Zonguldak if they had the opportunity and for the majority the reason for this preference was stated as the insufficient employment opportunities followed by the lack of suitable health conditions. Among the group of workers who would prefer to leave Zonguldak, less than half of the sample thought that the city is on the verge of collapse and felt hopeless<sup>61</sup>.

The evaluation of panel trestle production workers of the economical impact of the possibility of another industrial investment in the region was seen as an option of job creation and concluded to have indirect positive impacts on the household's life<sup>62</sup>.

Instead of attributing a static image to Zonguldak, group was able to think of a different image for the city. More than half of the 351 respondents (out of 352) stated that they could think of Zonguldak only as a city of pensioners whereas less than half disagreed with this view. The reason for the majority of the workers to view Zonguldak as a pensioner's city is the insufficient employment opportunities. TTK itself was viewed as the second most frequently stated reason followed by outward immigration and the decrease in investment in the city. The major reason for the group who did not attribute a different image to the city was the presence of employment opportunities. The factors leading to this conclusion need to be

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<sup>60</sup> Table 30 - Table 33 in Appendix B can be evaluated in terms of frequency distributions and percentages.

<sup>61</sup> Table 34 and Table 35 in Appendix B can be evaluated in terms of frequency distributions and percentages.

<sup>62</sup> Table 36 in Appendix B can be evaluated in terms of frequency distributions and percentage.



investigated and underline the existence of social life. In order to evaluate the problem and the survival strategies used following work life, the claim that pensioners do leave the city (although it is represented by a small fraction) is rather important<sup>63</sup>.

**Hope towards worker's own life was given importance due to evaluate the motivation of the production worker.** The majority of the workers stated that they would pursue a different job if they had the opportunity. One of the major changes in Zonguldak are the private mining companies that started to legally operate in the area. More than half of the workers do not view the private mining companies as an alternative employment opportunity in the event of lay-offs or retirement. This outcome can be attributed to the general difficult working conditions inherent to the mining industry independent of the location rather than the change in the relationship between the mining industry and Zonguldak. Considering the uncertainty regarding the social security in the private mining companies, despite the forcing conditions, the majority do not desire to work in these companies even though the opportunities exist<sup>64</sup>. Working in low income service jobs with minimum skill set requirements take over as an alternative. At this point, when compared, the relative trust in an institution dependent life style still seems strong. Going back to a previous job, which is an indication of trust in secondary capabilities in the first place, leaving Zonguldak to find other jobs elsewhere in the second place, working in agriculture due to ties with the village in the third place and continuing to work in the mining industry and continuing the existing capability by changing location in the fourth place appear to be the main options. The production workers' hope for themselves centers around their own labor power. However, it is difficult to keep this hope for future generations<sup>65</sup>.

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<sup>63</sup> Table 37 -Table 39 in Appendix B can be evaluated in terms of frequency distributions and percentages.

<sup>64</sup> This issue has been also validated by Informant R.M. and also other informants comprising coal miners.

When the workers were asked to compare their current situation with that of five years ago, the number of workers reporting improvement was comparable to those reporting no change. The group reporting a decline in their situation over the past five years was relatively small. From this outcome, it can be concluded that the change in Zonguldak took place gradually rather than abruptly. The factors that the workers base their evaluation of their situation on are significant and subjective. For example, when their responses for themselves are compared with those for their children, it can be concluded that the workers were of the opinion that they could cope with living in Zonguldak provided that job opportunities that overlap with their capabilities were available in the city<sup>66</sup>.

The expectations for the coming five years centered around an increase in employment opportunities. The number of people who expected an increase in the employment opportunities are twice the number of people who expected a worsening. The number of people who did not expect any change is similar to the number of people who expected a worsening<sup>67</sup>.

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<sup>65</sup> Table 40 and Table 43 in Appendix B can be evaluated in terms of frequency distributions and percentages.

<sup>66</sup> Table 44 in Appendix B can be evaluated in terms of frequency distributions and percentages.

<sup>67</sup> Table 45 in Appendix B can be evaluated in terms of frequency distributions and percenta

## CHAPTER 6

### **DISCUSSION OF THE RESPONSE PROBLEM TO DECLINE AT THE REGIONAL AND LOCAL LEVELS IN ZONGULDAK**

The deindustrialization process in coal mining in Zonguldak Metropolitan Area that started after 1980 was followed by restructuring process that intensified in the 1990s when discourse on decline and restructuring started to be coded in the locality. The restructuring process became mostly evident in the emergence of the new actors in coal production in the basin through royalty and management by private firms. The 1990s was remarkable for rehabilitation and restructuring within the firm, TTK. In the meanwhile, while the down sizing of TTK continued, a regional vision of a more diversified regional economy was proposed. The 1990s also introduced the establishment of the university which had implications for the attraction of a new population to the metropolitan area and that acted on the local economy and enhanced transformations on the urban land. The 2000s have been remarkable to observe the change in the restructuring of the region for further integration with the global system and becoming an actor in supra regional cooperations. The preparation of the new plans and urban regeneration have characterized the 2000s in Zonguldak Metropolitan Area.

#### **6.1. Changing visions on the restructuring process in Zonguldak Region after the mid 1990s**

The mid 1990s signified the two plans that changed the visions on the region. The Zonguldak Bartın Karabük Regional Development Plan and the Zonguldak Bartın Karabük Environmental Plan manipulated the agenda of the region. Obviously , these plans directly affected the deindustrialization and restructuring processes in the Zonguldak Metropolitan Area.

### **6.1.1. The Zonguldak Bartın Karabük Regional Development Plan (1995-1997): Diversification of the regional economy**

The Zonguldak Bartın Karabük Regional Development Plan [ZBKRDPA], which started in 1995 and was completed in 1997, covered a 10 year period and represented a public and private partnership (Devlet Planlama Teşkilatı (State Planning Organization) [DPT], n.d.; Gündoğan 2005). Gündoğan (2005) states that the plan was managed by the State Planning Organization in a joint venture of two French and one Turkish firm and that was financed with World Bank Credit. He further adds that the plan was in the context of the Seventh Five Year Development Plan (1996-2000) motivated by the accession process of Turkey to the European Union and by capturing convergence of the regions.

Zonguldak Bartın Karabük Regional Development Plan (1995-1997) represented and reflected the economic policies of the period. It is important to observe the enhancement of the down-sizing of TTK together with modernization through new production methods and equipment, and rationalization by choosing productive veins and boards for production (DPT, n.d.). It also proposed training for labor. *The closure* of TTK and its expected impacts and outcomes for the region were thoroughly discussed in the plan. Some of the major characteristics of the region that were mentioned were agriculture as a secondary income generating activity of the industrial labor and the insufficient entrepreneurship. With an emphasis on diversification, strategies for regional development would enlarge the private sector investments, enhance small and medium enterprises, development of the university and rehabilitation of Filyos River in addition to revitalization of the coast line and completion of the infrastructure of Zonguldak city (DPT, n.d.).

The Zonguldak Bartın Karabük Regional Development Plan characterized a turning point for the region that reflected the socio-economic change and restructuring process in the Turkey context. The regional plan aimed at determining the **socio-economic change** in the region. The main emphasis of the plan for the region was on **diversification of the regional economy and socio-economic structure** from coal mining and complementarily iron and steel manufacturing industry. The main

objectives of the plan were stated as regional economic and social analysis, identification of suitable investment areas, and especially reinforcement of private investments by developing new investment alternatives for the region (DPT, n.d.). The scenarios and strategies of the regional development plan aimed at managing the redevelopment process efficiently by making use of the potentials in the region.

Of these potentials, the geographical location of the region was highlighted to become a center of development for North Western Turkey that was based on maritime trade in Northern Black Sea (DPT, n.d.). Another potential of the large industry was emphasized to further enable development of local subcontracting by the small and medium sized enterprises within the region. This would be observed in the region especially in the period after 2000 for TTK in terms of both technological change and as an attempt for disintegration in the production process in the vertically integrated firm both for the washery and the services particular to coal production process, such as fortification services.

The ZBKRDPP report proposes the development of small and medium enterprises in the field of production and processing of local raw materials, such as milk and wood in the case of requisite improvements in available services and of tools of support (DPT, n.d.). The plan foresees job creation through development of small and medium sized enterprises in the region. As the reverberant impacts on rural income and wood processing would be observed, forest is seen as a major potential for increasing production (DPT, n.d.).

Agriculture, which has the potential to develop green houses that are suitable for small land through land organization, and animal husbandry were indicated to be evaluated for further improvement in rural incomes (DPT, n.d.).

Transportation was proposed to be developed by links between Ereğli port and other ports and a road connection to İstanbul. The regeneration of the Zonguldak port and the possibility of a new port to be located at Filyos were set forth ( DPT, n.d.).

The regional development plan report has also proposed a strategy of *decentralization* in state representation, emphasizing the entity of Zonguldak as a region. The proposition to establish a regional development agency in the region complements the idea. The ZBKRD P was consistent with the context of the Seventh Development Plan, which highlighted an institutional and organizational restructuring so as to take advantage of the new industrialization that was based on advanced technologies in the production process, high skilled labor and the integration of information to industrial development (DPT, n.d.).

The Seventh Development Plan highlighted an export-led industrial structure of high competitiveness that mostly enhanced the private sector within strategies of integration to the world markets and adjustment to the European Union membership process (DPT, n.d.). The ZBKRD P also proposed the proliferation of cooperation among professional organizations, which can be interpreted as an attempt to form social capital within the region.

It was stated in the ZBKRD P that tourism was seen as a medium potential for the region with its nature, culture and sea assets. The *image problem for urban space* was mentioned in the plan report with an emphasis on improvement in environmental constraints (DPT, n.d.). Image renewal proposition apart from aims on improvement has been striking due to what is now observed for especially Zonguldak province center in terms of process of change on its image characterized by the old washery site near the coast.

Fishing was seen as one of the low potential areas for the region in addition to physical assets, soils and mining of other raw materials, such as clay, dolomite, etc. (DPT, n.d.). Job creation was stated to be observed in small and medium sized industry and in service activities (DPT, n.d.).

The plan report determined two main references to introduce its regional strategies. The first was related to the future development of the region in parallel to the institutional restructuring that was foreseen in the national context. The second was on the future development for the region in terms of the regional growth rate and its

possible impacts on the employment and investments structure of the region (DPT, n.d.).

Within the first reference of institutional analysis, declining population, unemployment and the fact that regional growth lagged behind the national average value were stressed (DPT, n.d.). As mentioned earlier, these indicators of depopulation, unemployment and a regional growth rate that lagged behind the national average were once again referred to in the plan report. The rural emigration was associated to the depopulation problem. Mining and agriculture were mentioned as the sectors that experienced a decline that concerned the whole region. Within this context, the plan revised two major issues, namely job creation and slowing the rural depopulation, and managing the downsizing process in the coal mining sector (DPT, n.d.). It is seen, decline and downsizing in the coal mining industry have been directly accepted realities without criticizing the mechanism behind the issue in the plan report.

The main emphasis in the coal mining industry was on the management of downsizing in the future in addition to the failure to achieve privatization in this sector (DPT, n.d.). The plan argued that the public sector involvement should be minimized in terms of its engagement in the production process, particularly in industrial enterprises. Forest production and coal mining were stated as the main activities in the region the downsizing process of which had to be managed.

The ZBKRDП report mentioned the decline in the coal mining industry in a way of **legitimizing the decline discourse** associated with the high deficit condition of the mono-centric firm, TTK as if this socio-spatial phenomenon were independent from the central government and the related economic restructuring process.

The plan's evaluation of coal mining and of the situation of its basic actor, TTK focused on the decreasing employment of 12% in TTK for the period between 1985 and 1990 and the early retirement period between 1990 and 1994 (DPT, n.d.). The financial deficit of the state owned enterprise TTK was highlighted as a major issue that incline after 1986 and was mainly caused by financial costs and by wage expenses that occupied a 65% share in operation costs The proposition of the

ZBKRDP for coal mining was to determine the productive veins and pits to continue production and to contract in labor as a rationalization policy. The report simply called it **a natural down-sizing process**.

The ZBKRDP assumed a reduction of manpower of TTK by 55% evaluating the downsizing process of the firm and made estimations possibilities of the productivity levels (DPT, n.d.). However, it is clear that productivity was directly proportional to the skilled labor in the underground mining process.

According to the ZBKRDP report, the 1990-1995 period signifies the downsizing period of the firm through layoffs based on seniority and age. However, this contraction of labor, a reduction of 6500 of labor in number, meant the loss of skilled labor. Operating costs that were higher than the firm's sales revenues were pointed out and justified through high financial costs linked to "cash deficits, delayed payments, and the general accumulated debts on current operations and on restructuring operations" which revealed a result of increased rates of total loss (DPT, n.d., p. 26, 27). High production costs were related to complex topography and hard mining conditions.

It was determined that "few economic activities are directly dependent on TTK through the supply of goods and services to the enterprise" (DPT, n.d., p. 27). However, it is stated that TTK is vital for most of the service activities. In the city center of the Zonguldak, and in other locations such as Amasra, Armutçuk, Karadon, Kozlu and Üzülmöz, TTK is perceived as the main employer or even the sole employer and it is responsible for almost all economic activity in these towns (DPT, n.d.). Therefore, Zonguldak was characterized by its presence of the provincial center of a rural region and the city center of a mono-centric industrial area (DPT, n.d.).

Propositions on productivity in the downsizing process of the enterprise in the ZBKRDP report included technical changes and the improvement of skills and education of workers through training. The downsizing process was stated to comprise reorganization of work, training, early retirement of younger workers and social mitigation policies (DPT, n.d.).



The conversion procedure in the hard coal production managed by the TTK was proposed to be realized through action in informing workers through trade union help, providing them with consultancy on career development, orienting them to alternative jobs and supporting them with training in this process within an economic redevelopment plan, and supporting them through general help. Although the report was very general and did not present information on ways of intervention in the proposed strategies, it suggested that the conversion process should be managed by a development agency (DPT, n.d.) which the region lacked within a perspective of incentive on the regional scale.

The operation of the private firms in the basin left by TTK production was known as private production in royalty areas of TTK. The report proposed an increase in private production in the basin by concentrating on production from accessible deposits near the surface (DPT, n.d.).

The ZBKRDP report made an impact assessment on the possibility of closure of TTK and further emphasized the entity of TTK in terms of its impacts on service sector. The report specified the following impacts on closure of the firm (DPT, n.d.):

- the social and economic deterioration
- the acceleration of out migration
- crisis condition for firms having input relations with hard coal (DPT, n.d.)

Propositions on management of TTK comprised propositions on policies of downsizing:

- the downsizing of the firm preserving the current production level of 2.8. millions of tons
- the determination of productive veins and panels
- the standardization of the management of mining
- the utilization of new and modern methods parallel to renewal of equipment
- training services (DPT, n.d.)

The main emphasis of the plan on regional redevelopment was on diversification of the economy whose main actor was seen as the private sector. The main emphasis of the plan was on public and private sector partnership where the public sector was given the task of supporting private sector investments through subsidizing new enterprises and their infrastructure (DPT, n.d.).

The regional development plan emphasized a redevelopment that was based on reindustrialization that was not to happen by means of innovative processes integrated into the production process as was emphasized in the Seventh Development Plan. Rather, it was to happen through private sector involvement of new industrial firms. The public sector would remain as a supporter of the private sector by providing infrastructure, financing, training and marketing (DPT, n.d.) The public sector was proposed to take on the role of supporter, an enabler and a consultant (DPT, n.d.) without commenting on how this would be achieved.

The ZBKRDPP stated a vision of redevelopment for the region that was based on regional growth resulting from diversification. The actors would be the private sector that would take an effective role in the production process at the small and medium sized enterprise level (DPT, n.d.). This proposition conflicts with the local dynamics of the region due to the weak local entrepreneurship peculiar to the region.

The main strategy of redevelopment for the region included three main objectives that treated the region at abstract space level without embracing the regional and local characteristics, as also accepted by the plan itself. These objectives comprised such emphasis points: “promotion of job opportunities, improvement of incomes and value added, favoring a sustainable development” (DPT, n.d., p.5). The plan emphasized certain *operational subobjectives* compatible with the regional characteristics. What differs for the formation of objectives in the specific context of ZBK region was reflected on the proposed objectives of *renewal of the global image of the region* through renewal of the production structures and the renewal of the organization of these production structures. *Increasing value added via diversification in the region* and via *subcontracting and valorization implications*; withdrawing the former condition of being an isolated region via forming connections with major economic centers such as İstanbul which is required to become an economic center in being a component in the development process of the West Black Sea Region were some of the major objectives. The emphasis on the rural population and the declining agriculture sector was included in the plan that proposed the objective of taking advantage of all of the opportunities without

mentioning methods that were compatible with regional and local characteristics (DPT, n.d.).

The main strategies peculiar to the plan were based on certain notions. One notion was that the region would become an alternative industrial and commercial center by taking advantage of its geographical proximity to major industrial and urban areas. The other notion was that most of the region, except Ereğli, was in the context of priority of investment which provided externalities like cheap land, incentives and support mechanisms (DPT, n.d.). This strategy was supposed to mitigate and compensate the depopulation in the region.

Manufacturing, trade and services were defined as the motors of redevelopment to be supported and promoted in the plan. Remarking a general expression, no quality dimension was evaluated while comparing the region or while transrationalizing the process of the restructuring experience of the Ruhr and Wales (DPT, n.d.). Renewal of the heavy industrial regions of the Ruhr and Wales were shown as cases. The potential of iron and steel industry were highlighted in the plan for the renewal process and the potential of coal mining industry was stated in case of a conversion in production process parallel to retraining of coal miners. The development observed in mainly the manufacturing sector in Bartın, Çaycuma-Filyos and Karabük was drawn attention to while the proposition of a free zone in Filyos valley associated with an opening of a port was stated to develop trade and manufacturing industry (DPT, n.d.).

The ZBKRDП takes some of the models of experiencing restructuring processes of cases in western European countries and says that the plan was based on development led by innovative processes that include actions and organizations. This can be criticized due to the lack of action oriented policies as well as strategies concerning methods of revealing those innovative processes. For example, the plan does not comprise industry - university partnerships but only refers to certain departments on support in development or training issues. Therefore, it is observed that regional and local dynamics has not been achieved in developing strategies for restructuring process of the region. Rather, a post-rationalization was dominant in reasoning the proposed paths in development for the near future. The restructuring

experiences of the Ruhr clearly show new industrialization and reintegration after a disintegration of an old coal and iron and steel conurbation based on waste management (Rehfeld, 1995) by using high technologies and integrating the production process with research and development.

Several results were expected in the project. Employment opportunities would be provided to 113000 people, out migration from the region would be reduced, and, jobs would be created in economic activities in manufacturing and services. Development of the agriculture and forestry sectors and the improvement of welfare, income and employment were mainly set out. In addition, the plan proposed a regional actor of a redevelopment agency for coordination and management of redevelopment process (DPT, n.d.).

Inadequate entrepreneurship in the region pollution, out-migration, unskilled labor, low technological capacity, difficult topographic condition, regional development values below the national average values were set out by the plan as the main points of reference.

#### **6.1.2. The Zonguldak Bartın Karabük Environmental Plan (1/100000) (2007-2009)**

TR81 Region (Zonguldak Bartın Karabük) was specified for an environmental plan to be prepared by the Turkish Republic Ministry of Environment and Forestry through Law. 4856<sup>68</sup>. The plan primarily adopted an approach of “basin management model” associated with “strategic integrated natural resource planning” and diverse “strategic projects” concerning the period until 2025 (Tunçer, 2008). The planning region was developed by taking into consideration the three basins in the region and it mainly aimed at “the integration of economic and ecological decisions for the provision of balanced and sustainable development” and “rational environment management” (Tunçer, 2006, Eylül). The proposition of

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<sup>68</sup> The plan has ben carried out by a business association between Jeo Tek and UTТА Planning, Architecture, Urban Design Limited Company.

basin management units for the basins set another management body on basin scale specific to the plan. The ZBKEP as an interdisciplinary study was founded on strategies of conservation and rational land use within the region.

Similar to the ZBKRDP, the decline impacts of deindustrialization and complementary processes were evaluated and environmental pollution was emphasized in relation with industrial production together with many pollutant impacts (Turkish Republic Ministry of Environment and Forestry [TCÇOB], 2006). The plan paid attention to the out migration that characterized the West Black Sea Region (TR8) and related propositions were made to further deal with this problem (TCÇOB, 2006). The consistency and applicability of the policies related to the main strategies concerning sustainable development were the major criteria remarked in the ZBKEP (TCÇOB, 2006, p. 1114, Tunçer, 2006, Eylül). In addition to trans-scale coordination, a management model was proposed. Apart from propositions on development policies and strategies, non-polluting industrial development and technologies were given importance (Tunçer, 2006, Eylül).

What is emphasized in the plan is its enhancement of mining (mainly hard coal production) and agriculture in the context of the strategy on proliferation of advantaged basic sectors that have high multiplier impacts on other sectors (Tunçer, 2006, Eylül). This is striking due to the notion proposed in the ZBKRDP that coal mining industry as in a “natural decline” process and that the agriculture sector could possibly cease in the context of the regional restructuring process in the mid-1990s (Tunçer, 2006, Eylül).

ZBKEP highlighted strategies to take advantage of opportunities. For example, it stressed external projects through investments to further monitor the positive impacts on the households and employment opportunities. It also stressed taking advantage of the use of financial support tools brought by the EU accession period and by foreign investment decisions. Another strategy focused on was to take advantage of state investments in addition to the benefits of the introduction of ZBK region as “a priority region in development” (Tunçer, 2006, Eylül). Focusing on sustainable development, ZBKEP aimed to stop the out migration and to support the population for living in the region (Tunçer, 2006, Eylül).

Being introduced as a plan that adopts a modern conceptualization of the region because it considers the impact factors of larger metropolitan areas on the ZBK region and the basins, ZBKEP gives importance to the Black Sea Economic Partnership and its opportunities to the ZBK region. ZBKEP set an original perspective by introducing a specific management model based on the partnership between public authorities comprising representatives of many ministries and local authorities, including municipalities and provincial management units, to coordinate multi-scale and trans-scale decisions and consistency between these (Tunçer, 2006, Eylül).

## **6.2. Industrial restructuring in Zonguldak Region: How did the coal mining industry stand against the impacts of decline?**

The industrial restructuring process was evaluated with reference to recent developments and investments in Zonguldak Basin that have direct impacts on Zonguldak Metropolitan Area mainly comprising Kozlu, Zonguldak, Kilimli and Çatalağzı. The changing industrial development can be viewed from a perspective of changes at the firm level, of new opportunities introduced by investments and subsidies, of disintegration tendencies within big enterprises through subcontracting practices in the production process and of changing actors in industrial production.

This chapter focuses on new practices in industrial production in terms of new partnerships, certain informal production processes integrating to legitimized processes, technological change, intra-firm and inter-firm relationships and subcontracting practices. The chapter highlights industrial restructuring process in Zonguldak Metropolitan Area. However, it is important to state that the reindustrialization attempts in Zonguldak region/province and also in Zonguldak Metropolitan Area were evident. Not to mislead the reader, the reindustrialization that will be discussed does not mean the reindustrialization mentioned before that emphasizes the integration of innovative processes, high technology etc. in the production process. The reindustrialization here focuses on mainly manufacturing industry and parallel development with the introduction of the new organized

industrial regions in Zonguldak Region and again some labor intensive and traditional industries, such as textiles in the Alaplı district and shipbuilding in Ereğli district, which use modern technologies and both of whose actors in production are private sector firms.

It is possible to discuss the input and impact of the university in integrating research, expertise and consultation in industrial production, and in enabling partnerships both at the institutional, local and regional level concerning the Black Sea Region. Mainly the potential for new industrialization in the region and the potential for enhancing development of both human and social capital in Zonguldak are discussed.

#### **6.2.1. New actors in charcoal production and disintegration tendencies in the vertically integrated state owned enterprise, TTK**

TTK as the main actor in hard coal production in the Zonguldak basin has also been an actor in mine machinery, analysis and testing in laboratories and port management (TTK). The mono-centric firm in coal production in the basin changed in 1989 when legislative ground for private firms to operate in the areas left by TTK was completed. The operations of private firms were achieved through royalty implications. The private firms have mainly concentrated their production where coal reserve is located near the surface.

TTK has subcontracted in certain phases of the production process such as opening out galleries and washing of coal<sup>69</sup>. The investment programs for near future comprise increased use of subcontracting in the production process.

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<sup>69</sup> Informant, N.B.

### 6.2.2. New investment decisions in the energy sector

Table 6 shows the new energy investments in Zonguldak region. As a new development for the region, the new energy landscapes characterized by licenced new thermal power stations comprise both conflicts with and contributions to the industrial structure of the region. For the ones to be projected in Çatalağzı Region, the informants found this as a chance for revival for the locality in terms of job creation and infrastructure development<sup>70</sup>. However, imported coal use and the high number of thermal power stations in the province, which exclude TTK and coal production to a larger extent in the basin has created a conflicting situation while brainstorming on the congestion to arise in the Bosphorus<sup>71</sup>. Apart from job creation proposal, the firms were found likely to take advantage of the externalities of the old structure of industrial development and production, but questions remain about future environmental degregation due to the coal burning energy production proposal and the repercussion of this development to the region.

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<sup>70</sup> Informants V.Ç. and I.M.

<sup>71</sup> Discussion, Coal Congress, May, 2008.



Table 6. The new energy sector investments in Zonguldak Region

The new energy sector investments in Zonguldak Region						
Company	Location	Type of production	Capacity	Cost	Starting operation	Time span
Elektrik Üretim A.Ş. (EÜAŞ)	Çatalağzı-Zonguldak	Thermal/Charcoal	300 MW	1.650.000.000	-	10 years starting 13/03/2003
Hema Elektrik Üretim A.Ş.	Zonguldak Province,, Alacaağzı-Kandilli Location	Thermal/ (Domestic charcoal/ metan gas)	51,3 MWm/50 MWe			49 years starting 12/10/2006
Eren Enerji Elektrik Üretim Anonim Şirketi	Zonguldak Province	Thermal /Domestic –Imported Charcoal	135 MW	1.064.340.000	35 months after 28/09/2004	20 years starting 28/09/2004
Akenerji Elektrik Üretim A.Ş.	Zonguldak Province, Alaplı District	Thermal /Natural Gas	6,3 MW	41.709.895	In operation	15 years starting 01/04/2005

From a perspective concerning Zonguldak, Bartın and Karabük Region, the product change as well as private sector involvement in energy production is a new development for the region. As in the case of Amasra in Bartın, the new investment in a thermal power station based on methane gas has started an ongoing conflict between local pro-active environmentalist groups and the firm due to the decision that puts the natural and cultural assets under vulnerable conditions.

### **6.2.3. The university and industry partnership: a new potential for new industrialization in the region**

The university was evaluated as an important actor in the restructuring process in a multi dimensional evaluation in terms of attracting population, introducing development of human as well as social capital through partnerships both at the local and regional levels, and informing a potential for new industrialization integrating technology development and research in industrial development for the region.

For the 2006-2007 academic year in Zonguldak Karaelmas University the total number of academic personnel was 841 and the number of administrative personnel was 863. The total number of students was 16494. Of these students, 6895 are enrolled in undergraduate study in faculties, colleges and the conservatory, 8311 in vocational schools for an undergraduate degree, and 660 are enrolled in graduate level study in institutes (ZKU, 2006).

The objective of industry-university partnerships for the near future, presented in the strategic plan, has the potential to act like an entropy in development of industry integrated with innovative processes, new technologies and research (ZKU, 2006).

Zonguldak Karaelmas University Industrial Cooperation Development Center (Zonguldak Karaelmas Üniversitesi Sanayi İşbirliğini Geliştirme Merkezi, [ÜSİGEM]) represents the newly introduced partnership between industry and the Zonguldak Karaelmas University. The foundation of ÜSİGEM aims to develop entrepreneurship among university students and to improve their qualities in this respect through partnerships with national and international institutions in addition to developing research and project proposals to improve the entrepreneurship in the Zonguldak region. Technology development and consultancy to especially small and medium sized enterprises are some of the specified functions of the foundation, officially activated in 2005 (related bylaw).

The ÜSİGEM project is seen as a potential for development of new industrialization and development of human and social capital in the region. This issue is given importance due to the frequently mentioned characteristic of the lack of /insufficient entrepreneurial capacity in the region and the insufficient formation of social capital in terms of the potential to develop collective efficiencies<sup>72</sup> (related bylaw).

### **6.3. The urban restructuring process: How did the city stand against the impacts of decline?**

The urban restructuring process was evident in the last years in Zonguldak Metropolitan Area as a result of the preparation of new construction plans. This process has been catalyzed by the impact of the university in terms of attracted population and their demands on urban services. Furthermore, the transformation process has been affected by the down-sizing of TTK, which reflects the gradual elimination of land under TTK ownership as part of the destruction of the socio-cultural activities of the firm.

This chapter is based particularly on the urban regeneration process in Zonguldak city. The urban restructuring processes of Kozlu, Kilimli and Çatalağzı as part of their general restructuring process can be reviewed in section 6.4 of this chapter.

The new reconstruction plan<sup>73</sup> is mainly founded on the embedded problems of the socio-spatial structure of Zonguldak city centre which originates from the specific property structure and relationships, and the ongoing exploitation of public land for reasons of settlement through squatter housing and that remained unsolved even after the 2981 (10/c) law that legitimized this deregulation process associated with lagged and postponed plan preparations (Zonguldak Municipality, 2007).

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<sup>72</sup> For a detailed study discussing concepts, collective efficiency, transformative capacity, the reader may reach: Pınarcıoğlu, M. and Işık, O. (2004) Yeni Kalkınmacılık: Bölgesel Kalkınmada Arayışlar. Ankara: GAP-GİDEM Yayınları-4.

<sup>73</sup> The plan has been finalized by Modül Planlama in partnership with the Municipality of Zonguldak.

Specifying the place-specific characteristics of the city, the plan highlights indicators of depopulation and an employment problem concerning the period after 1980 that points at the changing socio-economic structure of the city population. Apart from property relationships, degraded physical environment, insufficient urban social and physical infrastructure, and irrational land use decisions are the major criticisms brought by the plan (Zonguldak Municipality, 2007).

The main emphasis on development of this plan was determined to be planning property relationships and constructing a legitimization process by achieving a lagged process of planning the city.

The writer thinks that the regeneration of the city center is seen as a major happening in the current socio-spatial phenomena of the city to further grasp the changing image of the city and the semiotic binds with the city which the emptiness fulfills in the current situation.

As mentioned earlier, the restructuring in Zonguldak center has comprised tertiarization and urban regeneration based on reorganization and legitimization of ownership pattern in the city. Renewal of all the settlement plans has taken place in two year time. The urban restructuring process has comprised the new plan preparations and discussions on bringing diverse scenarios to the region. One of them was stated as thinking of Zonguldak as a university city, however, the topography and hence, the scattered structure of the campus were shown as the primary constraints against this scenario<sup>74</sup>. It was stated that during the preparation of the plans, a research has been based on such a questioning:

If coal mining were totally demolished in this city, what could be done was the question of our research. We found no other choices for the city that got used to the excess returns obtained from coal. One choice was thinking of Zonguldak as a university city but sincerely, the city did not internalize the university. The university is insular in itself. The university population live separated from the city. The faculty

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<sup>74</sup> The Informant, G.Y.

of medicine is already in boundaries of Kozlu. They act like the same; they restructured insular and within their own milieu<sup>75</sup>.

The university has brought dynamism to the city both in terms of attracting population to the region and thus generating potential consumers for the urban economy. However, to what extent the university interacts with the citizens and the institutions has remained a question mark. Furthermore, the insight of the university population in the urban economy is limited to a certain milieu, both socially and spatially. Although the university has not managed to associate with the local population and although its input to the urban economy is via its insight to the service sector that predominantly focuses on the Site Region, its revolving fund and expertise of departments of mapping, geology, geodesy and mining in the preparation of earth etudes have been its major contribution to the economy<sup>75</sup>.

The projects of opening the supermarket chain Kiler and a Dedeman Hotel, and the establishment of a 200-dwelling residential area in Gölağzı location in the On Temmuz Neighborhood in cooperation with the mass housing enterprise (Toplu Konut İdaresi, [TOKİ]) are the components of the tertiarization process and urban regeneration<sup>75</sup>.

The demolition of a landmark, the washery area, is remarkable because it constitutes the symbol of Zonguldak as a coal mining city. Although the building has been conserved and registered as an industrial building; it is affirmed to be too late in terms of preserving its cultural value. The new function of the area owned by TTK has been projected to include open areas, parking lots and trade.

### **6.3.1. Tertiarization process in Zonguldak**

The tertiarization process in Zonguldak includes the impacts of the university on urban structure, new constructions on consumption spaces and partly the

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<sup>75</sup> The Informant, G.Y.

transformation of industrial production sites to sites in use for cultural heritage tourism. These developments enhance the rise of the service sector.

#### **6.3.1.1. The university and its impacts on urban structure**

The university has brought dynamism to Zonguldak city due to its attraction of population with diverse demands and activities. Although the relationship between the local population, local institutions and the university are in their early stages, the interaction in terms of cultural and social structure holds an important place. Some of the consequences that the impacts of university have on urban structure can be stated as the opening of the new housing areas and recreational spaces.

#### **6.3.1.2. New constructions on consumption spaces**

The tertiarization process in Zonguldak is founded on the rise of the service sector on common grounds to deindustrialization process. The new spaces of consumption and leisure in construction characterize and code the process in space as observed from Figure 42,43. Further, observation on tendencies toward industrial heritage tourism in urban space and image renewal projections are phenomena that can be discussed within the context of tertiarization in Zonguldak.



Figure 42. The old washery site at the city centre as Dedeman and the old landmark  
Photograph by Şenay Işın, May, 2008



Figure 43. The construction area of Carrefour shopping mall  
Photograph by Şenay Işın, May, 2008

### **6.3.1.3. Tendencies in the transformation of industrial production to cultural tourism**

Cultural heritage tourism comprising industrial heritage is a common phenomenon that indicates the changing context of industrial production sites that signifies the transformation from a socio-spatial entity of production to consumption. As will be thoroughly discussed in the comparison of international cases of deindustrializing and restructuring coal mining regions, industrial heritage sites comprising industrial museums, industrial open air parks etc. continue to be a common intervention strategy in regeneration of these regions.

The projected mine museum which is decided to be opened in Üzülmöz Training Area of the TTK, will be the first mine museum in Turkey. The writer again emphasizes the changing context of industrial production spaces in the city as a site for spectacle and leisure. Signifying the contraction of the firm, TTK, in spatial means, the re-existence effort of the old socio-spatial structure through its entity brought by its cultural heritage value is observed.

The old washery site in Zonguldak city center and a similar future projected for the coal washery area indicate the change in the image of the city and the change in technology reflected on transformation from a labor intensive production process to a capital intensive one. The self-definition of the city has been drifting away from labor and industrial production embedded in a definition of coal mining.

#### **6.4. Micro stories of restructuring: Kozlu, Kilimli and Çatalağzı**

The pace and characteristics of restructuring in Zonguldak metropolitan area (Kozlu, Zonguldak, Kilimli, Çatalağzı) reveal micro stories of restructuring that rely both on local characteristics of Zonguldak and on differing tools and actors of restructuring.

The study uses the in-depth interviews made with the planners and the persons involved in decision making related to urban space in Zonguldak between 16 and 18 December in 2008. The main questions of the in-depth interviews can be found in Appendix D. The interviews are mainly based on the impacts of deindustrialization and the restructuring process considering both the locality in ZMA and Zonguldak in general terms. The main aim was to learn the story of the experience of decline and restructuring from an insider perspective to the locality, and hence, the local characteristics particular to each locality forming the metropolitan area. The basic discussion points came out as discussing the impacts of deindustrialization on both the city and the citizens; how Zonguldak has stood against this process; the basic parameters of change and the restructuring process with particular interest in the role of the university, opportunities in regional integration through the Black Sea Economic Cooperation, the role of further state investments and their vision for their locality. The answers carried both the perspective of an expert and that of a citizen of Zonguldak.



The specific outcome of decline in **Kozlu**<sup>76</sup> is seen as the observed decrease in the number of banks in the center, especially after 2000. A number of abandoned houses, mostly apparent in the Güney neighborhood display the observed impacts on the physical set-up of Kozlu. These houses are described to belong to coal miner households and are generally the ones with young children and who are concerned for the future of their children. One characteristic particular to Kozlu was stated as the use of rural land to support households while decreasing their consumption<sup>77</sup>.

The restructuring process in Kozlu has manipulated the old spatial structure. The university has played an important role in changing urban space. What the university, Zonguldak Karaelmas University (ZKU), has brought to Kozlu was described with reference to its impact on spatial change in Kozlu. The construction of student hostels in addition to the faculty of medicine has been important in urban change. The student hostels were stressed to play an important role in the increase in the Kozlu population. Nevertheless, the attempt of students to satisfy their needs on the campus in Zonguldak center rather than Kozlu center has limited their contribution to the trade in Kozlu Center. Spatially, the university has taken the land and buildings formerly owned by TTK and revitalized them. The Faculty of Fine Arts is one example to this in Kozlu<sup>78</sup>.

Parallel to the change in social, economic and spatial structure, the construction of the Faculty of Medicine in Kozlu has resulted in the increase in demand for housing in Kozlu while promoting the construction of new housing areas. It was stated that it is an ongoing process and the work on physical infrastructure continues for some of

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<sup>76</sup> The micro story of Kozlu has been prepared with reference to the in-depth interview with the informant H.Ö.

<sup>77</sup> The Informant H.Ö.

<sup>78</sup> The Informant, H.Ö.

these housing areas. Moreover, adjacent spaces have transformed to urban space after the construction of the Faculty of Medicine<sup>78</sup>.

The restructuring of Kozlu was commented on as follows:

The contribution of the faculty of medicine to the Zonguldak region and Kozlu has been great. It has enabled in-migration to the region of a population composed of doctors and the students. This population has different demands associated with their different life styles. A secondary center has been formed in the Site Region where the student can have cheaper food, etc. and accommodation. Also, new housing areas have appeared near the faculty of medicine in Kozlu and area opened to settlement<sup>79</sup>.

The constraint of finding suitable land for new settlement in Kozlu is a general problem in Zonguldak. Urban renewal has been evident in housing areas in Kozlu. The demolition and reconstruction in the neighborhood are evident. The change is described as increasing the number of storeys or the m2 area of the houses. The housing market was described as stagnant and the prices as high due to high construction costs resulting from the ownership pattern and the difficult topography<sup>78</sup>.

On the development of Zonguldak and further restructuring, the opportunities for supraregional integration, such as Black Sea Economic Cooperation or attracting investments, were discussed. The only requirement for the referred options or any other investments were tied to the completion of suitable physical infrastructure and availability of required subsidies. The allocation of land by preserving the identity of the city and the environment was seen as of primary importance in Zonguldak so as to attract public or private investment despite topographic obstacles<sup>78</sup>.

State investments were proposed to be the most consistent in enhancing the development of by product industry in Kozlu because Kozlu is surrounded by forestry land on three sides and it is close to the iron and steel manufacturing

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<sup>79</sup> The Informant, G.Y.

industry. Hence, the lack of by product industry constitutes the main deficiency for Kozlu<sup>80</sup>.

One other potential discussed for Zonguldak, a coastal city, was the development of sea transport and the port area. Coal as a potential was explained as having no direct effect on the development of sea transport. Investments were evaluated with particular interest in the improvement in the port area so as to increase the capacity and reach the acquired depth to be able to accepting ships of every tonnage<sup>80</sup>.

New investments were seen as the main tools for the future of Zonguldak and the main strategy to attract them were based on land and infrastructure allocation<sup>80</sup>.

An informant proposed ideas on land allocation methods and cooperation with the university in production:

One way to allocate land can be through the use of waste products of TTK without creating contaminant impact to the physical environment. This can be achieved through using waste products as filling material in disposal process like in the Ruhr, Germany. Also, achieving by products such as petrochemicals and naphthalene remain as one option which would be available through cooperation with the university because of the requirement of laboratories<sup>80</sup>.

On the issue of the implications of policies, it has been stressed that the implementation of new plans has faced with problems of conflict between institutions concerning urban land and the specific property relations particular to Zonguldak. The solution of conflicts concerning specific property relations is an urgent requirement because it is a burden for decision making on land and this is against the public good. The same reason was expressed to lie behind the construction of unlicensed buildings<sup>80</sup>.

In addition to these discussions, the construction of a new waste storage area has been accomplished in Kozlu for use in 2009<sup>80</sup>.

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<sup>80</sup> The Informant H.Ö

**Kilimli**<sup>81</sup> is characterized by a rural culture as an insular locality with a rural character with the exception of the mass housing areas and the center. The main actors in sustaining Kilimli are expressed to be the officials and labor population of TTK. The rural land is used to grow vegetables which support the household when they decrease their household consumption and which are not sold in the marketplace. The main problem of Kilimli was stated to be the lack of identity<sup>82</sup>.

It was expressed that the restructuring process has kept the expectation of the transformation from this rural culture to urban culture in the near future. The university was seen as an important actor in this transformation<sup>82</sup>.

The insight of the university was evaluated in terms of the dynamism it brought and its introduction of change in cultural terms. The acceptance or integration of university students to the local population and the city was commented to be rather new due to the common attempt of avoidance of cultural deformation as a reflection of the dominance of conservatist thought. A vocational high school of ZKU is located in Kilimli. In the near future, the expectation and proposition of reflection or extension of the regeneration or the generation of dynamic service sector prevails for Kilimli. Consequently, the university was perceived to be the preliminary factor in transformation of Kilimli<sup>82</sup>.

In the Kilimli case, there are constraints on the transformation of the urban land due to legislative constraints which generally do not take into consideration the current situation. Karadon was evaluated to become a space of decline in the next ten years because of the impossibility of reuse, regeneration or transformation of land as legally proposed<sup>82</sup>.

Brainstorming on the chance of Zonguldak to take a role in the Black Sea Economic Cooperation revealed its deficiencies as well as its potential for such a regional

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<sup>81</sup> The micro story of Kilimli has been prepared with reference to the in-depth interview with informant H.K.

<sup>82</sup> The Informant, H.K.

integration. Firstly, the unsuitable depth of the port area was criticized because it does not lend itself to larger import-export activities. This was remarked for the outflow of new investments to the ports in the eastern part of the Black Sea Region. Consequently, the insight to this supra regional cooperation is not been seen as a direct one<sup>82</sup>.

State investments in Zonguldak as well as Kilimli in especially industry were not perceived as likely to happen. The reason was explained as the lack of requisites, such as unavailable land for industrial settlement areas due to topographic burdens and high slopes, unsuitable coast area due to legislative measures and large forest area forming the rest of the land<sup>82</sup>.

The discussion on the tourism potentials of Zonguldak revealed that fish has depleted in Zonguldak due to mainly pollution and wrong fishing techniques. In addition to pollution, a rather short sea tourism season was mentioned. Caves, as specific formations particular to the region, are not taken advantage of in the context of nature tourism because of the inability of conservation of these for use<sup>82</sup>.

The vision on both Zonguldak and Kilimli for the near future was expressed with these sentences: “When coal finishes in the region, both Zonguldak and Kilimli will finish, too, due its lack of potential” and “There is no potential for Zonguldak, but only coal in the long and medium run”<sup>82</sup>. Furthermore, the expectations from the locality were based on the thought that “Kilimli in the near future will sustain itself with coal preserving its insularity”<sup>82</sup>. As an end note, it was said that coal will never end, even if down-sizing of TTK is carried on, owing to the strategic role of coal in energy production at the national level.

The restructuring of the **Çatalağzı**<sup>83</sup> is basically based on the new investments made in the energy sector. The expectation for the near future of the locality has relied on the change brought by this new investment. The local administration has mainly based their strategies on capturing the qualified population that will work in

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<sup>83</sup> The micro story of Çatalağzı has been prepared with reference to the in-depth interview with informant V.Ç. and İ.M.

the new firm. The idea behind these strategies is sustaining the demands of this new population. Some of these strategies are manifested as the introduction of new housing areas in the city. The working and living of this population are expected to create changes in the economic and social structure of the locality. Apart from creating an important size of employment, revival of trade and the service sector is one of the basic expectations. Apart from the construction of the new housing areas, a projected high capacity port area has been proposed to enhance further regional integration of Zonguldak within supra regional cooperation, such as the BSEC.

Çatalağzı is a locality characterized by the thermal power plant, ÇATES 1. It is perceived as the firm that provides the greatest input to Çatalağzı. In addition to ÇATES 1, the maintenance workshop of the DDY (State Railways, Devlet Demiryolları, [DDY]) remains an important source of employment within the locality. Recently, a project of another thermal power plant by Eren Holding/Enerji was started after an important investment made by Eren Holding. Through this investment, one of the biggest investors of Turkey will have come to Çatalağzı. Approximately, 2.5 billion dollar investment was made at the end of 2003. A 1369 mega Watt coal-burning station is being constructed that will use mostly imported coal in the production process. The first unit will have started operating in fall 2009. All of the units of the plant have been planned to start operating in 2012. The spatial change as a consequence of this investment was stated as a construction of a port area. Even, the population working in construction of the plant commented that it gave an important input to revive trade in Çatalağzı. Currently, 1500 workers 300 of whom are Chinese are working in this construction<sup>84</sup>.

The evaluation of the investments for the region include such expectations as given below:

The private sector investments are important in terms of forming employment opportunities composing of 1500 people with its service sector demand transcending to 2000-2500 people. The must for the local administration is to put an effort in making these newly employed population stay in Çatalağzı through

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<sup>84</sup> The Informant, V.Ç.

designing and constructing new housing areas. The investments will bring major insight to the locality in terms of improvement in their life standards both economically and culturally. What ERDEMİR has brought to Ereğli would be also valid for Çatalağzı in its relation to the new investments of 3-4 billion dollars in 10 years time<sup>85</sup>.

The contribution of the university to Çatalağzı was perceived to be lacking. The reason was related to the topography of the region and hence the distance to the Zonguldak Center. An informant commented on the interaction and extent of the university's contribution to Çatalağzı as below:

We cannot see any reflection of the university in Çatalağzı because there is no relationship between university and Çatalağzı. Çatalağzı is a small settlement that is 15 km far from Zonguldak Center and it is insular. The generation brought by the university in Zonguldak center is definitely not valid for Çatalağzı<sup>86</sup>.

Apart from physical constraints, it has been expressed that the university lacks contribution to local institutions and the citizens in terms of relating scientific knowledge with local problems of the region concerning social and economic life<sup>85</sup>.

The transformation of the Çatalağzı washery area to mobile washeries like the one in Zonguldak center has been projected but the legal procedure has not started yet<sup>86</sup>.

Remarking that there is no state investment on the agenda, the private investments made in Çatalağzı are perceived to mainly contribute to the supra regional integration of Zonguldak as is with the Black Sea Economic Cooperation. According to the new settlement plan prepared for Çatalağzı, the population will increase from

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<sup>85</sup> The Informant, İ.M.

<sup>86</sup> The Informant, V.Ç.

the current figure of 9500 to 12000-12500. Çatalağzı is foreseen as a locality with an enhanced local economy in ten years' time as a result of these investments. A qualified population with demands is expected to contribute to the economy and the social structure of the locality. Currently, it is stated that even the ones working in construction contribute to the local economy<sup>86</sup>.

The local administration has expressed the urgent need for new housing areas<sup>87</sup>. Hence, 200-250 dwelling and 100 dwelling mass housing areas are on the agenda.

Additionally, it can be stressed that Zonguldak is seen as a region that directly concerns the national economy from the perspective of Zonguldak center. A project on a high capacity port area has been stated to be on the agenda in Zonguldak. The new plan also includes the construction of a highway extension of the Black Sea coast in Zonguldak. The Filyos Project that involves the construction of a free zone is viewed as a major reference for the near future of Zonguldak<sup>88</sup>.

Taking into consideration Kozlu, Kilimli and Çatalağzı, insiders in the restructuring process reveal micro stories of local change as well as expectations for the near future at the regional and local levels.

## **6.5. Conclusion**

The mid-1990s were characterized with the legitimization and enhancement of decline and down-sizing of TTK within the metropolitan area. The period exhibited strategies on diversification in addition to the prominence given to private sector to overcome low entrepreneurial capabilities within the region. Taking advantage of the new investments on organized industrial regions as part of the regional restructuring process of the mid 1990s, reindustrialization attempts by means of developing labor intensive and traditional industries mainly for job creation, such as

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<sup>87</sup> The Informant, V.Ç, The Informant, İ.M.

<sup>88</sup> The Informant, G.Y.



textiles and shipbuilding were observed in the region. This was evaluated as an attempt to prevent the ongoing out-migration. The establishment of the university in 1992, which had a regional impact, coincided with and was part of the restructuring process in Zonguldak. It created the potential to attract a student population and university staff members, to generate human capital within the region, and to play a regional and institutional role in developing partnerships and collaboration with other institutions and other regional actors. Moreover, a potential for new industrialization through integration of research and development in industrial development was revealed by the university.

Apart from regional restructuring, the industrial restructuring and urban restructuring have dominated the agenda. The disintegration in the vertical has emerged while private firms have become more active in coal production in the basin through royalty implications. The tertiarization process has become evident within the rising service sector, in observed transformation from production to consumption spaces, in the re-contextualization of the old landmark, the washery area with its industrial heritage value, and the project to establish the first mine museum of Turkey.

A need remains to define the actors and their collaboration in the management of the restructuring process through an integrated organization. This was emphasized by ZBKRDPA in the mid 1990s by a proposal on a regional development agency for the region, and the proposed management model of the new environmental plan within the three basins has validated this requisition. It is concluded that the issue of ambiguity in management is also valid for the metropolitan area since the period of union of municipalities remains a major problem for the region and the metropolitan area in terms of both intervention and developing response capacity in the restructuring process.

## **CHAPTER 7**

### **A COMPARATIVE LOOK AT THE RESTRUCTURING PROCESS OF DECLINING OLD COAL MINING REGIONS IN THE WORLD**

Deindustrialization and restructuring for revival can be the key to describe the process of change in Zonguldak. The decline impacts of deindustrialization in Zonguldak and responses to these impacts reveal a multi-layer structure. In other words, these impacts and responses can be taken into consideration from the perspectives of local population, namely households, the local economy, institutions, and urban physical changes that create the urban set-up. As discussed in earlier chapters, Zonguldak's story of change and restructuring process involve such multi-layer characteristics. The restructuring process of diverse cases similar to Zonguldak's situation either experienced or being witnessed allows for a comparative evaluation of intervention tools used throughout this process. Consequently, this makes it possible to compare which strategies, actors and policies have been included in the restructuring process from the perspectives of various experiences.

The investigation of the restructuring process in this thesis study was carried out through a discussion on the response potential of localities. This response potential fundamentally based on the pace of the restructuring process is related to inner mechanisms of localities and local characteristics and intervention in the restructuring process that includes externally driven processes. The selection of cases is based on a literature review on the restructuring processes of diverse cases from different parts of the world and different geographies. Although place-specific characteristics of localities are evident, investigating these experiences is likely to reveal common strategies to respond to decline and restructuring for transformation of old structures to new ones. The cases, thus, diversify with reference to their current situation and their main restructuring strategy.

## 7.1. Introduction of the cases subject to comparative evaluation

The cases subject to this comparative evaluation were selected as a result of the literature review on comparison of Zonguldak case with the other cases from different parts of the world. An effort has been made to present a heterogeneous selection of cases. Brief information on each case has been prepared to serve as the introduction material to prepare the reader for further detailed analysis and comparison among the presented cases.

Each case was examined with reference to the assets of the region, date of decline, reasons of decline, indicators of decline, restructuring strategy as response to decline, and restructuring strategy for further revival.

**Ostrava** is an old industrial region in the Moravia-Silesian Region in the Czech Republic. Its regional economy is composed of coal mining and steel industry and nearly half of the local population works in the industry sector (Suchacek, 2005). Suchacek (2005) states that 86% Czechoslovak of coal mining, 82% of coke production and 70% of steel production has originated from the region as of 1989. Consequently, apart from the role of the Ostrava-Karvina Mines in the coal mining industry, Nova Hut Steel Company and Vitkovice Steel Company have been important players in the steel industry. Major assets of the region are its being the farthest region from Prague in geographical terms and its having weak transportation links with its surrounding.

The date of decline in the Ostrava Case can be stated as 1989 and 1990 which denote a system change, namely the Velvet Revolution, for the country. The reasons for the decline in Ostrava are generally based on economic decline accompanied with the system changes in the formerly socialist economy (Suchacek, 2005). Based on Suchacek's analysis, economic decline, decreasing population, closure of unprofitable pits, closure of the oldest industrial region, Doni Oblast, rising unemployment, decreasing demand for large companies in the traditional market in parallel to decreasing domestic demand as a consequence of the economic recession can be summarized as indicators of decline.

The unemployment rate in the region is stressed to be above the national average for the period between 1989 and 1999, which coincides with the date of decline for Ostrava. Restructuring as response to decline in Ostrava can be described with policies of reduction of subsidies for coal mines and steel works in 1990 and closure of unprofitable pits accompanied with the strategy of rationalization and modernization. Contracting workforce of Ostrava-Karvina Mines, privatization of Nova Hut Steel Company by Mittal Steel as well as transformation in Vitovice Steel Works can be listed as other restructuring efforts. The date 1994 signifies the closure of all the pits in Ostrava. Suchacek (2005) describes restructuring experience in Ostrava as a chaotic and ad hoc approach in a climate of the national economic problems of the late 1990s. Restructuring strategies for revival are composed of components such as (Suchacek, 2005):

- bringing new function to an old industrial region, Doni Oblast, in the form of an industrial open air museum
- Cross border cooperation attempts for interregional projects
- Creation of new jobs via small enterprise development by the government fund (1992-1993)
- Founding of the new enterprise management responsible for their development in 1990.
- Establishment of regional development agencies
- Creation of Union and Common Regional Operation Program (2001).
- Establishment of Technology Park, Regional Innovation Center by the regional development agency
- Establishment of smaller industrial zones by the support of the ministry of industry and trade
- 1991-1992: small enterprise development and job creation by government finance
- Modernization of the railway corridor by local initiatives
- EU as the financer of development programs within the restructuring process such as: PHARE (pilot programme for privatization) in 1991; ECOS/OUVERTURE (strategy for regional development); PALMIF (employment project); LEONARDO (educational programs)

The Ostrava Case has been criticized because of its inadequate endogenous potential and the negative repercussive effects of path-dependency in Ostrava agglomeration in addition to the low level of trust and cooperation between local and regional actors (Suchacek, 2005).

A comparison of Zonguldak with Ostrava in terms of restructuring strategies as response to decline reveals a common ground in terms of implemented policies on:

- reduction of subsidies for coal mining especially after 1986 for Turkey
- implications of policies on privatization of steel companies which in the case of Turkey, Zonguldak Region, privatization of KARDEMİR in 1993 and ERDEMİR in 2005.
- closure of unprofitable pits (but not all the mines as in the Czech Case) and contraction of workforce in coal mining industry

The Zonguldak case also shares the characteristics of low capacity of generating endogenous potential and inadequate cooperation among actors, hence a low level of social capital with the Ostrava Case.

**The Upper Silesia** Region in Southern Poland is described as a highly urbanized conurbation whose administrative center is Katowice and which held 45 foreign enterprises in 1989. With a population mostly working in the state sector, the region has signified a heavy industry region managed under state ownership. The structure of the heavy industry is composed of coal mining, steel manufacturing and energy production including 65 hard coal mines, 13 power stations and 19 iron works of some 520 state owned industrial enterprises in the region as of the year 1989. Suchacek (2005) counts the basic characteristics of the region as high dependency on the local economic structure due to the high dependency of national economy on hard coal, economic and institutional monoculture of the local economy, low education capacity of the population, dominance of large industrial enterprises, strong political resistance and lobbying against restructuring.

The date of decline for the Upper Silesia Region can be indicated as 1989-1990 when a system change came onto the agenda for the former socialist regime. The

indicators of decline for the region are revealed as environmental catastrophe due to pollution, decreasing employment resulting from early retirement policies and laid off workers, increasing unemployment that nevertheless stayed under the national average, deformed employment structure, increasing bank loans and debts for mining and metallurgical firms enhanced through the political pressure in 1995, decreasing production in heavy industry, decreasing coal production for the period between 1990 and 1999 attached to the decreasing market role of coal and a disintegrating regional community (Suchacek, 2005; Szczepanski and Cybula, 1998).

The restructuring policies in response to decline in the first stage include the signing of a regional contract for Katowice Voivodship, prepared by the central government in 1995, concerning new economic activities other than mining for the region (Suchacek, 2005). This can be considered as a diversification tendency toward restructuring. The contract is stated to concern especially education, environment and infrastructure in regional transformation. Further responsive restructuring policies to face decline can be summarized referring to Suchacek (2005) as follows:

- re-training dismissed workers with the aim of these workers becoming able to work in the service sector as well as in the investor firms in the economic zone.
- compensation of increasing debts of all mines through provision of bank loans for metallurgical and mining enterprises

Suchacek (2005) has commented that it has been the political pressure and the tough coal mining lobbying that protected the region from a total economic collapse or decline and also prevented the impacts of decline such as sudden closures of the state owned collieries after 1990. This resistance has slowed down the pace of the restructuring process in Upper Silesia.

The restructuring policies for revival of the region have comprised transformation of the regional economic structure in addition to new image building and improvement in the region. Suchacek (2005) comments that state intervention is an important factor in the restructuring process. The restructuring policies for revival of the region in Upper Silesia, Poland are briefly stated as Suchacek (2005):

- Modernization of transportation through rehabilitating the physical infrastructure via providing railway network and construction of highways

- Establishment of special economic zone in 1994
- Generation of Katowice special economic zone for manufacturing firms in 1996
- Approaching a vision in regional restructuring towards a region based on know how, innovation, advanced technologies and competitiveness
- Establishing technological centers in Katowice Conurbation
- Introduction of Katowice Fair Trades, Big Amusement Parks in Chorzow
- Massive investments in car industry
- Use of regional development venture capital, EU funds, programs of PHARE-CBC, INRED, STRUDER PHARE and RAPID

Modernization of the physical infrastructure and strategies to attract investment in free zones can be set as the common strategies that the Zonguldak Case shares with Upper Silesia in the restructuring process for revival. Although faced with important strikes to resist and slow down the impacts of decline on labor, strong political opposition or lobbying has had a relatively less significant impact on decisions made about the region due to different characteristics of the miners of Zonguldak.

**Kemerovo** (in Kuznetsk basin) and **Krasnoyarsk Krai** (in Kansk-Achinsk basin) are cases from Russia. Kemerovo and Krasnoyarsk Krai are described as regions constituting more than 50% of all the Russian coal production (Artobolevsky, 2003). Artobolevsky (2003) states that the coal mining sector carries the features of operating with low quality coal, at a low technical level and under adverse working conditions in addition to the high dependence of coal mining on government funds. These features are stated to decrease efficiency and to increase production costs, especially in the European part of Russia. The region is described to lack a mono-cultural economy dependent on coal mining that does not have an important role in the national economy; therefore the economy is structured to have industries other than coal mining. Intensive political lobbying is stated to be an important characteristic, especially in Kemerovo region (Artobolevsky, 2003).

Artobolevsky (2003) states that the 1960s signified a crisis due to the changing interest of the state in coal towards oil and gas, whereas 1989 and 1990 signified a system change at the national level. He further describes the characteristics of the

coal mining industry as overpopulated and relates this issue to underemployment and non-productive conditions.

Referring to Artobolevsky (n.d), the indicators of decline in Russian coal mining regions can be stressed as declining production and employment in the sector in the 1990s, exhaustion of coal, closures of mines and enterprises, long-term unemployment and underemployment, out migration from the region to eastward regions, increased localization of the industry, and disinvestment by the existing coal companies and enterprises. In spatial terms, it is stressed that especially local areas in isolated locations near exhausted deposits have entered a severe depression while many activities indirectly connected with coal production, such as housing, shops, hotels have disappeared and infrastructure and housing have deteriorated. Consequently, towns and settlements near closed mines are stated to become spatial focuses of industrial decline in coal mining, e.g. Rostov region.

Restructuring policies as response to decline in Kemerovo and Krasnoyarsk Krai can be interpreted as the use of state support and as a buffer mechanism to compensate the impacts of crisis by keeping the level of salaries of coal miners high due to political considerations as explained by referring to Artobolevsky (2003). Consequently, the presence of stable coal consumers has reinforced the adjustment process of the coal mining sector in terms of market changes in time. It can be stressed that, unlike all the cases of discussion in deindustrialization and restructuring processes, the development of coal mining areas is determined to be one of the most important goals of the new Russian regional policy as part of the state policy (Artobolevsky, 2003).

Reorganization in the Russian coal mining industry started in the 1960s. In addition to the use of state support to face decline impacts, use of WB financing and projects for restructuring in the sector, closure of non-profitable mines, construction of new mines, institutional restructuring through decentralization and enhancing open production of coal are observed to be complementary responses (Artobolevsky, 2003). Furthermore, privatization came on the agenda for firms in the sector after the 1990s. According to Artemiev and Haney (2002) privatization concentrated on renovation in ownership of the state owned coal industry after



1997. Consequently, they divided the privatization process into periods such as: spontaneous privatization (1990-1994), trust management (1995-1997), and 1997 as signifying a start for enabling WB led industrial restructuring and competitive direct privatization (1997-present).

Restructuring for revival of these regions is interpreted to focus on diversification of the economy through the generation of new employment areas in declining regions through micro-credits in addition to provision of funds for SMEs and of technical assistance to investors (Artobolevsky, 2003). Supporting and subsidizing training is part of the restructuring process. Establishing new coal enterprises that reach the markets and preparing and financing the coal sector restructuring program by the government associated with the local development programs in 1996 have been important in protection of the coal sector through restructuring. Public work programs are the tools in restructuring of the sector (Artobolevsky, 2003).

In the Russian case, a protected and directed restructuring process is observed with strong state support in formation of strategies and policies besides the major attempt to protect the sector and the production itself. Artobolevsky (2003) comments that this restructuring has been involuntary when evaluated from the perspective of people and space. In summary, the coal mining industry is given a major role in the near future of Russia through construction of new mines and increasing coal production in eastern Russian Asian regions. Increasing coal production at deeper levels as well as preservation of the leading role of Kemereovo and Krasnoyarski Krai regions are stated to be the main aims. Likewise, preserving the existing mines in other regions to provide cheap coal for power stations forms a complementary strategy (Artobolevsky, 2003).

The Zonguldak case has a similar restructuring strategy in production at deeper levels and it is a fact that state support has been a reason for dependency and compensation of the increased debts of the sector as in the Russian case. Nevertheless, such a protection vision as in the Russian case is not valid for the Zonguldak Case.

The fourth case is the **Donbass** Region consisting of two Ukrainian regions, one of which is Donetsk Coal Basin and the other Luhansk Coal Basin. One of the characteristics of the region is the lack of modernization and renewal in the mines for the past 25 years (Danilin, n.d.). It is stated that the Donbass region holds high quality hard coal in a geologically difficult basin in contrast to the Ukrainian coal that is low quality with high contents of sulphur and ash (Danilin, n.d.; Pleines, 2004). According to Danilin (n.d.), both geological conditions and the dependency on price decisions of the local authorities make production costs very high. It is added that the region is characterized by its monostructural economy based on coal mining. Pleines (2004) stresses that the coal market is highly regulated. Furthermore, Danilin (n.d.) states that mines are managed by the state within a highly bureaucratic medium characteristic of Soviet type management.

The dates of decline are emphasized by focusing on 1975, the 1974-1991 period as signifying stagnation and decline and the 1975-80 period as representing stagnation and structural crisis by Danilin (n.d.). The reasons of decline are directly linked to the post-Socialist Crisis by Pleines (2004). Further, Danilin (n.d.) adds that the worsening geological and thus working conditions in the mid 1970s led to the cease in productive life of Donbass coal mining industry. Moreover, he emphasizes the exhaustion of the industry's capacity with the aim of increasing the output as well as the shift in government investment for the advantage of other basins in Siberia and Kazakhstan since the late 1950s and the early 1960s. The outdated Soviet technology, increasing production costs, deterioration in mine safety, the presence of the highest rates of injuries and occupational diseases in the world are mentioned to be some other reasons in the same article. Consequently, the period between 1970 and 1979 represents reduced financing and a late attempt to start modernization.

The decreasing demand and ceasing export of coal, decreasing coal production in the late 1990s, decreasing profitability, mine closures, contraction of mining workforce, long-term unemployment and underemployment, worsening living standards, search for informal and insecure jobs, deterioration of social services under management of coal enterprises and environmental problems can be interpreted as indicators of decline for the Ukrainian Case referring to Danilin (n.d.).

Restructuring strategies as response to decline in the Donbass Region can be said to include downsizing in the coal mining industry, reduction in capacities with reference to the quality of produced coal, retaining workers, ceasing state subsidies, closures of mines operating at loss and mitigation of the social consequences of restructuring (Danilin, n.d.). Privatization of profitable mines has been part of these strategies (Pleines, 2004). Furthermore, strategies of integrating intensive working methods and mechanization aimed at increasing productivity; putting additional tasks on labour, such as working at the weekends and exploitation of the unproductive and previously closed mines; attempts to increase production in deeper levels in mines are on the agenda of restructuring within the sector (Danilin, n.d.).

As Danilin (n.d.) suggests, the period between the 1950s and the 1980s signified the development of research and design for improving mining equipment and techniques, while the 1980s characterized the loss of the status of the most mechanized coalfield. Moreover, he stresses the withdrawal of the social budget for coal enterprises through transferring them to municipalities in the mid 1990s. Pleines (2004) comments that Ukrainian coal production stabilized while reduction of state subsidies occurred in 1995. He also separates strikes into periods of mass strikes of the late Soviet period (1989-1991), mass strikes after independence (1993), and mass strikes in reaction to restructuring (1995-1998). Consequently, Danilin (n.d.) comments that protest actions have started to be organized by a radical minor group and a more modest union action since 1999.

Restructuring strategies for revival in the Donbass Region have concentrated on new job creation through governmental programs in former coal mining areas and public work programs (Danilin, n.d.). Pleines (2004) criticizes the lack of any effort to change the monostructural local economy and adds that the restructuring in the Donbass region has been market oriented. Danilin (n.d.) also appraises the overdependence on the state in restructuring process. Reviving coal industry through increasing productivity by means of transfer of social services from enterprises and contracting employment have been the main strategies.

The Zonguldak Case shares common grounds with the Ukrainian Case in terms of monostructural local economy, path-dependency, worsening geological conditions, exploitation of formerly used pits, mining within a process of deregulation and modernization in coal mining with the aim of working in deeper levels. In contrast to the Donbass Region, the Zonguldak case involves a tendency toward diversification in the monostructural local economy; however, similar to the Donbass Region, expectation of an externally driven restructuring process in the Zonguldak region is evident as part of the inability to generate endogenous potential in the restructuring process. Moreover, the transfer or diminishing of the social services has also been valid for the Zonguldak Case.

The UK Case occupies a very important place in studies of deindustrialization and decline in old coal mining regions. Most of the literature is concentrated on cases from the UK due to its industrialization history, its labor class and its restructuring process both managed and fulfilled.

In general, the British coal industry is described as highly localized and composed of separate coalfields. Beatty and Fothergill (1995) state that the major field is the central coalfield involving Yorkshire, South Wales, Durham, Nottinghamshire, Lancashire, North Derbyshire, North Staffordshire, Fife/Central, North Warwickshire, Northumberland, S Derbys/NW Leics, Lothian, South Staffordshire, Ayrshire, Clydesdale, Kent, North Wales, Strathkelvin and pit villages. They further state that the total monostructural production lasted for the period between 1948 and 1994. Consequently, nationalization of coal industry and establishment of the National Coal Board came on the agenda in 1947 (Pattison, 2004). The British miners are characterized by their deficiency in educational accomplishment and their capabilities characteristic to a single industry (Beatty and Fothergill, 1995).

According to Beatty and Fothergill (1995), the 1980s represent the decline in British coal mining industry. Shutt, Henderson and Kumi-Ampofo (2003) stress one important event as the closure of a large employer, UK Coal plc, in coal mining industry in the UK. The reasons behind the decline, as derived from Beatty and Fothergill (1995), can be stated as the changing economics of electricity production and the market condition for British coal. Alternative energy sources and the

availability of cheap coal from diverse locations, including India and Colombia in the late 1970s, are stated as the additional components integrated in the decline medium.

Labour turnover within the industry was revealed within the period between 1980 and 1995 within a discourse on disinvestment in national coal and privatization as a dynamic in the weakening of trade union NUM (National Union of Mineworkers) (Beatty and Fothergill, 1995). The important events and dates are stated to be the decreasing competitiveness of domestic coal production due to environmental constraints and changing dynamics in the energy market. Beatty and Fothergill, (1995) explain them as follows:

- Between the mid-1980s and the mid 1990s: The mine closure program
- The mid 1990s: environmental and global energy market-driven approach putting efficiency in use of coal and decreasing dependency on coal.
- 1996: The Clean Coal initiative of the WB.
- 2002: Energy review of the UK government. Immediate reason: low cost imported coal and the decreasing demand from the main users, e.g. power generators.

Indicators of decline in the British cases can be assessed as continuous job loss, labor turnover, pit closure program (1985) in addition to the closures during the 1980s and the 1990s, out-migration and reduction in labor force participation, and decline in coal mining employment (Beatty and Fothergill, 1995).

The 1984/85 strike and the 1992 strike against further closures are the reactions to the decline impacts of deindustrialization. Restructuring strategies in response to decline for the UK Case include:

- Rationalization in the coal mining industry in the 1950s (Pattison, 2004)
- Privatization in 1994
- Commuting and job creation to be later asses ? as having little or no contribution for the ex-miners.
- A net increase in non-coal sector employment (Beatty and Fothergill, 1995)

Restructuring strategies for revival have mainly used the tool of regeneration initiatives since the 1980s and mainly concentrated on new job creation for the ex-miners (Beatty and Fothergill, 1995).

Barnsley, in South Yorkshire in the UK, experienced declining competitiveness as well as profitability in coal mining industry and consequently, was affected on a large scale by sudden shrinking in the coal mining sector in 1984/1985. Bowes (2003) states that reduction in employment and operating pits have been the main impacts in addition to physical dereliction. He adds that diversifying the economic base away from a single base towards a broader base to avoid dependence on single industry has been the basic requisition to achieve economic regeneration. Turner (1993) states that the restructuring strategies for revival comprise the establishment of innovation centers associated with universities to become innovative. He comments that this innovation center would attract population from Yorkshire, North Derbyshire and North Nottinghamshire regionally. Economic modernization has been achieved by supporting the use of innovative products, services and processes in companies (Bowes, 2003).

South Wales in the UK is described as a rapidly declining coalfield whose local economy was dependent on coal mining industry until 1984/85. The revival strategies have concerned urban renewal practices associated with renewing images (Beatty and Fothergill, 1995). Further, preparation of a regional technology plan on the basis of partnership between universities of Wales, Cardiff as well as the Welsh development agency has been a major tool in the restructuring process. Moreover, development of a technopole in South Wales was proposed to serve the innovation needs of the region. Changes in working practices by introducing new computerized technology and use of training initiatives are the basic tool in industrial revitalization. Diversification toward higher value-adding areas is the basic strategy in addition to major investment in the art technology (Beatty and Fothergill, 1995).

The Selby mines complex in Humber and Yorkshire in the UK have based the basic restructuring strategies on retraining of the miners and business development in the region (Shutt et al, 2003). The establishment of a Selby Mines Closure Taskforce

has acted as an actor in the restructuring process by preparing an action program for communities affected by pit closures. Further restructuring strategies and related actors as well as tools can be interpreted from the article as follows:

- Proposition of a regeneration package proposed for the 2002-2006 period on intervening in mitigation of people and social regeneration, environment and infrastructure, and business development.
- Coalfield area regeneration, supporting community initiatives through coalfields regeneration trust, supporting small businesses through coalfields enterprise fund.
- Image renewal: removing the marks of the former coal mining industry.
- Construction of new factories and introduction of new training programs.
- Diversification of the local economy through job generation
- The RDA, Yorkshire forward's operations in the region in terms of people, environment and infrastructure and business.
- On mitigation of people: skills and re-training evaluation.
- The coalfield regeneration trust active in supporting coalfield communities and also in social regeneration program organized by the RDA, Yorkshire Forward.
- Improvement in environment, infrastructure and business development

Durham in the UK is specific due to its strategy in management of decline. As Pattison (2004) states, in the Durham Case, the preparation of plans to abolish some of the settlements where mining communities live came on the agenda in the 1950s. These were formed in the context of D-village<sup>89</sup> policies toward ex-mining communities. These policies reflected a county planning policy that concerned active planning for decline involving categorization of villages, mobilization and abolishment of the ones far from the core. Evaluated as unsuccessful in the 1970s, the consequences of these policies were political conflicts and strong resistance. The 1990s signified the closure of the last deep mine in Durham. Restructuring strategies for revival are stated to concentrate on attraction of new industries, development of new industrial estates, attempts to diversify the industrial production and creation of new jobs (Pattison, 2004).

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<sup>89</sup> Decline villages.

The Ruhr Case in Germany is described as the old production cluster and traditional regional network of mining and steel and the leading region of the German industrialization process since the 1850s. According to Rehfeld (1995) this production cluster is based on linkages between the industrial sectors that are coal mining, steel manufacturing, power generation and chemical industry. The crisis for the region is stated to start in the 1950s and continue through the 1960s and the 1990s. Transformed to a polycentric urban agglomeration, the decline in the Ruhr is linked to the disintegration process in the production cluster. The main reasons behind the disintegration are related to global competition, new technologies transforming formerly integrated production stages in spatial and organizational terms, the use of alternative products to coal in complementary industries, weakening of supplier-user relations brought by technology changes and low transportation costs (Rehfeld, 1995).

The basic indicators of decline in the Ruhr case can be interpreted as closures in some of the steel manufacturing firms, repercussions of decline in other related industries with the coal, iron and steel industry, institutional transformation of major firms in steel industry to multinational groups (Rehfeld, 1995).

The restructuring process in the Ruhr is based on regional diversification through a re-integration process on the basis of formation of new clusters founded on environmental technology and waste management (Rehfeld, 1995). The car component production and modernization of transportation facilities have been complementary to the restructuring process. Cross-cluster activities, that consider endogenous regional potential and coordination of the strategies of diversification has been set as the key components in the restructuring process. Rehfeld (1995) describes the reintegration process in the Ruhr as transforming environmental problems into chances for market.

Apart from regional industrial restructuring, specific training programs for SMEs on environmental protection, the establishment of research and design institutions, universities and technology centers via state intervention and local investments have been the main policies in the restructuring process (Rehfeld, 1995).



Oberhausen, a region of economic decline and pitfalls in the Ruhr region, is a case that became the subject of Europe's largest mixed use project [McMullen]. Experiencing a transformation from production to consumption led development; urban tourism has played a major role in the restructuring process of Oberhausen. The region of coal and steel has been transformed to a region of entertainment and consumption.

The last case, Limburg is a city in Belgium whose single economic base was coal mining until 1945 (Baeten, Swyngedoux and Albrechts, 1998). After the 1930-1950 period signifying the rise of the coal mining industry, the years 1980, 1986, 1994 reveal breaking points in the history of Limburg. Beaten et al (1998) note the start for stagnation and crisis for coal mining industry in the early 1950s. Declining employment in coal mining as well as rising public debt and increasing unemployment rates deepening in the 1980s can be considered as the indicators of decline. Closures of mines have concentrated within the period between 1966 and 1992.

Declaring the first restructuring program (1989-1993) and the second one in (1994-1998), the restructuring strategies as response to decline can be stated to be as follows (Beaten et al., 1998):

- Use of set of community initiatives such as NTERREG, RECHAR, STRIDE, LEADER, CONVER as tools to achieve socio-economic and institutional restructuring processes
- Supranational programs with regional institutions
- Management of decline through social mitigation policies for coal miners for pit closures

Some of the projects, such as the construction of big scale recreational areas have not been realized in Limburg which is criticized for its lack of entrepreneurial capacity.

## 7.2. Synthesis

After consideration of diverse cases it can be concluded that in most of the European cases, radical changes are observed such that old structures of old coal mining industry turned out to be completely out of context and local economy totally changed. Among the European Cases, the British Cases can be classified as a category on its own. Most of the strategies in British/European cases aim to totally regenerate or revitalize the local economy and employment structure. Thus, a total diminishing of old industrial structures and transition to new structures is observed in these cases. High rates of unemployment, out migration, decline in the manufacturing sector, and closures associated with downsizing policies in addition to structural measures taken to initiate weakening of trade unions can be stressed as impacts of decline and the reasons behind them. It is clear that mitigation and empowerment tools and strategies are evident in the British Cases through deindustrialization and transformation process. Enhancement of the use of innovative products and processes, new technologies and research and design in especially development of small and medium sized enterprises can be pointed out as one of the common strategies in the restructuring processes of British Cases. Another common strategy can be pointed out as tertiarization through development of new consumption spaces in old urban structure and especially through development of cultural (heritage) tourism.

Most of the European Cases concern new industrialization or reindustrialization strategies in industrial restructuring in manufacturing industry in general as well as in coal mining industry. Tertiarization remains an accompanying strategy in the restructuring process. Urban change including changes in land use schemes through development of new recreational spaces, spaces of exhibition, shopping etc. can be some of the policies within the context of this strategy. Among most of the European Cases, the Ruhr in Westphalia, Germany can be pointed out as it represents an industrial and regional restructuring of a coal mining and heavy industry at the conurbation scale through disintegration and reintegration in production clusters.

Post former countries like Russia, Ukraine, the Czech Republic, Poland etc. occupy another category in classification of restructuring cases of coal mining regions. Use of World Bank loans in restructuring in the coal mining sector and institutions remain common in these cases. Russia can be pointed out as a particular case among these because it continues a tradition of subsidizing coal mining industry with its social structure revealing the enhancement of the labor class. This is a strategy in slowing the pace of restructuring due to high resistance to the transformation process. Ukraine can be pointed out as a case including high resistance to the restructuring process in this respect.

It can be discussed that the decline impacts of deindustrialization evolve to a common ground in terms of both its further consequences and responses generated in various localities. Decline impacts of deindustrialization hide strategies to manage decline and direct the deindustrialization process. These strategies may involve reinforcement of decline through mechanisms concerning institutions and legislative measures associated with a discourse on decline. Briefly, decline impacts of deindustrialization in diverse cases can be discussed to investigate which external intervention tools have been used and also how localities respond to these impacts. In fact, the extent of response to these impacts through resistance or adaptation provides insight into the restructuring processes of localities.

Below, in Figure 44 is a classification of cases with similar and different dynamics and processes as the deindustrialization in Zonguldak. Apart from evaluating the place of Zonguldak among the cases, stressing the input of place specific characteristics of Zonguldak in its restructuring process reveal a major finding. A comparative evaluation of different cases shows that in deindustrializing coal mining regions, policies of downsizing, cutting or reduction of state subsidies, privatization implications for the complementary steel companies, closure of unprofitable pits, modernization and rehabilitation in coal mining by use of WB loans, withdrawal of the social budget for coal enterprises and transfer of social services from coal enterprises to other institutions are the features common to the policies for the Zonguldak Case. However, the policies of closure of all of the mines, privatization of coal enterprises or profitable mines, integration of research and development in coal mining reflect contrasting policy instruments for the Zonguldak Case.

Similar and Differing world cases with Zonguldak Region in terms of strategies of restructuring as response to decline	
Similar Cases	Differing Cases
<b>STRATEGY 1: Downsizing:</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic 2. Upper Silesia Region, Southern Poland 3. (relatively limited downsizing through opening new mines: KEMEROVO (Kuznetsk basin) Krasnoyarsk krai (Kansko Achinsk basin), KRASNOYARSK KRAI (Kansko Achinsk basin), Russia 4. DONBASS Region consisting of two Ukrainian regions one of which is DONETSK Coal Basin, Ukraine DONBASS Region consisting of two Ukrainian regions one of which is LUHANSK Coal Basin, Ukraine, UK (North East Regions)	<b>STRATEGY 1: Closure of all of the mines:</b> UK (North East Region), Limburg, Belgium
<b>STRATEGY 2: Ceasing/Reduction of state subsidies:</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic 2. Upper Silesia Region, Southern Poland 4. DONBASS Region consisting of two Ukrainian regions one of which is DONETSK Coal Basin, Ukraine DONBASS Region consisting of two Ukrainian regions one of which is LUHANSK Coal Basin, Ukraine	<b>STRATEGY 2: Privatization of coal enterprises or profitable mines</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic 2. DONBASS Region consisting of two Ukrainian regions one of which is DONETSK Coal Basin, Ukraine DONBASS Region consisting of two Ukrainian regions one of which is LUHANSK Coal Basin, Ukraine
<b>STRATEGY 3: Privatization implications for the complementary steel companies:</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic	<b>STRATEGY 3: Integration of research and design in coal mining:</b> 1. DONBASS Region consisting of two Ukrainian regions one of which is DONETSK Coal Basin, Ukraine DONBASS Region consisting of two Ukrainian regions one of which is LUHANSK Coal Basin, Ukraine
<b>STRATEGY 4: Closures of unprofitable pits:</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic 2. Upper Silesia Region, Southern Poland 3. (relatively limited downsizing through opening new mines: KEMEROVO (Kuznetsk basin) Krasnoyarsk krai (Kansko Achinsk basin), KRASNOYARSK KRAI (Kansko Achinsk basin), Russia 4. DONBASS Region consisting of two Ukrainian regions one of which is DONETSK Coal Basin, Ukraine DONBASS Region consisting of two Ukrainian regions one of which is LUHANSK Coal Basin, Ukraine 5. UK (North East Regions) 6. Ruhr, Germany 6. Limburg, Belgium	<b>STRATEGY 4: Consultation and training for the ex-miners:</b> 1. UK
<b>STRATEGY 5: Modernization and rehabilitation in coal mining by use of WB loans:</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic 2. Upper Silesia Region, Southern Poland 3. (relatively limited downsizing through opening new mines: KEMEROVO (Kuznetsk basin) Krasnoyarsk krai (Kansko Achinsk basin), KRASNOYARSK KRAI (Kansko Achinsk basin), Russia 4. DONBASS Region consisting of two Ukrainian regions one of which is DONETSK Coal Basin, Ukraine DONBASS Region consisting of two Ukrainian regions one of which is LUHANSK Coal Basin, Ukraine	<b>STRATEGY 5: Formulating specialized planning policies for declining regions:</b> 1. UK, Durham
<b>STRATEGY 6: The withdrawal of the social budget for coal enterprises and transfer of social services from coal enterprises to other institutions, e.g. Municipalities:</b> 1. DONBASS Region consisting of two Ukrainian regions one of which is DONETSK Coal Basin, Ukraine DONBASS Region consisting of two Ukrainian regions one of which is LUHANSK Coal Basin, Ukraine	
<b>RESPONSE (labor)1: STRIKES: All cases esp.</b> 1. DONBASS Region consisting of two Ukrainian regions one of which is DONETSK Coal Basin, Ukraine DONBASS Region consisting of two Ukrainian regions one of which is LUHANSK Coal Basin, Ukraine 2. Upper Silesia Region, Southern Poland 3. UK (North East Regions)	

Figure 44. Similar and Differing world cases with Zonguldak Region in terms of strategies of restructuring as response to decline

Similar and Differing world cases with Zonguldak Region in terms of strategies of restructuring for revival	
Similar Cases	Differing Cases
<b>STRATEGY 1: Diversification of the economic base:</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic 2. Upper Silesia Region, Southern Poland 3. KEMEROVO (Kuznetsk basin) Krasnoyarsk krai (Kansko Achinsk basin), KRASNOYARSK KRAI (Kansko Achinsk basin), Russia 4. UK (North East Regions) 5. Ruhr, Germany	<b>STRATEGY 1: Integration with cross-border interregional projects:</b> OSTRAVA, Moravia-Silesian Region, Czech Republic
<b>STRATEGY 2: Job creation via SME development:</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic	<b>STRATEGY 2: Regional development agencies and regional development programs (often funded by the EU funds):</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic
<b>STRATEGY 3: Establishment of new industrial zones:</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic 2. Upper Silesia Region, Southern Poland 2. UK (North East Regions) (enterprise zones)	<b>STRATEGY 3: Reindustrialization and new industrialization via integrating innovative processes in production and management: Technoparks, etc.:</b> 1. Ruhr, Germany 2. Barnsley, UK
<b>STRATEGY 4: Tertiarization via establishment of consumption and leisure spaces within urban restructuring (proliferation of service sector):</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic 2. Upper Silesia Region, Southern Poland 3. UK (North East Regions) 4. Limburg, Belgium 5.	
<b>STRATEGY 4.1: Modernization of infrastructure: Tertiarization via establishment of consumption and leisure spaces within urban restructuring</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic 2. Upper Silesia Region, Southern Poland	
<b>STRATEGY 4.2: Cultural Tourism:</b> 1. OSTRAVA, Moravia-Silesian Region, Czech Republic 2. Upper Silesia Region, Southern Poland 3. UK (North East Regions) 4. UK (North East Regions) 5. Oberhausen, Ruhr, Germany	

Figure 45. Similar and Differing world cases with Zonguldak Region in terms of strategies of restructuring for revival

When Zonguldak is compared with diverse cases in terms of strategies for restructuring in response to decline, similar and differing cases are found in terms of certain strategies of intervention in the restructuring process<sup>90</sup>. These strategies do not only concern responses of localities to decline and deindustrialization but also play a role in directing deindustrialization process. Downsizing in coal institutions is one of the common strategies in response to crisis situations within the sector, as in Zonguldak Case. Ostrava, Moravia-Silesian Region in the Czech Republic, Upper Silesia Region in Southern Poland, Kemerovo (Kuznetsk basin) Krasnoyarsk krai (Kansko Achinsk basin) and Krasnoyarsk Krai (Kansko Achinsk basin) in Russia, the Donbass Region consisting of two Ukrainian regions namely Donetsk Coal Basin and Luhansk Coal Basin and also cases in north east regions of the UK can be indicated as those cases that used the downsizing strategy in response to decline brought by deindustrialization in the coal mining industry.

The cease or reduction of state subsidies to the coal sector is an important dynamic in the cases of Ostrava, in the Moravia-Silesian Region, in the Czech Republic; in the Upper Silesia Region, in Southern Poland; Donbass Region consisting of two Ukrainian regions one of which is Donetsk Coal Basin, and the other, Luhansk Coal Basin.

Similar to the privatization of KARABÜK and ERDEMİR iron and steel factories in Zonguldak province, privatization of the complementary steel companies is also valid for Ostrava in the Moravia-Silesian Region in the Czech Republic.

The policy of closing unprofitable pits is a common policy formulation for cases of Ostrava, Upper Silesia Region, Kemerovo (Kuznetsk basin), Krasnoyarsk Krai (Kansko Achinsk basin), Donbass Region, North East Regions in the UK, the Ruhr in Germany and Limburg in Belgium as well as in Zonguldak.

Modernization and rehabilitation in coal mining by use of WB loans is a common strategy and tool of intervention for Ostrava, Upper Silesia Region, Kemerovo, Krasnoyarsk Krai, Donetsk and Luhansk in Donbass Region as in Zonguldak.

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<sup>90</sup> See Figure 44

The withdrawal of the social budget for coal enterprises and transfer of social services from coal enterprises to other institutions also remain a common policy for the Donbass Region consisting of the two Ukrainian regions of Donetsk and Luhansk as well as for the state owned coal enterprise, TTK in Zonguldak, in Turkey.

These policies that enhance deindustrialization and consequently deepen decline impacts have faced with reactionary actions of strikes in all of the cases. Strong resistance from labor can be stressed for the Ukraine Case in addition to the strong trade union tradition of the UK.

As mentioned earlier, Zonguldak is a case where adjustment within the sector and regeneration at the urban and regional levels are evident. This process of change does not include sudden break points; rather a gradual restructuring is evident in the case of Zonguldak. This is due to its local characteristics reflected into buffer mechanisms and a historical domination of a single sector in a local economy managed by the local mono-centric firm, TTK. Therefore, the Zonguldak Case differs from those cases that experienced a sudden diminishing of the old structure, and also from those cases which make use of mitigation policies to manage decline and restructuring processes. Those cases generally correspond to the British coal mining regions of deindustrialization and restructuring in addition to some of European regions.

The policy implication of closure of all the mines is valid for most of the British Cases as for Limburg in Belgium. Such a radical policy formulation is not observed in the Zonguldak Case. Privatization of coal enterprises or profitable mines is also not a policy used in Zonguldak Case, whereas this policy is part of the restructuring process of Ostrava in the Czech Republic and also in the Donbass region in Ukraine. Furthermore, integration of research and design in coal mining is what differentiates the Donbass Region from the Zonguldak Case. Consultation and training for the ex-miners as an empowerment policy also distinguishes the British Cases from the Zonguldak Case. Formulating specialized planning policies for declining regions also reveals a difference with Durham in the UK.

Further strategies of the cases on restructuring for revival allow a comparative evaluation of Zonguldak for its near future by reviewing the paths which different cases have followed<sup>91</sup>. Of the strategies for revival, diversification of the local economic base comes first. It is observed that this strategy is considered in the cases of Ostrava in Czech Republic, Upper Silesia Region in Poland, Kemerova and Krasnoyarsk Krai in Russia, North East Regions in the UK and the Ruhr in Germany. Job creation through SME development is an evident strategy in Ostrava. Establishment of new industrial zones remains an important strategy for reviving the old industrial regions. The implications of this strategy are observed in the cases of Ostrava and Upper Silesia, while in the British cases, enterprise zones become common tools in restructuring processes of many regions. Organized industrial regions thus provide important tools for policies on the near future of the region in Zonguldak.

Tertiarization through the establishment of consumption and leisure spaces within urban restructuring seems to be a common strategy and a common path followed by cases of deindustrialization and restructuring. In these cases, a transition of focus from production to consumption in socio-spatial structure of localities is seen. Thus, proliferation of the service sector is the main idea behind this strategy of tertiarization. This strategy is observed in Zonguldak as well as in the cases of Ostrava, Upper Silesia Region, North East Regions in the UK, and Limburg, Belgium.

Modernization of infrastructure forms a common policy to increase the attractiveness of the region for new investments. Including Zonguldak Case, this policy is on the agenda for the cases of Ostrava and Upper Silesia Region.

Cultural Tourism expresses the change of the context of production spaces within urban structure. Thus, these spaces have their existential roots not in production anymore but their cultural and industrial heritage values. Projected to own the first mine museum of Turkey, this strategy is evident in the restructuring of the

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<sup>91</sup> See Figure 45



Zonguldak province center, and re-use of the old coal washery in the regeneration of the city center is an ongoing process. Similarly, restructuring through cultural tourism is valid for Ostrava, Upper Silesia, North East Regions in the UK, and also for Oberhausen, the Ruhr, Germany.

Although Black Sea Economic Cooperation is an important potential for Zonguldak to become a regional actor, integration with cross-border interregional projects do not appear on the agenda of the regional restructuring process. However, it is observed in the case of Ostrava.

Regional development agencies become important actors in the restructuring of regions while regional development programs, often funded by the EU funds, remain important tools for restructuring for many regions. The Ostrava case is one of the cases that includes this strategy.

Reindustrialization and new industrialization through integrating innovative processes in production and management are evident strategies for the cases of the Ruhr in Germany and Barnsley in the UK. From the perspective of the Zonguldak case, this remains a potential through the establishment of the university in the 1990s but has not actually become a strategy on the agenda yet.

## **CHAPTER 8**

### **CONCLUSION**

The deindustrialization process is simply defined as the change in economic base involving a transition from industrial production to the service sector. However, this process is more complicated than a mere change in the economic base and it has multiple impacts. Global economic restructuring and reorganization of the production process that are associated with this restructuring are the underlying causes behind the deindustrialization process. Disintegration in the production process has put on the agenda the continuation of the production process in multiple and different locations. In this way, capital has become independent of space. On one side, a qualified new division of labor has emerged as a consequence of booming microelectronic and information technologies, and on the other side, capital has made its choice towards spaces where there is cheap and unorganized labor, particularly in developing countries. Consequently, this has led to the peripherization of labor.

This process of change has had its impacts on both national economies and industrial production processes. These impacts have led to structural changes and consequently the change in development strategies has catalyzed disinvestment, deregulation, deunionization and deindustrialization processes. The most intense dimension of change is its impact particularly on the developmentalist state and vertically integrated big enterprises. In this regard, an investing and administrating state as the investor and the manager has transformed into a mediating state and vertically integrated big enterprises have entered a transition period towards a disintegration process that is based on subcontracting. The regions mostly affected by the deindustrialization process have arisen as old industrial regions that depend on traditional industries of labor intensive working practices.

The depth of this impact depends on the level of diversity of the local economic base. The decline impacts of deindustrialization have been experienced more intensely especially in regions that developed based on a single sector.

These impacts that fundamentally affect the local population and local economy, also result in radical changes in the entire social, economic and political lives and lead to consequences on regional and local scales. Indicators of deindustrialization can be evaluated within the context of its impacts and the outcomes of these impacts. Deindustrialization has usually been defined as decline in industrial production and a shift from industrial production to the service sector in the economic base. Merging with local and regional restructuring processes, this transition period has led to social, economic, cultural and political changes. Impacts of deindustrialization further bring about event patterns that can be interpreted as crisis situations. In this study, these impacts are referred to as decline impacts of deindustrialization.

Decline impacts of deindustrialization concentrate on urban depopulation, including the rising of out migration rates and declining population growth rates and urban economic decline resulting from unemployment that sometimes can be long term. It is possible to discuss these impacts within a multi-layered approach. When analyzed from a working-class point of view, decline becomes apparent within the context of working practices and unionization in the form of unemployment, lay-offs/retirements together with loss of capabilities, deunionization and attempts to adapt to informal working practices. When evaluated from the enterprise point of view, at the point where industrial restructuring cannot be achieved, the indicators of down-sizing, declining output and value-added, and declining production are observed. Furthermore, from the household perspective, attempts are made to deal with the decreasing purchasing power through a search for survival strategies towards household livelihood, and a buffer mechanism directed towards working life and making a living. From the perspective of the individual, depressive results of these impacts at psychological and sociologic levels arise particularly when the duration of impacts is prolonged.

The socio-economic dimension is not independent from space; therefore, urban change and urban restructuring constitutes a major part of socio-economic change. The changes concerning local population and local economy may lead to the emergence of areas of decline and further physical indicators, such as abandoned buildings and sites, and pollution. The restructuring process following decline puts on the agenda the major changes in land use patterns and further changes in urban identity and meaning.

Restructuring process at the local and regional scales can be taken into consideration in terms of giving responses to decline impacts of deindustrialization and further taking a position with reference to change. Therefore, relations regarding the path-dependent development structure and also existence of lock-ins intensely affect the local response capacity and also the pace of restructuring process. There is an important relation between development based on a single sector and path-dependent development. Self-strengthening relations may lead to lock-ins that have the potential to block the capacity to react to change. This in turn forms constraints on generating endogenous potential to take position to change and developing response to change. Homogenous localities characterized by economies dependent on single economic base and on single firm, also insular in spatial terms, become mostly affected by changes in the socio-economic structure and thus vulnerable.

The relations concerning the whole urban set-up affect the extent to which the locality generates responses to change. At this point, it becomes important to have an insider's view of the locality. The characteristics of this structure and its response capacity also have an impact on how successful intervention can be.

The industrial restructuring process includes reindustrialization or new industrialization in terms of the incorporation of new technologies and research and development into industrial production. The tertiarization process, which involves the rise of the service sector, construction of entertainment and recreation spaces in the urban economy that shifts from production to consumption led activities, takes place in the transformation of declining or deindustrializing localities.

The thesis investigates the deindustrialization process in a single economic base locality, Zonguldak Metropolitan Area, in the coal mining industry and the following restructuring process. The study mainly problematizes how the city and the coal mining industry have stood against the decline impacts of deindustrialization. The problem directs the study to monitoring both the decline impacts of deindustrialization and responses to these within a multi-layer evaluation. The main differentiating characteristics here are the production process particular to coal mining, the socio-spatial structure attached to it and the presence of a single sector.

The coal mining towns have been characterized by an urban structure that is peripheral, insular, and has a homogeneous population consisting of mainly coal miners and their households. The social structure basically revolves around difficult working conditions and organized labor. Furthermore, local spatial structure is meshed together with the production. This kind of working practice, particularly when deep underground mining is involved, is a labor intensive process which may affect the life of the individual even after retirement, which makes the individual vulnerable.

Studying the deindustrialization process in the coal mining sector in Zonguldak, has important aspects. One of these is the chance of observing the changing development policies in parallel to the national economic restructuring process and energy policies of Turkey within the locality. This dimension underlines the contribution of the Turkey context to the study. Especially, the impacts of structural changes on state owned enterprises and organized labor have been outstanding aspects. Urbanization owes its realization to coal, which has been utilized as an important resource in industrialization.

The change in Zonguldak developed throughout the period after 1980, the start for the deindustrialization process followed by the restructuring process after 1990 as part of the regional vision, and the era after 2000 is marked by the regional vision defined by attempts to integrate with the global economy. Zonguldak has not faced with a complete decline but experienced a gradual decline with respect to the coal mining industry and the city. The gradual decline in the long run included certain breaking points. One of the breaking points is the down-sizing of TTK as part of the

economic restructuring in the post 1980 period. The second breaking point is the emergence of the private actors in coal production in the basin through royalty implications on pits that were abandoned by TTK. The third breaking point of the 2000s is the regional restructuring so as to integrate with the global system and the urban transformation and regeneration process evident in Zonguldak center and partly in Zonguldak Metropolitan Area.

When evaluated at the regional scale, Zonguldak, a heavy industrial region, is a geographical production cluster integrated with iron and steel manufacturing, coal mining and energy production through coal burning thermal power stations. The region has experienced disintegration both in terms of disintegration in relations in the production process by the utilization of imported coal in the 1970s, as well as spatial disintegration due to the declaration of the provinces Karabük and Bartın.

The thesis focuses on coal mining industry in the Zonguldak Metropolitan Area. Zonguldak Metropolitan Area, especially Zonguldak Center has served to observe decline impacts of deindustrialization mostly emphasizingly evident within declining employment, even if it cannot be observed for Zonguldak at the provincial level, Zonguldak Bartın Karabük Region and the West Black Sea Region. Although the impacts of the deindustrialization process in Zonguldak display commonalities with the impacts experienced by other coal-mining towns in the world, there are also differences based on local the idiosyncrasies of Zonguldak in terms of bearing the impacts of deindustrialization and responding to them.

Zonguldak, as the only charcoal basin of Turkey, is not suitable for settlement due to its ownership pattern that is composed of land belonging to the treasury, TTK and forestry land apart from its physical structure with difficult topography. Consequently, illegal housing has been a natural characteristic of its urban texture. The coal mining in Zonguldak reflects labor intensive production and hard working conditions that are particular to the working practices of deep underground coal mining.

Zonguldak carries the firsts of Turkey historically. The basic most of these features can be stated as obligatory working practices, the rotative worker policy implications

that form the relationship between rural and urban spaces, and the rural labor characteristic of the coal miners. The characteristic of rural labor has changed coming to today but is still effective in Zonguldak. Through generations of change, a generation has emerged with no hope of either being able to work in the pits or directly to work in agriculture.

The impacts of deindustrialization in Zonguldak underline a multi-dimensional and relational discussion. The deindustrialization process started after 1980 with lay-offs and early retirements and became more pronounced due to the out migration from the region and the decline in population growth rates. The decline in Zonguldak at the same time describes the change in a certain culture and lifestyle in the locality. Environmental pollution, deserted buildings, changes in the urban identity and meaning reveal the spatial and physical indicators of the process. The demolition of the washery as the urban symbol in Zonguldak center is significant in understanding the “before” and “after” defined by deindustrialization.

The process of social and economic change has reflected on spatial change. Especially in the 1940s, on the metropolitan scale, Zonguldak introduced a socio-spatial structure where EKI played an important role in social and cultural life, in addition to the development in 1940 led by EKI based on single institution and single sector. One of the decline impacts of deindustrialization is the abandonment of the social and cultural functions of TTK. The spatial reflections of this occurrence are the transfer of the land owned by TTK to the municipality to be utilized as part of the urban restructuring process. The change in the urban land use pattern is one of the indicators of this issue.

Zonguldak has stood against the decline impacts of deindustrialization as discussed with a multi-layer approach through its local idiosyncrasies. The presence of intermediate structures as part of the ongoing traditional production and buffer mechanisms has played major roles in this process. Panel trestle production workers characterize underground coal production with high risk working practices and hence they form the potential group to be mostly affected by the decline impact of deindustrialization. As an extreme case, when analyzed from the point of view of panel trestle production workers and their households, it becomes apparent that a

living culture connected to the firm is an important support for the household. The connection of the household with the rural area serves as buffer mechanism in the livelihood of the household by decreasing the consumption expenses. The workers who have not broken off their ties with the rural area, and have not completed their formation of labor class consciousness, remain the only actors who have chosen to act during the periods of crisis. This presents us with the panel trestle production worker who has secondary capabilities that reflect onto his going to other cities to work.

The change that took place in the production process has continued in the restructuring period with a structure that is represented by the change in firm structure, integration of different actors to the production process as well as the preservation of illegal actors in the production process. The restructuring process does not only concern the industrial production process. The city, where the urban economy is dependent on industrial production to a large extent, has shifted towards revitalizing its economy via consumption spaces catalyzed by the impact of the university. As seen in many cases from other countries, the process emerging as tertiarization constitutes a part of the restructuring process in Zonguldak. In addition to this, transformation of production spaces to consumption spaces and the context change for industrial production sites with their cultural values present an evolution from production towards cultural tourism in Zonguldak. As part of this evolution process, the foundation of the first mining museum of Turkey appeared. In this regard, the university has contributed to the urban restructuring process via its impacts on the city and has been acting as a potential entity to combine technology and research and development with production within the context of reindustrialization as part of the industrial restructuring process.

When Kozlu, Zonguldak, Kilimli and Çatalağzı, which constitute the metropolitan area, are evaluated, it becomes obvious that the restructuring process has become more apparent in Zonguldak center compared to other localities that make up the metropolitan area. At this point, the university and the new population attracted by the university play important roles.



A similar transformation process started in Kozlu after the opening of the Faculty of Medicine in this locality. New housing areas and the emergence of places meeting the consumption needs of the university population has created a structure which strengthens the tertiarization process.

Among these localities, Kilimli can be described as the most isolated locality with a rural character. Obstacles for urban transformation have appeared particularly within the context of land ownership and legal processes. On the other hand, Çatalağzı has entered a transformation process around new energy investments. A high capacity thermic power plant investment, which will be operated using imported coal, has chosen this area and this has led the qualified labor to be directed to the locality and resulted in the necessity to meet the demands in the area. The immediate housing need is the driving force for the urban transformation of Çatalağzı. The local administration appraises the near future around this new investment and the work force that will be created by this investment and predicts that the economy will be revitalized and a population growth will be observed. The impact of the university is less in Kilimli and Çatalağzı compared to Kozlu and Zonguldak.

The single economic base and monocentric firm based economic structure of Zonguldak results in a pronounced path dependency from the development point of view. When thought of the expectation for external intervention and investment together with the low potential for cooperation and entrepreneurship within the locality, the decline in the single economic base of coal mining and the downsizing of TTK have brought intense and long term impacts on both the city and the local population. Disintegration of the vertically integrated firm TTK through subcontracting for some services in production the process has accompanied to the restructuring process. The coal production in the basin has continued through additional employment reserves brought by the private firms and informal coal production. Further, a reindustrialization potential in the form of a contribution of information and technology to the production process is supported by the presence of the university.

The rural labor inherent to Zonguldak has survival strategies acting as a buffer mechanism to decline via its relation to the rural area and secondary capabilities. Whereas this decreases the intensity of decline impacts of deindustrialization to a certain extent, the lack of a labor class consciousness has not slowed down the process at the resistance point towards restructuring. From the point of view of characteristics of the relations, the presence of this kind of flexible structures has prevented the occurrence of a political lock-in. Zonguldak differs from other coal towns undergoing deindustrialization due to these local idiosyncrasies and the buffer mechanisms it has created.

Together with the impact of the university, urban space has become an important part of the local economy within the restructuring process following deindustrialization. This is due to the transition in old structure based on industrial production leaving its place to cultural areas and consumption spaces and due to the opening of the new housing areas mostly directed towards the new university population.

To conclude, the restructuring process of Zonguldak comes out as basic transformations in Zonguldak revealing multi layer and multi scale evaluations. It can be concluded that restructuring in Zonguldak has been founded mainly on revival and adjustment to change. Before focusing on the industrial and urban restructuring processes in the Zonguldak Metropolitan Area in detail, it may be relevant to highlight the main milestones in the changing visions on the region.

The emphasis of the restructuring process of the 1990s at the regional level was exposed through ZBKRDP (1995-1997) with a main strategy of achievement of diversification of the regional economy. Within a period characterized by EU accession, the plan remarked the decline in coal mining and agriculture in Zonguldak and proposed an efficient management of down-sizing in the coal mining sector. Reviewing the content of the management strategies, rationalization and modernization dominated the agenda for coal mining sector. Minimization of the public sector in the economy and the enhancement of the private sector were remarked while proliferation of SME development, enhancement of subcontracting for the big enterprises and taking the advantage of the potential of the university for

the region formed additional propositions of the plan. The ZBK Environmental Plan in the 2000s declared the coal mining industry as a potential for the region in contrast to the previous regional plan ZBKRD. The emphasis of this plan for the region was on taking part in the Black Sea Economic Cooperation in a period of efforts to integrate with the global world. The potential for Zonguldak to become a regional actor in BSEC, and the university that acts as a potential for regional integration with Black Sea Countries through academic events and relations both remain important for the near future of the region.

Industrial restructuring in Zonguldak has been mostly observable in the emergence of private actors in coal production in the basin both through subcontracting of TTK in the production process and through royalty implications, especially after 1990. Subcontracting implications of TTK have indicated disintegration attempts in the vertically integrated state owned firm. Decline impacts of deindustrialization in the coal mining sector have been stood and further responded to through these new experiences while the ongoing informal coal production has buffered the transition.

The university has given insights to both the industrial and urban restructuring processes. The university has formed a potential for further development of reindustrialization or new industrialization in the region for further integration of technology, research and design or innovative processes in industrial production.

The university has played an important role in attracting to the region a new population of students and faculty who have different demands for urban services and for accommodation. Therefore, it has catalyzed the tertarization process in Zonguldak mostly evident in new construction of new housing areas and new consumption spaces in the city. Although interaction among the local population, local institutions and the university are in its early stages, the university reserves human capital and further formation of social capital for the locality.

The spatial consequence of the downsizing of TTK can be seen in the diminishing of social and cultural activities of the big enterprise. This started by transfer of land owned by TTK to the municipality for other urban uses, such as new housing areas. Particular to the tertiarization process, as a part of the transformation of the use of

industrial sites and buildings that belong to the old industrial socio-spatial structure to use with their cultural heritage value is observed. Thus, the transformation of production to consumption and its changing context for the city becomes observable. In Zonguldak, this issue is much more evident. The landmark as the sign of the urban identity of Zonguldak center as a coal mining city for the Zonguldak city center, namely the washery site and building, was nearly demolished when the demolition was stopped for purposes of conservation because of its cultural value. The context of the city has been changing. Establishment of new recreational and leisure areas has been part of the teriarization process in addition to image renewal of the Zonguldak city.

Particular to the Zonguldak Metropolitan Area, and the restructuring process, the establishment of the Faculty of Medicine in Kozlu has played an important role in starting urban regeneration in Kozlu. Kilimli has remained rather insular preserving its rural characteristics while Çatalağzı has started its transformation process with the new energy investments in and constructions of private thermal power stations.

So far a story of decline, deindustrialization and restructuring process of an old coal mining region has been presented. Many decline impacts of deindustrialization and strategies of intervention in the restructuring process in Zonguldak share common features with other cases in the world. Like other coal mining cities, Zonguldak city has remained relatively insular and peripheral, and lacked cooperation in generating endogenous potential to respond to decline impacts of deindustrialization to an extent. Especially, at the level of the metropolitan area where these impacts are experienced more intensely, the path dependency in coal mining sector and the state owned firm, TTK and inadequate entrepreneurial capacity like in other coal mining towns have been revealed as major factors in the restructuring process.

The specific context of the Zonguldak case is partly grounded in its specificity in Turkey because it involves the only charcoal basin of Turkey and reflects the national economic restructuring policies in its development trajectory. Apart from its relations shared with the national context, the specific ownership pattern, the long term path dependent development based on the single basic economy, the coal

mining industry, and its complex topography form the major components of the specificity of Zonguldak. Nevertheless, the place-specific and unique character of the rural labor of Zonguldak differs from other cases and affects the pace of restructuring in Zonguldak in relation with the downsizing of the TTK. As this local idiosyncrasy has enabled additional income in the form of enhancing and supporting the survival of household, the intensity of decline impacts of deindustrialization in labor households have been reduced once.

Apart from the presence of a buffer mechanism in relation with the rural labor, the resistance to restructuring process has been relatively less due to the incompleteness of a labor class consciousness, compared to the coal miners in Russia or Ukraine, for instance. Obviously, the deunionization policies starting from 1980 have been effective in this process, but the characteristics of the labor embed and impact this process intensely. Therefore, strong political lock-ins as barriers against the restructuring process have lacked and a quiet restructuring has taken place in the first industrial city of Turkey. Thirdly, with regard to the rural labor characteristic, although dependency on a single big enterprise and single economic base of coal mining exists, the coal miners could rely on their secondary capabilities to again support them in household survival when purchasing power declined.

The city and the monocentric industry have stood up against the decline impacts of deindustrialization because of its local idiosyncrasies. The most striking of them are revealed as the presence of the rural labor and the informal coal production associated with the restructuring in the production process. The lack of a complete decline has thus relied on these local idiosyncrasies. The urban space has become a major part of the restructuring process for revival.

When a multi-layer evaluation of rural labor is made, firstly, it constitutes a major part of the buffer mechanism at the household level. This is due to the use of existing relations with the rural land in support of the household income within a decreasing purchasing power context. Secondly, it underlies the lack of strong political lock-ins against the restructuring process. Apart from structural changes concerning deunionization and deregulation, the rural labor has contributed to the lack of self-sustaining coalitions against the restructuring process. This has made it

possible to prevent the emergence of a strong resistance to change. Thirdly, it contributes to the availability of secondary capabilities for the labour in contrast to other localities of a single local economic base that depend on coal mining.

In addition to the local idiosyncrasy of rural labor, informal coal production particular to coal mining industry has contributed to the standing against decline and the restructuring in the production process. This is through informal coal production in the basin that acts as a buffer for the ongoing coal production in Zonguldak which can be evaluated by their relations with the private firms and with the use of coal in fields other than industrial production. This has also contributed to local entrepreneurship within the locality.

Highlighting the local idiosyncracies in standing against decline and contributing to the course of the restructuring process make it possible to distinguish Zonguldak from other cases. From a larger perspective and through a more detailed evaluation, it can be commented that the strategies that Zonguldak shares with other cases in terms of responses to decline are the policies of downsizing, cutting or reduction of state subsidies, privatization implications for the complementary steel companies, closure of unprofitable pits, modernization and rehabilitation in coal mining by use of WB loans, and withdrawal of the social budget for coal enterprises and transfer of social services from coal enterprises to other institutions.

Strategies in other cases that are different from Zonguldak in terms of responses to decline highlight the policies of closure of all of the mines, privatization of coal enterprises or profitable mines, integration of research and development in coal mining.

Strategies that Zonguldak shares with other cases in terms of restructuring for revival can be pointed out as diversification of the economic base, job creation via SME development, establishment of new industrial zones, establishment of consumption and leisure spaces within urban restructuring mainly based on proliferation of the service sector, modernization of infrastructure, and cultural tourism.

Strategies that are different from Zonguldak in terms of restructuring for revival include integration with cross-border interregional projects, regional development agencies and regional development programs, reindustrialization and new industrialization.

The near future of Zonguldak city and Zonguldak Metropolitan Area is likely to be one that includes coal and coal production with increased activities of private firms and associated ongoing informal coal production. In the future of Zonguldak the university will probably appear with a potential for new industrialization and also regional cooperation. Industrial heritage, thus cultural tourism will also be an important potential for Zonguldak as part of both industrial and also the urban restructuring process. At the regional level, a new supra regional role in BSEC in connection with the completion and realization of the projects proposed by ZBK Regional development plan is promising for the near future of Zonguldak.

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# APPENDIX A

## THE QUESTIONNAIRE SURVEY

THIS QUESTIONNAIRE STUDY HAS BEEN REALIZED FOR A DOCTORATE STUDY AT THE DEPARTMENT OF CITY AND REGIONAL PLANNING IN MIDDLE EAST TECHNICAL UNIVERSITY. THE DRAWN INFORMATION WILL ONLY BE EVALUATED IN CONTEXT OF AND AIM OF ACADEMICAL AIMS AND CONTEXT.

The questionnaire will be directly applied to the miners, the head of the households working in branch of panel trestle production  
The name and surname of the polister:  
.....  
The date and hour of the applied questionnaire:  
.....

- THE FILLING OF THE LAST PAGE SHOULD NOT BE FORGOTTEN

THE NAME AND SURNAME OF THE PANEL TRESTLE PRODUCTION WORKER: .....

A=HOUSEHOLD DEMOGRAPHIC PROFILE

A1. FOR HEAD OF THE HOUSEHOLD İÇİN

GENDER (M,F)	AGE	EDUCATION	Marital Status	Birth Place		1. → When did you come to Zonguldak ?	2. → Where did you come to Zonguldak from ?	3. → Why did you come to Zonguldak ?
				Within Zonguldak city limits <input type="checkbox"/>	Outside Zonguldak city limits <input type="checkbox"/>	(Gelen yanıtı göre A ya da B sınıfı yanıtlardan birini işaretleyiniz)		
Male (1) <input type="checkbox"/> M		(1) Illiterate (2) Primary school (A) Diploma (B) Student (C) Drop-out (3) Middle school or equivalent vocational school (A) Diploma (B) Student (C) Drop-out (4) High school (A) Diploma (B) Student (C) Drop-out (5) Vocational or technical high school (A) Diploma (B) Student (C) Drop-out (6) University (distant learning) (A) Diploma (B) Student (C) Drop-out (7) University or college (A) Diploma (B) Student (C) Drop-out (10) M.S./Ph. D. (A) Diploma (B) Student (C) Drop-out	(1) Married (2) Married, living separately (3) Widow, spouse deceased (4) Widow, divorced. (5) Never married	(1) <input type="checkbox"/> In Zonguldak city (2) <input type="checkbox"/> In the village of ..... (3) <input type="checkbox"/> In the town of ..... (4) Other <input type="checkbox"/> : .....	City of birth : .....	A. (1) Before 1975 (2) Between 1975-1979 (3) Between 1980-1984 (4) Between 1985-1989 (5) Between 1990-1994 (6) Between 1995-1999 (7) 2000 and later  B. How many years ago: ..... .....	Please write: .....	(1) <input type="checkbox"/> I came to work. (2) <input type="checkbox"/> I came on assignment on duty (3) <input type="checkbox"/> I came to study (4) <input type="checkbox"/> Other: ..... .....
Female (2) <input type="checkbox"/> F								

A2. How many individuals including yourself live in the household (Please include the ones who are currently in another city as students, on vacation or on military service)..... individuals live in the household.

**A3. OTHER MEMBER OF THE HOUSEHOLD**

RELATION TO HEAD OF THE HOUSEHOLD	GENDER	AGE	EDUCATION	MARRITAL STATUS
<b>CODES</b>	<b>M, F</b>	.....	(1) Illiterate (2) Primary school (A) Diploma (B) Student (C) Drop-out (3) Middle school or equivalent vocational school (A) Diploma (B) Student (C) Drop-out (4) High school (A) Diploma (B) Student (C) Drop-out (5) Vocational or technical high school (A) Diploma (B) Student (C) Drop-out (6) University (distant learning) (A) Diploma (B) Student (C) Drop-out (7) University or college (A) Diploma (B) Student (C) Drop-out (10) M.S./Ph. D. (A) Diploma (B) Student (C) Drop-out Example for Coding: For primary schoold diploma: 2(A)	(1) Married (2) Married, living separately (3) Widow, spouse deceased (4) Widow, divorced. (5) Never married
( ) SPOUSE	CODE:	.....	CODE:	CODE:
<b>INDIVIDUALS WHO LIVE IN THE HOUSEHOLD</b>				
( ) 1 <sup>st</sup> CHILD	CODE:	.....	CODE:	CODE:
( ) 2 <sup>nd</sup> CHILD	CODE:	.....	CODE:	CODE:
( ) 3 <sup>rd</sup> CHILD	CODE:	.....	CODE:	CODE:
RELATION TO HEAD OF THE HOUSEHOLD	GENDER	AGE	EDUCATION	MARRITAL STATUS
<b>CODES</b>	<b>M, F</b>	.....	(1) Illiterate (2) Primary school (A) Diploma (B) Student (C) Drop-out (3) Middle school or equivalent vocational school (A) Diploma (B) Student (C) Drop-out (4) High school (A) Diploma (B) Student (C) Drop-out (5) Vocational or technical high school (A) Diploma (B) Student (C) Drop-out (6) University (distant learning) (A) Diploma (B) Student (C) Drop-out (7) University or college (A) Diploma (B) Student (C) Drop-out (10) M.S./Ph. D. (A) Diploma (B) Student (C) Drop-out	(1) Married (2) Married, living separately (3) Widow, spouse deceased (4) Widow, divorced. (5) Never married

( ) 4 <sup>th</sup> CHILD	CODE:	.....	CODE:	CODE:
OTHER MEMBERS OF THE HOUSEHOLD (E.G. DAUGHTER IN-LAW, SON I-LAW, MOTHER, FATHER, ETC.)	CODE:	.....	CODE:	CODE:
( ) 1. OTHER: .....	CODE:	.....	CODE:	CODE:
( ) 2. OTHER: .....	CODE:	.....	CODE:	CODE:
( ) 3. OTHER: .....	CODE:	.....	CODE:	CODE:
( ) 4. OTHER: .....	CODE:	.....	CODE:	CODE:

**B=QUESTIONS RELATED TO THE RESIDENCE AND THE NEIGHBOURHOOD**

**B1. What is your ownership status of the residence?**

- (1)  Owner
- (2)  Paying rent **(Continue from Question B3.)**
- (3)  Not the owner but does not pay rent **(Continue from Question B3.)**
- (4)  Public housing **(Continue from Question B3.)**
- (5)  Other:..... **(Continue from Question B3.)**

**B2. IF owner, which one of the following describes status of the ownership?**

- (1)  Has title deed
- (2)  Has title allocation
- (3)  No any deed

**B3. Where did you live before moving into the current residence?**

(1) <input type="checkbox"/> I have always lived in the current residence, no moving	(2) <input type="checkbox"/> In Zonguldak city In..... ..... County	(3) <input type="checkbox"/> In Zonguldak In the town of ..... .....	(4) <input type="checkbox"/> In Zonguldak In the village of ..... .....	(5) <input type="checkbox"/> Outside Zonguldak Name of the city>
	Name of the municipality:			( ) In the city
				( ) In a village
				( ) In a town

**B4. What were your reasons for moving ? Mark the first three reasons as 1,2,3.**

- (1)  To move into a residence with a lower rent
- (2)  To move in together with my family
- (3)  To find a different job
- (4)  To find a different job following retirement
- (5)  To live in a safer area
- (6)  To be close to the workplace
- (7)  To buy a property
- (8)  Other: .....

**C= QUESTIONS RELATED TO CHANGES IN WORK AND EMPLOYMENT**

**C1. Since 1990, have you ever been outside of Zonguldak to work?**

- (1) Yes, I have      (2) No, I have not **(CONTINUE FROM QUESTIONS C3)**
- (1.1)  Which city did you go to? .....
- (1.2)  How many times have you been outside of Zonguldak to work:  
 .....

**C2. QUESTIONS FOR HEAD OF THE HOUSEHOLD WHO HAS BEEN OUTSIDE OF ZONGULDAK TO WORK:**

<p><b>FIRST TIME OUTSIDE OF ZONGULDAK TO WORK:</b></p> <p>C2a. Duration of stay outside of Zonguldak to work</p> <p>.....</p> <p>.....</p> <p>week/month/year</p>	<p>C2b. Describe the type of employment while outside of Zonguldak</p> <p>Employment (Describe):</p> <p>.....</p> <p>.....</p> <p>Job code (see last page):</p> <p>.....</p> <p>.....</p>	<p>C2c. When did you return to Zonguldak?</p> <p>Year.....</p> <p>...</p> <p>(1) 1990-1992</p> <p>(2) 1993-1995</p> <p>(3) 1996-1998</p> <p>(4) 1999-2001</p> <p>(5) 2002-2004</p> <p>(6) 2005</p> <p>(7) 2006</p>	<p>C2d. Why did you return to Zonguldak?</p> <p>(1) I own agricultural land in Zonguldak</p> <p>(3) I own a house in Zonguldak</p> <p>(4) There was job opportunity in Zonguldak</p> <p>(5) Other:</p> <p>.....</p> <p>.....</p>
<p><b>SECOND TIME OUTSIDE OF ZONGULDAK TO WORK:</b></p> <p>C2a. Duration of stay outside of Zonguldak to work</p> <p>.....</p> <p>.....</p> <p>week/month/year</p>	<p>C2b. Describe the type of employment while outside of Zonguldak</p> <p>Employment (Describe):</p> <p>.....</p> <p>.....</p> <p>Job code(see last page):</p> <p>.....</p> <p>.....</p>	<p>C2c. When did you return to Zonguldak?</p> <p>Year.....</p> <p>...</p> <p>(1) 1990-1992</p> <p>(2) 1993-1995</p> <p>(3) 1996-1998</p> <p>(4) 1999-2001</p> <p>(5) 2002-2004</p> <p>(6) 2005</p> <p>(7) 2006</p>	<p>C2d. Why did you return to Zonguldak?</p> <p>(1) I own agricultural land in Zonguldak</p> <p>(3) I own a house in Zonguldak</p> <p>(4) There was job opportunity in Zonguldak</p> <p>(5) Other:</p> <p>.....</p> <p>.....</p>
<p><b>THIRD TIME OUTSIDE OF ZONGULDAK TO WORK:</b></p> <p>C2a. Duration of stay outside of Zonguldak to work</p> <p>.....</p> <p>.....</p> <p>week/month/year</p>	<p>C2b. Describe the type of employment while outside of Zonguldak</p> <p>Employment (Describe):</p> <p>.....</p> <p>.....</p> <p>Job code(see last page):</p> <p>.....</p> <p>.....</p>	<p>C2c. When did you return to Zonguldak?</p> <p>Year.....</p> <p>...</p> <p>(1) 1990-1992</p> <p>(2) 1993-1995</p> <p>(3) 1996-1998</p> <p>(4) 1999-2001</p> <p>(5) 2002-2004</p> <p>(6) 2005</p> <p>(7) 2006</p>	<p>C2d. Why did you return to Zonguldak?</p> <p>(1) I own agricultural land in Zonguldak</p> <p>(3) I own a house in Zonguldak</p> <p>(4) There was job opportunity in Zonguldak</p> <p>(5) Other:</p> <p>.....</p> <p>.....</p>



<b><u>FOURTH TIME OUTSIDE OF ZONGULDAK TO WORK:</u></b>	<b>C2b. Describe the type of employment while outside of Zonguldak</b>	<b>C2c. When did you return to Zonguldak?</b>	<b>C2d. Why did you return to Zonguldak?</b>
<b>C2a. Duration of stay outside of Zonguldak to work</b>  ..... .... ..... .... ..... .... <b>week/month/year</b>	<b>Employment (Describe):</b> ..... ..... <b>Job code(see last page):</b> ..... ..... .....	<b>Year.....</b> ... (1) 1990-1992 (2) 1993-1995 (3) 1996-1998 (4) 1999-2001 (5) 2002-2004 (6) 2005 (7) 2006	(1) I own agricultural land in Zonguldak (3) I own a house in Zonguldak (4) There was job opportunity in Zonguldak (5) Other: ..... .....

**C3.QUESTIONS RELATED TO EMPLOYMENT STATUS**

RELATION TO HEAD OF THE HOUSEHOLD	WORKING	NOT WORKING	TYPE OF JOB/OCUPATION (Describe clearly; e.g.: nurse, carpenter, etc.)	WHAT IS THE LEGAL STATUS OF THE EMPLOYER?	WHAT IS THE EMPLOYMENT STATUS OF THE INDIVIDUAL?	WHAT IS THE NAME OF THE EMPLOYING ORGANIZATION?	IS THE INDIVIDUAL A MEMBER OF ANY UNIONS?	IS THE INDIVIDUAL A MEMBER OF ANY SOCIAL SECURITY INSTITUTIONS?
<b>CODES</b>	<input type="checkbox"/>	(1) UNEMPLOYED (2) RETIRED (3) STUDENT (4) HOUSEWIFE (5) HANDICAPPED	Job:  Occupation code (from last page):	(1) Government (2) Private	(1) On salary (2) On daily-wage  a.Civil servant-technical personnel b. Civil servant-administrative personnel c. Worker d. High level administrative officer  (3) Employer (4) Self employed (5) Unpaid family worker (6) Other		(1) Yes.  (2) No.  If member, for how many years? .....  Name of the union .....	(1) Sosyal Sigortalar Kurumu (2) Emekli Sandığı (3) Bağ-Kur (4) Not registered, has green card (5) Not registered, does not have green card (6) Optional private insurance (7) Other: .....
<b>( ) HEAD OF THE HOUSEHOLD</b>	<input checked="" type="checkbox"/>	<b>CODE: _</b>	Occupatin: <u>Panel trestle production worker</u>  Occupation Code: (2) (from last page)	<b>CODE: (1)</b>	<b>WILL BE FILL IN</b> <b>CODE:</b>	NAME: TTK	<b>WILL BE FILL IN</b> <b>CODE: (1)</b> If member, for how many years? .....  Name of the union .....	<b>WILL BE FILL IN</b> <b>CODE:</b>
<b>( ) SPOUSE</b>	<input type="checkbox"/>	<b>CODE:</b>	Occupation  Occupation code (from last page):	<b>CODE:</b>	<b>CODE:</b>	NAME:	<b>CODE:</b> If member, for how many years? .....  Name of the union .....	<b>CODE:</b>
RELATION TO HEAD OF THE HOUSEHOLD	WORKING	NOT WORKING	TYPE OF JOB/OCUPATION (Describe clearly; e.g.: nurse, carpenter, etc.)	WHAT IS THE LEGAL STATUS OF THE EMPLOYER?	WHAT IS THE EMPLOYMENT STATUS OF THE INDIVIDUAL?	WHAT IS THE NAME OF THE EMPLOYING ORGANIZATION?	IS THE INDIVIDUAL A MEMBER OF ANY UNIONS?	IS THE INDIVIDUAL A MEMBER OF ANY SOCIAL SECURITY INSTITUTIONS?

<b>CODES</b>	<input type="checkbox"/>	(1) UNEMPLOYED (2) RETIRED (3) STUDENT (4) HOUSEWIFE (5) HANDICAPPED	Job:  Occupation code (from last page):	(1) Government (2) Private	(1) On salary (2) On daily wage  a.Civil servantr-technical personnel b. Civil servant- administrative personnel c. Worker d. High level admisintrative officer  (3) Employer (4) Self employed (5) Unpaid family worker (6) Other		(1) Yes.  (2) No.  If member, for how many years?  .....  Name of the union  .....	(1) Sosyal Sigortalar Kurumu (2) Emekli Sandığı (3) Bağ-Kur (4) Not registered, has green card (5) Not registered, does not have green card (6) Optional private insurance (7) Other:  .....
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**WILL BE ASKED TO THE WORKING AGE HOUSEHOLD MEMBERS (15 AND OVER); STUDENTS WILL BE EXCLUDED.**

<b>LIVES IN THE HOUSEHOLD:</b>  ( ) 1 <sup>st</sup> CHILD	<input type="checkbox"/>	<b>CODE:</b>	Job:  Occupation code (from last page):	<b>CODE:</b>	<b>CODE:</b>	<b>NAME:</b>	<b>CODE:</b> If members, for how many years?  .....  Name of the Union  .....	<b>CODE:</b>
( ) 2 <sup>nd</sup> CHILD	<input type="checkbox"/>	<b>CODE:</b>	Job:  Occupation code (from last page):	<b>CODE:</b>	<b>CODE:</b>	<b>NAME:</b>	<b>CODE:</b> If members, for how many years?  .....  Name of the Union  .....	<b>CODE:</b>
<b>RELATION TO HEAD OF THE HOUSEHOLD</b>	<b>WORKING</b>	<b>NOT WORKING</b>	<b>TYPE OF JOB/OCUPATION (Describe clearly; e.g.: nurse, carpenter, etc.)</b>	<b>WHAT IS THE LEGAL STATUS OF THE EMPLOYER?</b>	<b>WHAT IS THE EMPLOYMENT STATUS OF THE INDIVIDUAL?</b>	<b>WHAT IST HE NAME OF THE EMPLOYING ORGANIZATI ON?</b>	<b>IS THE INDIVIDUAL A MEMBER OF ANY UNIONS?</b>	<b>IS THE INDIVIDUAL A MEMBER OF ANY SOCIAL SECEURITY INSTITUTIONS?</b>
<b>CODES</b>	<input type="checkbox"/>	(1) UNEMPLOYED (2) RETIRED (3) STUDENT (4) HOUSEWIFE (5) HANDICAPPED	Job:  Occupation code (from last page):	(1) Government (2) Private	(1) On salary (2) On daily wage  a.Civil servantr-technical personnel b. Civil servant- administrative personnel c. Worker d. High level admisintrative officer  (3) Employer (4) Self employed (5) Unpaid family worker (6) Other		(1) Yes.  (2) No.  If member, for how many years?  .....  Name of the union  .....	(1) Sosyal Sigortalar Kurumu (2) Emekli Sandığı (3) Bağ-Kur (4) Not registered, has green card (5) Not registered, does not have green card (6) Optional private insurance (7) Other:  .....

( ) 3 <sup>rd</sup> CHILD	<input type="checkbox"/>	CODE:	Job:  Occupation code (from last page):	CODE:	CODE:	NAME:	CODE: If members, for how many years? ..... Name of the Union .....	CODE::
( ) 4 <sup>th</sup> CHILD	<input type="checkbox"/>	CODE:	Job:  Occupation code (from last page):	CODE:	CODE:	NAME:	CODE: If members, for how many years? ..... Name of the Union .....	CODE:
RELATION TO HEAD OF THE HOUSEHOLD	WORKING	NOT WORKING	TYPE OF JOB/OCCUPATION (Describe clearly; e.g.: nurse, carpenter, etc.)	WHAT IS THE LEGAL STATUS OF THE EMPLOYER?	WHAT IS THE EMPLOYMENT STATUS OF THE INDIVIDUAL?	WHAT IS THE NAME OF THE EMPLOYING ORGANIZATI ON?	IS THE INDIVIDUAL A MEMBER OF ANY UNIONS?	IS THE INDIVIDUAL A MEMBER OF ANY SOCIAL SECURITY INSTITUTIONS?
CODES	<input type="checkbox"/>	(1) UNEMPLOYED (2) RETIRED (3) STUDENT (4) HOUSEWIFE (5) HANDICAPPED	Job:  Occupation code (from last page):	(1) Government (2) Private	(1) On salary (2) On daily wage a. Civil servant-technical staff member b. Civil servant- administrative staff member c. Worker d. High level administrative officer (3) Employer (4) Self employed (5) Unpaid family worker (6) Other		(1) Yes. (2) No.  If member, for how many years? ..... Name of the union .....	(1) Sosyal Sigortalar Kurumu (2) Emekli Sandığı (3) Bağ-Kur (4) Not registered, has green card (5) Not registered, does not have green card (6) Optional private insurance (7) Other: .....
OTHER MEMBERS OF THE HOUSEHOLD (E.G. DAUGHTER IN-LAW, SON I- LAW, MOTHER, FATHER ETC.) ( ) 1. OTHER: .....	<input type="checkbox"/>	CODE:	Job:  Occupation code (from last page):	CODE:	CODE:	NAME:	CODE: If member, for how many years? ..... Name of the union .....	CODE:
( ) 2. OTHER: .....	<input type="checkbox"/>	CODE:	Job:  Occupation code (from last page):	CODE:	CODE:	NAME:	CODE: If member, for how many years? ..... Name of the union .....	CODE:

C4. Mark the appropriate option below related to the work continuity of head of the household.

	SHIFT	WITHOUT SHIFT
PERMANENT	<input type="checkbox"/>	<input type="checkbox"/>
GRUPLU		
SEASONAL	<input type="checkbox"/>	<input type="checkbox"/>
TEMPORARY OR CONTRACT WORK	<input type="checkbox"/>	<input type="checkbox"/>

C5. Does the head of the household work full-time or part-time?

- (1) Full-time  
(2) Part-time

C6. Are there any members of the household who have been outside of Zonguldak previously to work?

- (1)  Yes, there are. (2)  No, there aren't. (CONTINUE TO QUESTION C7)

C6a. IF YES, please ask the following :

RELATION TO HEAD OF THE HOUSEHOLD (e.g. SON, etc.)	1. WHO?	2. WHO?	3. WHO?	4. WHO?
WHEN DID HE/SHE LEAVE ZONGULDAK TO WORK?				
WHERE DID HE/SHE GO TO?				
WHY DID HE/SHE GO?				
WHEN DID HE/SHE RETURN TO ZONGULDAK?				
WHY DID HE/SHE RETURN?				

C7. QUESTIONS RELATED TO THE HEAD OF THE HOUSEHOLD WORKING IN THE MINING OR QUARY

(1) <input type="checkbox"/> <input checked="" type="checkbox"/> TTK employee, mine worker
(1.1) <input type="checkbox"/> <input checked="" type="checkbox"/> Underground mine worker (1.1.1) <input type="checkbox"/> <input checked="" type="checkbox"/> Production worker Name of his profession (e.g. Digger, etc.) .....

C8. For how many years has he/she been working in the mine? .....

C9. At what age has he/she started working in the mine?.....

C10. Has he/she been involved in any accidents while working in the mine?

- (1)  Yes, he/she has had work-related accident. (2)  No, he/she has not had a work-related accident.

**C11. Does he/she have an illness that can be described as an occupational illness?**

(1)  Yes, he/she has (2)  No (**CONTINUE TO QUESTION 13**).

**C12. What is the illness? .....**

**C13. Is/has your father working/worked in mining and quarry economic activity branch?**

(1)  Yes, is working/has worked  
 (2)  No, is not working/has not worked (**CONTINUE TO QUESTION C15**)

**C14. How would you describe the father's job working in the mining....?**

(1) TTK employee, mine worker	(2) TTK employee, white-collar worker	(3) Private mine enterprise employee
(1.1) Underground mine worker Name of his profession (e.g. Digger, etc.) ..... ....	(2.1) Civil servant, technical staff member	(3.1) Underground mine worker Name of his profession (e.g. Digger, etc.) .....
(1.2) Open mine worker Name of his profession (e.g. Digger, etc.) .....	(2.2) Civil servant, administrative staff member	(3.2) Open mine worker Name of his profession (e.g. Digger, etc.) .....
(1.3) Production worker Name of his profession (e.g. Digger, etc.) .....	(2.3) Contract labour, technical staff member	(3.3) Production worker Name of his profession (e.g. Digger, etc.) .....
	(2.4) Contract labour, administrative staff member	(3.4) Employer

**C15. What kind of jobs has the head of the household had during his working life (describe the job clearly: e.g. construction worker, carpenter, etc.)?**

FIRST JOB:	WHEN (which year, e.g. 1991):	DURATION(years/months/weeks):
SECOND JOB:	WHEN (which year, e.g. 1991)	DURATION(years/months/weeks):
THIRD JOB:	WHEN (which year, e.g. 1991)	DURATION(years/months/weeks):
FOURTH JOB:	WHEN (which year, e.g. 1991)	DURATION(years/months/weeks):

**C16. Has the head of the household ever been unemployed since he has started working?**

- (1)  Yes, he has      (2)  No, he hasn't (**CONTINUE FROM QUESTION C17**)

**C16.a If he has been unemployed, during which period was he unemployed? (More than one period can be marked)**

If stated, write the year(s) he has been unemployed .....

- (1) 1980- 1985  
 (2) 1986-1990  
 (3) 1991-1996  
 (4) 1997-2000  
 (5) 2001-2005  
 (6) After 2006

**C17. During the last 10 years, has anybody rather than the head of the household been unemployed or changed jobs?**

- (1)  Yes      (2)  No (**CONTINUE FROM QUESTION C18**)

<b>C17.a</b>		
The person who has been unemployed or changed jobs (relation to the head of the household)-----	-----Who?	-----Who?
The reason for being unemployed?	1( ) I was self-employed, and I closed down my workplace. 2( ) I left the workplace where I was a partner 3( ) I had to leave because the workplace I was working at was closed down 4( ) I was laid-off from the workplace I was working 5( ) While I was working I had to retire/I was forced to take early retirement 6( ) Other: .....	1( ) I was self-employed, and I closed down my workplace. 2( ) I left the workplace where I was a partner 3( ) I had to leave because the workplace I was working at was closed down 4( ) I was laid-off from the workplace I was working 5( ) While I was working I had to retire/I was forced to take early retirement 6( ) Other: .....
When did he/become unemployed?	1( ) Within last year 2( ) Between 2 and 5 years ago 3( ) Between 6 and 10 years ago 4( ) Earlier than 10 years	1( ) Within last year 2( ) Between 2 and 5 years ago 3( ) Between 6 and 10 years ago 4( ) Earlier than 10 years
How long did he stay jobless?  How long has he been unemployed?	1( ) Instantly got a new job 2( ) Less than a month 3( ) .....month 4( ) .....year	1( ) Instantly got a new job 2( ) Less than a month 3( ) .....month 4( ) .....year
Was he working on wage or self-employed at the job he left?	1( ) On wage 2( ) Self-employed	1( ) On wage 2( ) Self-employed
What was he doing?	Occupation: ..... Occupation code: .....	Occupation: ..... Occupation code: .....
Was he working at public or private sector?	1( ) Public 2( ) Private sector	1( ) Public 2( ) Private sector
Was he a union member?	1( ) Yes 2( ) No	1( ) Yes 2( ) No

Did he have social security?	1 ( ) NONE a ( ) SSK      c ( ) Em. San. b ( ) Bağkur   d ( ) Özel	1 ( ) NONE a ( ) SSK      c ( ) Em. San. b ( ) Bağkur   d ( ) Özel
What did he do when he was jobless?	1 ( ) Become self-employed/start a new business 2 ( ) Start working on wage 3 ( ) Got another job on wage 4 ( ) He works between jobs, as he finds 5 ( ) Still looking for a job 6 ( ) Doesn't want to work, no in need 7 ( ) Other: .....	1 ( ) Become self-employed/start a new business 2 ( ) Start working on wage 3 ( ) Got another job on wage 4 ( ) He works between jobs, as he finds 5 ( ) Still looking for a job 6 ( ) Doesn't want to work, no in need 7 ( ) Other: .....

**C18. Does head of the household have an additional job to obtain cash or income in kind?**

- (1)  Yes, he has an additional job (CONTINUE FROM B18.a, B18.b ve B18c)  
(2)  No, he doesn't have an additional job (CONTINUE FROM D1.)

**C18.a. What is he doing as an additional job?**

Occupation (describe clearly e.g. construction worker):  
.....

Occupation code (from last page): .....

**C18.b. What is his status at this additional job?**

- (1)  Waged or salary  
(2)  Daily-wage  
(3)  Employer  
(4)  Self-employed  
(5)  Free family worker  
(6)  Other: .....

**C18.c. What is the contribution of this additional job to the household income? .....**(YTL)

..... (in terms of goods: clothing, fuel, etc.)

**D. INCOME STATE and the CHANGE IN INCOME and EXPENDITURE**

**D1. Which of the followings are owned by the household? (More than one options can be marked)**

- (1)  House  
(2)  Car  
(3)  Land in city  
(4)  Store in city  
(5)  Cropland in village  
(6)  Other: .....

**D2. What is the total monthly income of the household? (Pollster should write both the size of the income as an explanation and mark the interval accordingly)**

Total monthly household income: .....YTL

- (1)  200-500 YTL  
(2)  600-900 YTL  
(3)  1000-1300 YTL.  
(4)  1400-1700 YTL.  
(5)  1800-2100 YTL.



- (6)  2200-2500 YTL.
- (7)  2600 YTL and over

**D3. Which of the followings compose the household income? (Multiple options can be marked) Please sort your choices in descending order according to their contribution in income.**

- (1)  Wage, salary, daily-wage against current job
- (2)  Pension
- (3)  Income from additional job
- (4)  Income from self-owned business
- (5)  Wage, salary, daily-wage of other household members
- (6)  Income from inheritance
- (7)  Earned interests from bank, repo, equities
- (8)  Rent from real property (such as house/shop rent)
- (9)  Regular aid incomes from charities and foundations  
(CONTINUE FROM D4.)
- (10)  Support incomes from relatives and friends
- (11)  Income from the property in village (such as from cropland)
- (12)  Other:.....

**D4. Which of the following/s include the support incomes?**

- (1)  Family, children, education support
- (2)  Marriage, birth and death support
- (3)  Fuel support
- (4)  State dwelling support (cash)
- (5)  Food allowance
- (6)  Clothing aid
- (7)  Transportation aid
- (8)  Medicaid
- (9)  Cultural support
- (10)  Feast allowance
- (11)  Leave allowance
- (12)  Other

**D5. Is there income in kind contributes to household income? (e.g. coal, clothing, etc.)**

- (1) Yes, there is (Explain)  
Daily:.....  
Weekly:.....  
Monthly:.....  
Annual:.....

(2) No, there isn't.

**D6. Is household income regular or not?**

(1)  Yes, it is regular (CONTINUE FROM D6.a) (2)  No, it isn't (CONTINUE FROM D7.)

**D6.a.** Do you find this income sufficient to live on? (1)  Yes, I find it sufficient

- (2)  No, I don't find it sufficient  
 (3)  I don't know, I'm doubtful

**D7. During your stay in Zonguldak is there a noticeable change occurred in your household income?**

- (1)  Yes,  
 (1.1)  Our household income has declined (**CONTINUE FROM D8. and D 9.**)  
 (1.2)  Our household income has increased (**CONTINUE FROM D10.**)  
 (2)  None. No change occurred. (**DIRECTLY CONTINUE FROM 11.**)

**D8. If the household income has declined which of the followings was influential? For the influential ones: Identify relationship according to household head.**

Wage/Salary decline of household workers	( ) No ( ) Yes -----	---Who?
An employed household member lost his job	( ) No ( ) Yes -----	---Who?
An employed household member lost his additional job	( ) No ( ) Yes -----	---Who?
An employed household member's working hours reduced	( ) No ( ) Yes -----	---Who?
An employed household member's work days reduced	( ) No ( ) Yes -----	---Who?

**D9. Which of the following way/ways have you tried to deal with this situation (decline in household income) (Multiple choice can be mark)**

- (1)  Borrow from relatives  
 (2)  Borrow from friends  
 (3)  From relatives working abroad  
 (4)  Borrow from a stranger on the term to pay it back at specific date  
 (5)  Borrow from employer  
 (6)  Selling my house  
 (7)  Selling my cropland  
 (8)  Selling some of my goods  
 (9)  Other:.....  
 .....

**D10. If the household income has increased which of the followings was influential? For the influential ones: Identify relationship according to household head.**

Wage/salary increase of household workers	( ) No ( ) Yes-----	---Who?
A Nonemployed household member began to work	( ) No ( ) Yes-----	---Who?
An employed household member changed occupation and got a new job	( ) No ( ) Yes-----	---Who?
An employed household	( ) No	

member got an additional job	( ) Yes-----	---Who?
An employed household member extended his work hours	( ) No ( ) Yes-----	---Who?
An employed household member extended his work days (e.g. began to work weekends)	( ) No ( ) Yes-----	---Who?
A financial support came from an outer source	( ) No ( ) Yes-----	---Who?

**D11. When this change in your household income has occurred? (Multiple choices can be marked)**

(If states, write clearly the year, years that the change occurred in income:.....)

- (1)  1990-1994  
(2)  1995-1999  
(3)  2000 and after

**D12. Within the last decade have you lived one of the followings as a household?**

<b>We had to move a low rent and low cost house.</b>	( ) Yes	( ) No
<b>We had to change our child's school.</b>	( ) Yes	( ) No
<b>We had to change our car with an inferior model.</b>	( ) Yes	( ) No
<b>We had to sell our car.</b>	( ) Yes	( ) No
<b>We had to sell real estates such as house, land, shop, etc.</b>	( ) Yes	( ) No
<b>We had to sell some of our properties at home.</b>	( ) Yes	( ) No
<b>We were executed due to our unpaid debt.</b>	( ) Yes	( ) No
<b>We had domestic attachment.</b>	( ) Yes	( ) No
<b>We had to change the city we live.</b>	( ) Yes	( ) No
<b>We had to move near our family.</b>	( ) Yes	( ) No
<b>We exchanged our cash savings such as foreign currency.</b>	( ) Yes	( ) No

**D13. Within the last decade have you needed to retrench the following expenses?**

	We have retrenched	We haven't	We did not have
--	--------------------	------------	-----------------

		retrenched, changed	nothing	such an expense
Kitchen expenses	( )	( )	( )	( )
Cleaning products expenses	( )	( )	( )	( )
Newspaper, magazine, etc.expenses	( )	( )	( )	( )
Transportation expenses	( )	( )	( )	( )
Clothin expenses	( )	( )	( )	( )
Education, school expenses	( )	( )	( )	( )
Health expenses	( )	( )	( )	( )
Commodity expenses	( )	( )	( )	( )

**D14. Can you save from your income for a rainy day?**

- (1)  No, we can't save  
(2)  Yes, we can save.

**E= QUESTIONS AIMED FOR INFORMATION HOW, AT INDIVIDUAL LEVEL NEAR FUTURE OF THE CITY, NEAR FUTURE OF THE INDIVIDUAL'S OWN FUTURE ARE PERCEIVED: QUERY INCLUDING POSITIONS, MANOEUVRES, TRUST, HOPE, SENSITIVITY, INTENTION PHENOMENA**

**E1. Do you think a strong bond exists between the future of Zonguldak and coal sector?**

- (1)  Yes, I think there is a strong bond between the future of Zonguldak and the coal sector.  
(2)  No, I don't think there is a bond between the future of Zonguldak and the coal sector.  
(3)  I don't know, I'm ambivalent in this matter.

**E2. If mines are entirely closed will this affect your life?**

- (1)  Yes, affects too much, we can't work at another job we'll starve.  
(2)  Yes, affects but we'll starve.  
What will he do?:  
.....  
(3)  I don't know, I'm ambivalent.  
(4)  No, it doesn't affect, we will work at another job.  
What will he do?:  
.....  
(5)  Other (Explain):  
.....

**E3. Do you think the union is active for decisions on Zonguldak?**

- (1)  Yes, I think
- (2)  No, I don't think
- (3)  I don't know, I'm ambivalent in this matter

**E4. In which direction would you desire the activities of the union? (Multiple choices can be marked)**

- (1)  More political formation oriented
- (2)  Direction for improvement of working conditions
- (3)  Direction in leading practices such as courses for us to orient ourselves in the post-mining work areas
- (4)  Co-operation-oriented with institutions for post-retirement life and against disemployment.
- (5)  Other(Explain):.....  
.....

**E5. Do you want your children be mine worker?**

- (1)  Yes, I want that **(CONTINUE FROM E6.)**
- (2)  No, I don't want that **(CONTINUE FROM E5.a.)**
- (3)  I don't know, I'm ambivalent **(CONTINUE FROM E6.)**

**E5.a. Why don't you want your children be mine worker? (Multiple choices can be marked)**

- (1)  I want him to choose a profession that can improve him
- (2)  I don't want him to decay for working in mine for ages
- (3)  I don't want him to have work accident at mine (I don't want him to work at risk)
- (4) Other: .....

**E6. If you had a choice would you do a different job than mining job?**

- (1)  Yes, I would do a different job
- (2)  No, I wouldn't do a different job
- (3)  I don't know, I'm ambivalent

**E7. Do you consider private mining enterprises as working field in the post-retirement or in cas of disemployment?**

- (1)  Yes, I consider
- (2)  No I don't consider
- (3)  I don't know, I'm ambivalent

**E8. If you face with such a situation would you prefer to work at private mining enterprise?**

- (1)  Yes, I'd prefer

- (2)  No, I wouldn't prefer
- (3)  I don't know I'm ambivalent

**E9. If TTK was closed and you lost your job what would you do?**

- (1)  I have connections with village; I can deal with agriculture
- (2)  I would go from Zonguldak to find another job
- (3)  I would continue as mine worker in another place
- (4)  I would get support from my relatives for a period, I'd start a business
- (5)  I would live on security contributions for a period; I'd accept any job I find
- (6)  The union would be affective in this decision; I don't consider such a possibility
- (7)  Other: .....

**E10. Do you want your children to live in Zonguldak?**

- (1)  Yes, I want **(CONTINUE FROM E11.)**
- (2)  No, I don't want **(CONTINUE FROM E10a)**
- (3)  I don't know, I'm ambivalent **(CONTINUE FROM E11.)**

**E10.a. Why don't you want your children to live in Zonguldak? (Multiple choices can be marked)**

- (1)  I don't see sufficient education opportunities in Zonguldak
- (2)  I don't see sufficient job opportunities in Zonguldak
- (3)  I think Zonguldak is not appropriate for human health
- (4)  Other: .....

**E11. If you had an opportunity would you consider to leave Zonguldak?**

- (1)  Yes, I consider **(CONTINUE FROM E11.a)**
- (2)  No, I wouldn't consider **(CONTINUE FROM E12.)**
- (3)  I don't know, I'm ambivalent **(CONTINUE FROM E12.)**

**E11.a. Why would you want to leave Zonguldak?**

- (1)  There is no sufficient job opportunities.
- (2)  There is no sufficient housing opportunities.
- (3)  There is no required health conditions.
- (4)  I don't feel secure in this city.
- (5)  I'm not pleased with working conditions.
- (6)  I'm anxious to lose my job.
- (7)  This city is collapsing, I don't see any future, I'm hopeless.
- (8)  Other: .....

**E12. Does Lukoil's (Refinery) choice Zonguldak as an investment area affect your life in terms of economics?**

- (1)  Yes, it affects in terms of finding job
- (2)  Yes, it affect due to its influence in the city
- (3)  I don't know, I'm ambivalent
- (4)  No, it affects city but not me
- (5)  No, not at all

**E13. Can you consider Zonguldak only as a retirement city? Specify reason.**

(1)  Yes, I can consider

Reason:

.....

(2)  No, I can't consider

Reason:

.....

**E14. If you compare your current situation with five years before, how will you evaluate the change?**

(1)  Get better

(2)  Recovered

(3)  No difference

(4)  Worsened

(5)  Very worsened

(6)  Don't know

(7)  Don't care

(8)  Other:.....

**E15. What are your expectations for yourself and for Zonguldak in five years later?**

.....  
.....

**\*PASS ON TO THE NEXT PAGE 23 AND COMPLETE.**

**THIS PAGE WILL BE FILLED IN BY THE POLISTER:**

The address will be written by the polister without asking to the settler.  
The address of the dwelling:  
The information that have to be available:

The name of the neighborhood: .....

The name of the street/avenue of the dwelling: .....

The No of the outdoor: .....

The No. of the indoor: .....

If apartment, the name:  
.....

**The telephone number of the household:**  
.....

**THIS PART SHOULD BE FILLED IN BY THE POLISTER**

**Codes related to the appearance of the dwelling**

(1)  Detached house  
(2)  Squatter  
(3)  Appartment  
(4)  Other (write)

**Codes concerning international standard industrial classification of the main economic activities, second revision (ISIC Rev.2) Manufacturing Classification in addition to Agriculture (1) and Mining and Quarrying (2)**

## APPENDIX B



## FREQUENCY DISTRIBUTION TABLES

Table 7. Frequency distributions and percentages of for age intervals of the panel trestle production workers and of working condition of their spouses

A1_AGE			A3_SPOUSE WORKING CONDITION		
	Frequency	Percent		Frequency	Percent
20-40	287	81,7	UNEMPLOYED	1	0,44
41-50	63	17,9	HOUSEWIFE	223	97,38
51-52	2	0,6	EMPLOYED	5	2,18
<b>Total</b>	<b>352</b>	<b>100,2</b>	<b>TOTAL</b>	<b>229</b>	

Table 8. Percentages of family types in terms of household size

A2_ NUMBER OF INDIVIDUALS	Type		Percent
	1-2 PEOPLE NUCLEAR FAMILY		8.81
	3-4 PEOPLE FAMILY		62.50
	5+ LARGE FAMILY		28.69

Table 9. Frequency distributions and percentages of education levels for the panel trestle production workers

A1_EDUCATION (manipulated)
----------------------------

	Frequency	Percent
PRIMARY SCHOOL GRADUATE	192	54,86
SECONDARY SCHOOL GRADUATE	46	13,14
SECONDARY SCHOOL DROP-OUT	21	6,00
PUBLIC HIGH SCHOOL GRADUATE	42	12,00
HIGH SCHOOLDROP-OUT	4	1,14
VOCATIONAL OR TECHNICAL HIGHSCHOOL GRADUATE	32	9,14
VOCATIONAL OR TECHNICAL HIGH SCHOOL DROP OUT	4	1,14
OPEN UNIVERSIT GRADUATE	1	0,29
UNIVERSITY GRADUATE	8	2,29
<b>Total</b>	<b>350</b>	<b>100</b>

Table 10. Frequency distributions and percentages of experience of work accident(s) for the panel trestle production workers

<b>C10_WORK ACCIDENT</b>		
	Frequency	Percent
YES, HE HAD WORK- RELATED ACCIDENT	188	53,4
NO,S/HE DID NOT HAVE WORK RELATED ACCIDENT	164	46,6
<b>Total</b>	<b>352</b>	<b>100,0</b>

Table 11. Frequency distributions and percentages of the trestle production workers having gone outside Zonguldak to work and returned to Zonguldak

<b>C1_ GOING OUTSIDE ZONGULDAK TO WORK</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>ONES WHO HAVE BEEN OUTSIDE ZONGULDAK TO WORK</b>	104	29.7
<b>ONES WHO HAVE NEVER BEEN OUTSIDE ZONGUDAK TO WORK</b>	246	69.89
<b>Total</b>	350	

Table 12. Frequency distributions and percentages of the trestle production workers' occupations when they have gone outside Zonguldak to work

<b>C2_b_OCCUPATION</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>OBSCURE</b>	2	-
<b>WORKER</b>	54	52,94
<b>DRIVER</b>	2	1,96
<b>WELDER</b>	6	5,88
<b>GARDENER</b>	1	0,98
<b>BAXTER</b>	5	4,90
<b>MINER</b>	4	3,92
<b>MACHINISTI</b>	1	0,98
<b>WAITER</b>	16	15,69
<b>CARPENTER</b>	1	0,98
<b>DOOR KEEPER</b>	1	0,98
<b>TEACHER</b>	1	0,98
<b>CABINET MAKER</b>	2	1,96
<b>ADVIRTISER</b>	1	0,98
<b>MECHANIC</b>	3	2,94
<b>CLERK</b>	2	1,96
<b>SECURITY STAFF</b>	2	1,96
<b>Total</b>	102	

Table 13. Frequency distributions and percentages of the trestle production workers' other occupations other than mining work lives.

<b>C15_OTHER OCCUPATIONS</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>OBSCURE</b>	62	17,6
	<b>WORK AT OTHER JOBS</b>	164	46,6
	<b>Total</b>	352	100,0

Table 14. Frequency distributions and percentages of the time intervals for trestle production workers' other occupations other than mining work lives.

<b>C15_a_YEAR AT OTHER OCCUPATION</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>1971-1980</b>	20	10,36
<b>1981-1990</b>	45	23,32
<b>1991-2000</b>	114	59,07
<b>2001 and after</b>	14	7,25
<b>Total</b>	193	

Table 15. Frequency distributions and percentages of income change for the panel trestle production workers' households

<b>D7_INCOME CHANGE IN ZONGULDAK</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>OBSCURE</b>	3	,9
<b>YES, CHANGED</b>	7	2,0
<b>NO, NOT CHANGED</b>	334	94,9
<b>HOUSEHOLD INCOME DECLINED</b>	3	,9
<b>HOUSEHOLD INCOME INCREASED</b>	5	1,4
<b>Total</b>	352	100,0

Table 16. Frequency distributions and percentages of the retrenchment conditions for trestle production workers' households

D13_RETRENCHMENT CONDITION	We have retrenched_ frequency	We haven't retrenched, nothing changed_ frequency	Total	We have retrenched Percentage	We haven't retrenched, nothing changed_ percentage	Obscure+people who didn't have such expenses
<b>Kitchen expenses</b>	142	207	349	40,69	59,31	1+2
<b>Cleaning products expenses</b>	109	239	348	31,32	68,68	1+3
<b>Newspaper, magazine, etc. expenses</b>	69	163	232	29,74	70,26	1+119
<b>Transportation expenses</b>	105	239	344	30,52	69,48	1+7
<b>Clothing expenses</b>	136	213	349	38,97	61,03	1+2
<b>Education, school expenses</b>	40	266	306	13,07	86,93	1+45
<b>Health expenses</b>	34	300	334	10,18	89,82	1+17
<b>Commodity expenses</b>	142	178	320	44,38	55,63	2+30

Table 17. Frequency distributions and percentages of the ownership status of residence for trestle production workers' households

<b>B1_ OWNERSHIP STATUS OF RESIDENCE</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>OBSCURE</b>	2	-
<b>OWNER</b>	131	37
<b>LEASE-HOLDER</b>	166	47
<b>NOT OWNER BUT DOES NOT PAY RENT</b>	4	1
<b>MASS/PUBLIC HOUSING</b>	49	14
<b>Total</b>	350	

Table 18. Frequency distributions and percentages of the reasons for moving houses for trestle production workers' households

<b>B4_ REASONS FOR MOVING1</b>
--------------------------------

	Frequency	Percent
TO MOVE IN TO A RESIDENCE WITH A LOWER RENT	57	30
TO MOVE IN TOGETHER WITH MY FAMILY	1	1
TO FIND A DIFFERENT JOB	7	4
TO FIND A DIFFERENT JOB FOLLOWING THE RETIREMENT	1	1
TO MOVE IN AS A SAFER AREA	1	1
TO BE CLOSE TO THE WORKPLACE	66	35
TO BUY A PROPERTY	35	19
OTHER	19	10
Total	187	

Table 19. Frequency distributions and percentages of the ownership status of the ownership status of goods for trestle production workers' households

D1- 352 OWNERSHIP STATUS OF PANEL TRESTLE PRODUCTION WORKER	HAS		DOES NOT HAVE	
	Frequency	Percent	Frequency	Percent
D1_ does household have a house	195	55,4	157	44,6
D1_ does household have a car	152	43,2	200	56,8
D1_ does household have a land in city	17	4,8	335	95,2
D1_ does household have store	7	2,0	345	98,0
D1_ does household have cropland in village	159	45,2	193	54,8
D1_ other	7	2,0	345	98,0

Table 20. Frequency distributions and percentages of the condition of chance on making savings for trestle production workers' households

<b>D14_ CAN YOU SAVE?</b>
---------------------------

	Frequency	Percent
OBSCURE	1	
NO, WE CAN'T SAVE	272	77,49
YES, WE CAN SAVE	79	22,51
Total	351	100

Table 21. Frequency distributions and percentages of the judgements on the continuation of the bind between coal and future of Zonguldak for the trestle production worker

<b>E1_BIND BETWEEN FUTURE OF ZONGULDAK AND COAL</b>		
	Frequency	Percent
YES, I THINK	286	81,3
N, I DON'T THINK	54	15,3
I DON'T KNOW, I'M AMBIVALENT	12	3,4
Total	352	100,0

Table 22.. Frequency distributions and percentages of the judgements on how closure of mines affect the live of of trestle production workers' households

<b>E2_CLOSURE OF MINES AFFECT LIFE</b>		
	frequency	percent
YES, AFFECTS TOO MUCH, WE CAN'T WORK AT ANOTHER JOB, WE'LL STARVE	119	33,8
*YES, AFFECTS BUT WE WILL STARVE	162	46,0
I DON'T KNOW, I AM AMBIVAENT	23	6,5
*NO, DOES NOT AFFECT	43	12,2
OTHER	5	1,4
Total	352	100,0

Table 23. Frequency distributions and percentages of the strategies on what to do in condition of closure of the mines for trestle production worker

<b>E2 (2) ve (4): what will he do?</b>
----------------------------------------

	frequency	percent
Obscure	43	20,98
Worker	23	11,22
Miner	7	3,41
I'll do anything else	4	1,95
I'll work at private sector	7	3,41
Services	121	59,02
Total	205	100,00

Table 24. Frequency distributions and percentages of the retrenchment conditions for trestle production workers' households

<b>E12 WILL LUKOIL AFFECT YOUR LIFE?</b>		
	frequency	percent
OBSCURE	2	0,6
YES, AFFECTS N TERMS OF FINDING JOBS	214	61,14
YES, AFFECTS IN TERMS OF ITS INFLUENCE ON CITY	96	27,43
I DON'T KNOW I'M AMBIVALENT	21	6,00
NO, AFFECTS CITY BUT NOT ME	12	3,43
NO, NOT AFFECTS AT ALL	7	2,00
Total	350	100,00

Table 25. Frequency distributions and percentages of the retrenchment conditions for trestle production workers' households

<b>E3_UNION ACTIVITY</b>
--------------------------



	Frequency	Percent
<b>YES, I THINK HAT</b>	155	44,0
<b>NO I DON'T THINK THAT</b>	165	46,9
<b>I DON'T KNOW, AMBIVALENT</b>	32	9,1
<b>Total</b>	352	100,0

Table 26. Frequency distributions and percentages of the retrenchment conditions for trestle production workers' households

<b>E4_ IN WHICH DIRECTION WOULD YOU DESIRE THE ACTIVITIES OF THE UNION?</b>		
	Frequency	Percent
<b>More political formation oriented</b>	77 in 352	21,90
<b>Improvement of working conditions</b>	307 in 352	87,2
<b>Practices for us to orient ourselves in post-mining work</b>	195 in 352	55,4
<b>Cooperation with institutions for post-retirement and against disemployment</b>	137 in 352	38,9
<b>Other</b>	105 in 352	29,8

Table 27. Frequency distributions and percentages of the retrenchment conditions for trestle production workers' households

<b>C13 IS/HAS HIS FATHER WORKING/WORKED IN MINING?</b>		
	Frequency	Percent
<b>YES, IS/HAS WORKING/WORKED</b>	222	63,1
<b>NO, IS/HAS NOT WORKING/WORKED</b>	130	36,9
<b>Total</b>	352	100,0

Table 28. Frequency distributions and percentages of the retrenchment conditions for trestle production workers' households

<b>E5_DO YOU WANT YOUR CHIDREN BE MINE WORKER?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>YES, I WANT</b>	35	9,9
<b>NO, I DON'T WANT</b>	310	88,1
<b>DON'T KNOW, AMBIVALENT</b>	7	2
<b>Total</b>	352	100

Table 29. Frequency distributions and percentages of the retrenchment conditions for trestle production workers' households

<b>E5_a_WHY DON'T YOU WANT YOUR CHILDREN BE MINE WORKERS?</b>		
<b>Self improvement</b>	186 in 310	60
<b>Health problems</b>	245 in 310	79,00
<b>Work at risk</b>	214 in 310	69,00
<b>Other</b>	28 in 310	9,00

Table 30. Frequency distributions and percentages of the retrenchment conditions for trestle production workers' households

<b>E10_DO YOU WANT YOUR CHILDREN TO LIVE IN ZONGULDAK</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>YES, I WANT</b>	166	47,2
<b>NO, I DON'T WANT</b>	159	45,2
<b>DON'T KNOW, AMBIVALENT</b>	27	7,7
<b>Total</b>	352	100,0

Table 31. Frequency distributions and percentages of the retrenchment conditions for trestle production workers' households

<b>E10_a_Why don't you want your children to live in Zonguldak?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>No sufficient education opportunities</b>	83 in 159	52,20
<b>No sufficient job opportunities</b>	136 in 159	85,53
<b>Not appropriate place for human health</b>	82 in 159	51,57
<b>Other</b>	22 in 159	13,84

Table 32. The education level of the children of the workers' households

<b>The education level of the children of worker households</b>	<b>0-5 age: pre-school</b>	<b>6-12 age: primary school</b>	<b>13-15 age: secondary</b>	<b>16-19 age: high school</b>	<b>20 and over age</b>

				school		
655	Total	169	271	86	72	57
literate	Number					
	%					
Primary school	Number		171			
	%		63.0996			
Primary school diploma	Number					
	%					
vocational secondary school diploma	Number					
	%					
Vocational secondary school student	Number			44		
	%			51.1628		
Vocational secondary school drop-out	Number					
	%					
High school diploma	Number					
	%					
High school student	Number				29	
	%				40.27778	
High school drop-out	Number					
	%					
Vocational/technical high school diploma	Number					
	%					
Vocational/technical high school student	number				7	
	%				9.722222	
Open university	Number					3
	%					5.26315789
University diploma	Number					
	%					
University/graduate	Number					15
Table 32 (continued)						
	%					26.3157895
University/	number					

graduate drop-out						
	%					

Table 33. Distribution of the education level of the children of the worker households in terms of age intervals.

<b>6-12 age: primary school</b>	Primary schooling ratio (%)	63.10
<b>13-15 yaş: secondary school</b>	Secondary schooling ratio(%)	51.16
<b>16-19 yaş: high school</b>	High school/vocational high schooling ratio (%)	50.00
<b>20 and over</b>	University/college/open university schooling rati (%)	31.58

Table 34. Frequency distributions and percentages of the judgements on the will on their children to live in Zonguldak for trestle production workers

<b>E10_a Why don't you want your children to live in Zonguldak?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>No sufficient education opportunities</b>	83 in 159	52,20
<b>No ufficient job opportunities</b>	136 in 159	85,53
<b>Not appropriate place for human health</b>	82 in 159	51,57
<b>Other</b>	22 in 159	13,84

Table 35. Frequency distributions and percentages of the judgements on living in Zonguldak for trestle production workers

<b>E11_IF YOU HAVE AN OPPORTUNITY WOULD YOU CONSIDER TO LIVE ZONGULDAK?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>YES, I'D CONSIDER</b>	198	56,3
<b>NO, I WOULD'T CONSIDER</b>	142	40,3
<b>DON'T KNOW, AMBIVALENT</b>	12	3,4
<b>Total</b>	352	100,0

Table 36. Frequency distributions and percentages of the judgements on the preference of leaving Zonguldak for trestle production workers

<b>E11a_WHY WOULD YOU WANT TO LEAVE ZONGULDAK?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>E11a_1_no sufficient job opportunities</b>	129 in 198	65,15
<b>E11a_2_no sufficient housing opportunities</b>	74 in 198	37,37
<b>E11a_3_no sufficient health conditions</b>	93 in 198	46,97
<b>E11a_4_not feel secure</b>	31 in 198	15,66
<b>E11a_5_not pleased working conditions</b>	38 in 198	19,19
<b>E11a_6_anxious to lose job</b>	12 in 198	6,06
<b>E11a_7_city collapsing, hopeless</b>	63 in 198	31,82
<b>E11a_8_other</b>	25 in 198	12,63

Table 37. Frequency distributions and percentages of the judgements of considering Zonguldak as a retirement city for trestle production workers

<b>E13_CAN YOU CONSIDER ZONGULDAK AS A RETIREMENT CITY?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>OBSCURE</b>	1	-
<b>YES, I CAN CONSIDER</b>	274	78,06
<b>NO, I CAN'T CONSIDER</b>	77	21,94
<b>Total</b>	351	100,00

Table 38. Frequency distributions and percentages of the judgements on considering the city as a retirement city for trestle production workers'

<b>E13_a WHY YOU CAN CONSIDER?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>OBSCURE</b>	4	-
<b>NO SUFFICIENT JOB OPPORTUNITIES</b>	117	43,33
<b>LACK OF INVESTMENTS</b>	36	13,33
<b>DUE TO TTK</b>	61	22,59
<b>POVERTY</b>	1	0,37
<b>DUE TO EMIGRATION</b>	38	14,07
<b>SOCIAL LIFE OPPORTUNITIES</b>	7	2,59
<b>FEW YOUNG POPULATION</b>	3	1,11
<b>MAJORITY OF RETIRED PEOPLE</b>	4	1,48
<b>NO IDEA</b>	1	0,37
<b>WORKERS ARE EXCLUDED</b>	1	0,37
<b>BEING A CITY</b>	1	0,37
<b>Total</b>	270	100

Table 39. Frequency distributions and percentages of the judgements on not considering the city as a retirement city for trestle production workers'

<b>E13_a WHY YOU CAN'T CONSIDER?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>OBSCURE</b>	25	-
<b>AVAILABILITY OF JOB OPPORTUNITIES</b>	14	26,92
<b>AVAILABILITY OF INVESTMENTS</b>	6	11,54
<b>INCREASE IN EDUCATION CHANCES</b>	4	7,69
<b>CONTINUING AGRICULTURAL PRODUCTION</b>	6	11,54
<b>HAVING IN-MIGRATION</b>	5	9,62
<b>SOCIAL LIFE</b>	7	13,46
<b>EXPENSIVENESS</b>	6	11,54
<b>TTK</b>	1	1,92
<b>LEAVING OF THE RETIRED ONES</b>	3	5,77
<b>Total</b>	<b>52</b>	<b>100,00</b>

Table 40. Frequency distributions and percentages of the the preferences of doing another job other than mining for trestle production workers

<b>E6_ WOULD YOU DO ANOTHER JOB OTHER THAN MINING IF YOU HAD THE CHANCE</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>YES, I'D DO ANOTHER JOB</b>	293	83,2
<b>NO, I WOULDN'T DO ANOTHER JOB</b>	49	13,9
<b>DON'T KNOW, AMBIVALENT</b>	10	2,8
<b>Total</b>	<b>352</b>	<b>100,0</b>

Table 41. Frequency distributions and percentages of the judgements on considering private mining enterprises as an alternative work area for trestle production workers



<b>E7_ Do you consider private mining enterprises as working field in the post-retirement or in case of disemployment?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>YES, I CONSIDER</b>	69	19,6
<b>NO, I DON'T CONSIDER</b>	263	74,7
<b>DON'T KNOW, AMBIVALENT</b>	20	5,7
<b>Total</b>	352	100,0

Table 42. Frequency distributions and percentages of the judgements on preferences on working private mining enterprises for trestle production workers' households

<b>E8_ WOULD YO PREFER PRIVATE MINING ENTERPRISES TO WORK?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>YES, I CONSIDER</b>	61	17,3
<b>NO, I DON'T CONSIDER</b>	266	75,6
<b>DON'T KNOW, AMBIVALENT</b>	25	7,1
<b>Total</b>	352	100,0

Table 43. Frequency distributions and percentages of the strategies chosen in condition of closure if TTK for trestle production workers

<b>E9_IF TTK CLOSED WHAT WOULD YOU DO?</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>I HAVE CONNECTIONS WITH VILLAGE, I CAN DEAL WITH AGRICULTURE</b>	46	13,1
<b>I'D GO FROM ZONGULDAK TO FIND A JOB</b>	83	23,6
<b>I'D CONTINUE AS MINE WORKER IN ANOTHER PLACE</b>	43	12,2
<b>I'D GET SUPPORT FROM MY RELATIVES FOR A PERIOD, START BUSINESS</b>	7	2,0
<b>I'D LIVE ON SECURITY CONTRIBUTIONS FOR A PERIOD, I'D DO ANY JOB I FIND</b>	8	2,3
<b>THE UNION WOULD BE AFFECTIVE IN THIS DECISION</b>	11	3,1
<b>I'D DO MY PREVIOUS JOB</b>	112	31,8
<b>I'D SHIFT TO ANOTHER POSITION IN PUBLIC</b>	2	,6
<b>I'D RETIRE</b>	34	9,7
<b>I'D MIGRATE</b>	6	1,7
<b>Total</b>	352	100,0

Table 44. Frequency distributions and percentages of the judgements on the comparison of current situation and period before five years for trestle production worker in their perspectives

<b>E14_ WHAT IS THE DIFFERENCE BETWEEN CURRENT SITUATION AND THE CONDITION BEFORE FIVE YEARS</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>GOTTEN VERY WELL</b>	9	2,6
<b>GOTTEN WELL</b>	137	38,9
<b>GOTTEN NO CHANGE</b>	135	38,4
<b>HAVE WORSENERD</b>	68	19,3
<b>HAVE WORSENERD VERY MUCH</b>	2	,6
<b>DON'T KNOW</b>	1	,3
<b>Total</b>	352	100,0

Table 45. Frequency distributions and percentages of the expectations for the next five years for trestle production workers

<b>E15 EXPECTATIONS IN FIVE YEARS LATER</b>		
	<b>Frequency</b>	<b>Percent</b>
<b>OBSCURE</b>	96	27,3
<b>INCREASE IN JOB OPPORTUNITIES</b>	64	25,00
<b>INCREASE IN INVESTMENTS</b>	17	6,64
<b>INCREASE IN EDUCATION OPPORTUNITIES</b>	4	1,56
<b>INCREASE IN WORK SECURITY</b>	10	3,91
<b>IMPROVEMENT IN SOCIAL LIFE</b>	33	12,89
<b>WILL BE BETTER THAN TODAY</b>	43	16,80
<b>WILL BE WORST THAN TODAY</b>	21	8,20
<b>NOTHING WILL CHANGE</b>	21	8,20
<b>RETIREMENT</b>	10	3,91
<b>MARRIAGE</b>	2	0,78
<b>BE HAPPY</b>	1	0,39
<b>NO EXPECTATION</b>	5	1,95
<b>IMPROVEMENT OF OUR FINANCIAL STATUS</b>	3	1,17
<b>IMPROVEMENT OF HEALTHCONDITIONS</b>	1	0,39
<b>CIVIL RIGHTS WLL BE IMPROVED</b>	5	1,95
<b>FUTURE OF CHILDREN WILL BE GOOD</b>	1	0,39
<b>NO IDEA</b>	12	4,69
<b>OPENING OF LUKOIL</b>	1	0,39
<b>PAYING MY DEBT</b>	1	0,39
<b>INCREASE IN LIFE STANDARDS</b>	1	0,39
<b>Total</b>	256	100

## APPENDIX C

### TECHNICAL REPORT ON TTK AND CHARCOAL PRODUCTION IN ZONGULDAK BASIN: A COMPARATIVE EVALUATION ON FEASIBILITY TOGETHER WITH ITS STRATEGIC ENTITY

The charcoal has been a component of the fossil fuel supply of Turkey that forms the 90% share of her primary energy consumption whose 80% of its share belongs to imported fossil fuel (DPT, 2007, p.13). The charcoal in Zonguldak Basin as a domestic resource of high use till the mid-1970s is specific due to its cokeability, an important asset for use of it in the iron and steel making industry and due to its use in energy sector, in coal-burning thermal power plants. General profile of change of charcoal production in the basin has been observed as decreasing production, contracting labour force via lay offs and early retirements, disintegration within the early production cluster especially owing to low standardized and insufficient production capacity of cokeable hard coal that is used in the iron and steel manufacturing industry and that remains above the prices of those imported from other parts of the world. The high production cost owes to the insuitability of the basin for the actualization of mechanization in the production process based on labour-intensive work. The production of charcoal in the basin has witnessed the emergence of private coal mining firms starting production after 1990 and disintegration in production process through subcontracting via royalty implications of TTK in the basin. The disintegration in the vertically upgraded firm, TTK, has also been observed in washery stage a complementary process in production process as a post-extraction activity to enrich the content of the coal produced through privatization of the washery stage and a technological change by introduction of mobile washeries replacing the old labour-intensive working process in the basin.

#### A. RESERVES: CHARCOAL RESERVES IN ZONGULDAK BASIN

1. A production level of saleable 1.675.283 tons of charcoal in 2007 date. The available established capacity of TTK (Turkish Charcoal Institution) revealing a potential for production of 4,5 – 5 million/year saleable charcoal (DPT, 2006, p.174). The current use 2000 of the established capacity signifying a decrease of 40% especially for the period after when compared with the mid-1970 denoting its peak value (DPT, 2006, p.174).
2. The extraction method: a labor intensive production process; mechanization is not applicable in the basin due to the geological structure of the coal veins;

deep underground mining; productivity directly related to the number of the most capable labour group of production workers (pano ayak üretim işçileri) integrated in the production process.

3. The reserve: 1.3 billion tons of total reserve of hard coal in the basin according to the exploration studies at -1200m. depth which of 41% (around 550 million tons) is composed of the observable reserve (DPT, 2006, p.173). 67% of the total reserve forming the cokeable charcoal in the basin where are found in Kozlu, Üzülmöz and Karadon regions in the basin whereas Armutçuk region includes the semi-cokeable charcoal to be used through being collated with other charcoal having coking quality in production of coke as observed below (DPT, 2006, p.173-174).

The Charcoal Reserves in Turkey (Million Tons)							
Kind of Reserve	Cokeable				Semi-cokeable	Noncokeable	Total
	Kozlu	Üzülmöz	Karadon	Toplam	Armutçuk	Amasra	
<b>Observable</b>	79,8	141,7	143,3	364,8	12,9	173,1	<b>550,8</b>
<b>Probable</b>	40,5	94,3	159,2	294,0	15,9	115,1	<b>425,0</b>
<b>Possible</b>	47,9	74,0	117,0	259,2	7,9	121,5	<b>368,3</b>
<b>TOTAL</b>	<b>168,3</b>	<b>310,0</b>	<b>419,5</b>	<b>897,8</b>	<b>36,6</b>	<b>409,7</b>	<b>1.344,1</b>

Reference: TTK

Reference: (DPT, 2006, p.173-174)

\* Detailed information on charcoal reserves

ARMUTÇUK ESTABLISHMENT						
CATEGORY	RANGE	PRESENT	VISIBLE	PROBABLE	AVAILABLE	TOTAL
Present		1.605.000				
Visible	200/-650		10.204.975			
Probable	0.230769			15.859.636		
Available	0.307692				7.883.164	
<b>TOTAL VALUE FOR THE ESTABLISHMENT</b>		1.605.000	10.204.975	15.859.636	7.883.164	35.552.775

KOZLU ESTABLISHMENT						
CATEGORY	RANGE	PRESENT	VISIBLE	PROBABLE	AVAILABLE	TOTAL
Present		3.469.680				
Visible	Mostra/-700		69.222.934			
Probable	0.777778			40.539.000		
Available	0.75				47.975.000	
<b>TOTAL VALUE FOR THE ESTABLISHMENT</b>		3.469.680	69.222.934	40.539.000	47.975.000	161.206.614

ÜZÜLMEZ ESTABLISHMENT						
ASMA-DİLAVER ESTABLISHMENT						
CATEGORY	RANGE	PRESENT	VISIBLE	PROBABLE	AVAILABLE	TOTAL
Present		2.998.519				
Visible	Mostra/-600		136.972.479			
Probable	0.75			32.060.000		
Available	0.666667					
<b>TOTAL</b>		2.998.519	136.972.479	32.060.000		172.030.998
BAĞLIK-İNAĞZI ESTABLISHMENT						
Present						
Visible						
Probable	0/-1200			62.282.000		
Available	0.666667				74.020.000	
<b>TOTAL</b>				62.282.000	74.020.000	136.302.000
<b>TOTAL VALUE FOR THE ESTABLISHMENT</b>		2.998.519	139.972.479	94.342.000	74.020.000	308.332.998

4. Minimum mine life of mines (basis of feasibility of mines): minimum lifespan of the mines: 180 years (Genel Maden-İş, GMİS, 2008)

- 4.1. The technical lifetime of shafts and mine (Not clearly known)
- 4.2. The Volatile degree and matter content:

Matter content via analysis values: The content properties of the charcoal produced by TTK in the Zonguldak Coal Basin

	ZONGULDAK WASHERY				ÇATALAĞZI WASHERY			
	10-100	10-18	0-10	Filtration	10-100	10-18	0-10	Filtration
Humidity (ar)%	4 ± 1	5 ± 1	11 ± 2	15 ± 2	4 ± 1	5 ± 1	8 ± 1	14 ± 2
Ash (ar)%	15 ± 2	15 ± 2	11 ± 2	40 ± 2	11 ± 2	13 ± 2	9 ± 2	39 ± 2
Volatile ingredient (ar)%	27 ± 1	26 ± 1	26 ± 1	17 ± 1	28 ± 1	27 ± 1	28 ± 1	18 ± 2
Constant Carbon (ar)%	57 ± 2	54 ± 2	52 ± 2	28 ± 2	57 ± 2	55 ± 2	55 ± 2	29 ± 2
Above Heat (ar) kcal/kg	6870 ± 150	6605 ± 150	6545 ± 150	3450 ± 150	7060 ± 150	6800 ± 150	6955 ± 150	3645 ± 150
Below Heat (ar) kcal/kg	6630 ±	6365 ±	6275 ±	3245 ±	6810 ±	6555 ±	6690 ±	3440 ±

	150	150	150	150	150	150	150	150
Ash (d)%	14 ± 2	16 ± 2	12 ± 2	47 ± 3	12 ± 2	14 ± 2	10 ± 1	45 ± 3
Volatile ingredient (d)%	28 ± 1	27 ± 1	29 ± 1	20 ± 2	29 ± 1	28 ± 1	30 ± 1	21 ± 2
Constant Carbon (d)%	58 ± 2	57 ± 2	59 ± 2	33 ± 2	59 ± 2	58 ± 2	60 ± 2	34 ± 2
Above Heat (d) kcal/kg	7155 ± 150	6955 ± 150	7355 ± 150	4060 ± 150	7355 ± 150	7155 ± 150	7560 ± 150	4235 ± 150
Below Heat (d) kcal/kg	6925 ± 150	6730 ± 150	7120 ± 150	3920 ± 150	7120 ± 150	6925 ± 150	7320 ± 150	4090 ± 150
Carbon (C)%	75-78	75-78	77-79	43-45	76-78	75-78	76-80	45-47
Hydrogen (H)%	3,5-5	3,5-5	3,5-5	2-3,5	3,8-5	3,8-5	3,8-5	2,5-3
Total Sulphur (S)%(MAX)	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Nitrogen (N)%	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1
Oxygen (O)%	5-6.5	5-6.5	5-6.5	5-6.5	5-6.5	5-6.5	5-6.5	5-6.5
Ash melt. (Min)°C	1350	1350	1350	1350	1350	1350	1350	1350
Dilatation	+60, +90	+60, +90	+60, +90	--	+70, +150	+70, +150	+70, +150	--
Gray-King	G3-G9	G3-G9	G3-G9	--	G3-G9	G3-G9	G3-G9	--
FSI	7-9	7-9	7-9	--	7-9	7-9	7-9	--
<b>INTERNATIONAL CLASSIFICATION</b>								
Code No	533-534	533-534	533-534	--	534	534	534	--
Class	VC-VD	VC-VD	VC-VD	--	VC	VC	VC	--
Cokeability	Good	Good	Good	--	Very good	Very good	Very good	--
<b>ASTM RANK CLASSIFICATION</b>								
Rank Scale	68-149	68-149	68-150	67-144	68-149	68-150	68-150	67-144
Class	*	*	*	*	*	*	*	*
Group	hvAb	hvAb	hvAb	hvAb	mvb	mvb	mvb	Mvb

Reference: TTK (Turkish Charcoal Institution) Website

	ARMUTÇUK WASHERY				AMASRA WASHERY	
	18/100	0-18	Filtration	High (0-10)	18-100	0-18
Humidity (ar)%	5 ± 1	10 ± 2	14 ± 2	12 ± 2	5 ± 1	11 ± 1
Ash (ar)%	10 ± 2	10 ± 2	40 ± 2	18 ± 2	13 ± 2	12 ± 2
Volatile ingredient (ar)%	33 ± 1	31 ± 1	18 ± 2	26 ± 1	36 ± 1	34 ± 1
Constant Carbon (ar)%	53 ± 2	49 ± 2	28 ± 2	44 ± 2	46 ± 2	43 ± 2
Above Heat (ar) kcal/kg	6900 ± 150	6470 ± 150	3355 ± 150	5560 ± 150	6145 ± 150	5760 ± 150
Below Heat (ar) kcal/kg	6630 ± 150	6365 ± 150	6275 ± 150	3245 ± 150	6810 ± 150	6555 ± 150
Ash (d)%	11 ±	11 ±	47 ±	20 ±	14 ±	14 ±

	2	2	3	2	2	2
<b>Volatile ingredient (d)%</b>	34 ± 1	34 ± 1	21 ± 2	30 ± 1	38 ± 1	38 ± 1
<b>Constatnt Carbon (d)%</b>	55 ± 2	55 ± 2	32 ± 2	50 ± 2	48 ± 2	48 ± 2
<b>Above Heat (d) kcal/kg</b>	7190 ± 150	7190 ± 150	3900 ± 150	6320 ± 150	6470 ± 150	6470 ± 150
<b>Below Heat (d) kcal/kg</b>	6955 ± 150	6955 ± 150	3755 ± 150	6105 ± 150	6230 ± 150	6230 ± 150
<b>Carbon (C)%</b>	73-77	73-77	43-45	64-67	70 ± 3	70 ± 3
<b>Hydrogen (H)%</b>	3.5-5.3	3.5-5.3	2.5-3.5	3-5	4 ± 1	4 ± 1
<b>Total Sulphur (S)%(MAX)</b>	Max0.9	Max0.9	Max0.9	Max0.9	Max1	Max1
<b>Nitrogen (N)%</b>	0.8-1.4	0.8-1.4	0.8-1.4	0.8-1.4	1.2 ± 0.4	1.2 ± 0.4
<b>Oxigen (O)%</b>	7-9	7-9	5-6.5	7-9	8 ± 2	8 ± 2
<b>Ash melt. (Min)°C</b>	1270	1270	1270	1270	1270	1270
<b>Dilatation</b>	-15,+40	-15,+40	--	-15,+25	Contrc.	Contrc.
<b>Gray -King</b>	F-G	F-G	--	F-G	B	B
<b>FSI</b>	2-4	2-4	--	2-4	0-1	0-1
<b>INTERNATIONAL CLASSIFICATION</b>						
<b>Code No</b>	622	622	--	--	711	711
<b>Class</b>	VI.A	VI.A	--	--	VII	VII.
<b>Cokeability</b>	Middle	Middle	--	--	Very weak	Very weak
<b>ASTM RANK CLASSIFICATION</b>						
<b>Rank Scale</b>	63-145	63-145	63-139	63-143	58-135	58-135
<b>Class</b>	II.Bitum	II.Bitum	II.Bitum	II.Bitum	II.Bitum	II.Bitum
<b>Group</b>	hvAb	hvAb	mvb	hvAb	hvBb	hvBb

Reference: TTK (Turkish Charcoal Institution) Website (Abbreviations: (ar) : For original coal (d) : For dry coal, FSI : Free inflatibility index, hvAb : High volatile ingredient A bituminous coal, mvb : Middle volatile ingredient bituminous coal, hvBb : High volatile ingredient B Bituminous coal, Cntrc. : Contraction)

The domestic charcoal production has not been sufficient to compensate the demand of Turkey for charcoal at a value of 20.6 million tons and also that of iron and steel manufacturing at a value of 5.5 million tons. It has been reported that charcoal production by TTK has only compensated 400 thousand tons of iron and steel manufacturing industry in Turkey. The cost of use of imported charcoal has been stated as 2 billion dolars approximately (GMİS, 2008, p. 3).

PERIOD/DATE	QUANTITY OF SALEABLE COAL PRODUCTION
1865 till now	400 million tons (approximate value)
1942 till now	214 million tons
1967	5 million tons
1974	8.5 million tons (raw coal) (peak value) 5 million tons



Period after 1982	Below 4 million tons
2004	Below 2 million tons

Reference: (DPT, 2006, p.176)

WORLD OBSERVABLE COAL RESERVES for 2003					(million ton)
	Anthracite and bituminous coal	Low bituminous and lignite	TOTAL	Share in total (%)	Reserve/ratio production
North America	120222	137561	257783	26.2	247
South and Central America	7738	14014	21752	2.2	354
Europe	144874	210496	355370	36.1	300
Africa and Middle East	56881	196	57077	5.8	233
Asia-Pacific	189347	103124	292471	29.7	113
<b>WORLD TOTAL</b>	<b>519062</b>	<b>465391</b>	<b>984453</b>	<b>100</b>	<b>192</b>

Reference: (World Energy Council, WEC, Turkish National Committee, TNC, 2007, p.1-8)

The place of Turkey's hard coal (anthracite) reserves in the world:

World Coal Reserves for 2004 (Million Ton)					
Regions/Countries	Anthracite and Bituminous	Alt Bitümlü ve Linyit	Total	Share in total (%)	Reserve/Production Ratio (Yıl)
USA	111.338	135.305	246.643	27,1	245
Canada	3471	3.107	6.578	0,7	100
Mexico	860	351	1.211	0,1	135
<b>North America (Total)</b>	<b>115.669</b>	<b>138.763</b>	<b>254.432</b>	<b>28,0</b>	<b>235</b>
Brasil	-	10.113	10.113	1,1	**
Colombia	6.230	381	6.611	0,7	120
Venezuela	479	-	479	0,1	53
Other South and Central America	992	1.698	2.690	0,3	**
<b>South and Central America (Total)</b>	<b>7.701</b>	<b>12.192</b>	<b>19.893</b>	<b>2,2</b>	<b>290</b>
Bulgaria	4	2.183	2.187	0,2	84
Czech Republic	2094	3.458	5.552	0,6	90
France	15	-	15	-	17
Germany	183	6.556	6.739	0,7	32
Greece	-	3.900	3.900	0,4	55
Hungary	198	3.159	3.357	0,4	240
Kazakistan	28.151	3.128	31.279	3,4	360
Poland	14.000	-	14.000	1,5	87
Romania	22	472	494	0,1	16
Russia Federation	49.088	107.922	157.010	17,3	**
Spain	200	330	530	0,1	26
Turkey	278	3.908	4.186	0,5	87
Ukraine	16.274	17.879	34.153	3,8	424
England	220	-	220	-	9
Other Europe and Eurasia	1.529	21.944	23.473	2,6	341
<b>Europe and Eurasia (Total)</b>	<b>112.256</b>	<b>174.839</b>	<b>287.095</b>	<b>31,6</b>	<b>242</b>
South Africa	48.750	-	48.750	5,4	201
Zimbabwe	502	-	502	0,1	154

Other Africa	910	174	1.084	0,1	490
Middle East	419	-	419	-	399
<b>Africa and Middle East (Total)</b>	<b>50.581</b>	<b>174</b>	<b>50.755</b>	<b>5,6</b>	<b>204</b>
Australia	38.600	39.900	78.500	8,6	215
China	62.200	52.300	114.500	12,6	59
India	90.085	2.360	92.445	10,2	229
Indonesia	740	4.228	4.968	0,5	38
Japan	359	-	359	*	268
New Zealand	33	538	571	0,1	115
North Korea	-	300	300	0,1	21
Pakistan	-	3.050	3.050	0,3	**
South Korea	-	80	80	*	25
Thailand	-	1.354	1.354	0,1	67
Vietnam	150	-	150	*	6
Other Asia Pasific	97	215	312	*	34
<b>Asia Pasific (total)</b>	<b>192.564</b>	<b>104.325</b>	<b>296.889</b>	<b>32,7</b>	<b>101</b>
<b>WORLD TOTAL</b>	<b>478.771</b>	<b>430.293</b>	<b>909.064</b>	<b>100</b>	<b>164</b>
OECD	172.363	200.857	373.220	41,1	180
Former SSCB	94.513	132.741	227.254	25,0	**
Other Developing Diđer Market Economies	211.895	96.695	308.590	33,9	102
<b>Reference: BP Statistical Reviv of World Energy, 2005</b>					
* below % 0,05 ** above 500 years					

<b>Charcoal Producing Countries and World Charcoal Production (Million Ton) (2003)</b>									
<b>COUNTRY</b>	<b>Type</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
China	Coke	148,0	132,1	135,6	131,7	123,2	123,9	128,9	134,8
	Steam	1,2	1.269,7	1.231,6	1.173,8	1.115,1	1.107,3	1.139,0	1.191,2
	Total	149,2	1.401,8	1.367,2	1.305,5	1.238,3	1.231,2	1.267,9	1.326,0
USA	Coke	77,2	76,8	74,1	67,2	53,5	55,1	44,9	41,2
	Steam	781,5	808,4	836,3	868,8	865,7	840,1	906,3	875,5
	Total	858,7	885,2	910,4	936,0	919,2	895,2	951,2	916,7
India	Coke	35,2	32,3	30,3	35,0	29,6	27,7	25,5	26,2
	Buhar	233,5	245,5	253,3	253,1	271,1	282,8	299,1	307,5
	Toplam	268,7	277,8	283,6	288,1	300,7	310,5	324,6	333,7
Australia	Kok.	79,7	82,5	89,5	89,3	97,8	104,4	109,7	114,0
	Buhar	111,4	110,9	116,8	131,8	125,9	135,0	154,5	162,0
	Toplam	191,1	193,4	206,3	221,1	223,7	239,4	264,2	276,0
Russia	Kok.	55,6	50,7	48,1	47,7	54,9	51,0	53,8	53,4
	Buhar	106,8	102,1	98,6	92,8	97,5	101,5	110,9	110,2
	Toplam	162,4	152,8	146,7	140,5	152,4	152,5	164,7	163,6
S. Africa	Kok.	3,9	3,5	3,6	2,2	1,6	1,5	1,3	1,3
	Buhar	202,3	202,8	216,4	220,8	221,9	222,7	224,6	221,6
	Toplam	206,2	206,3	220,0	223,0	223,5	224,2	225,9	222,9
Poland	Kok.	28,7	25,7	26,5	22,0	21,4	17,2	17,0	15,8
	Buhar	108,4	112,1	111,2	93,7	88,8	86,1	86,9	86,7

	Toplam	137,1	137,8	137,7	115,7	110,2	103,3	103,9	102,5
UK	Kok.	0,6	0,7	1,1	0,5	0,2	0,2	0,3	0,3
	Buhar	52,4	49,5	47,4	40,6	36,8	30,9	31,6	29,2
	Toplam	53,0	50,2	48,5	41,1	37,0	31,1	31,9	29,5
Germany	Kok.	31,6	28,8	27,0	23,6	23,8	18,8	17,1	18,0
	Buhar	27,2	24,4	24,2	21,7	20,0	18,5	13,5	11,2
	Toplam	58,8	53,2	51,2	45,3	43,8	37,3	30,6	29,2
Other Countries	Kok.	87,8	86,6	91,3	85,4	85,5	90,7	93,2	97,0
	Buhar	1.492,4	295,1	297,0	302,4	300,0	317,7	342,9	339,9
	Toplam	1.580,2	381,7	388,3	387,8	385,5	408,4	436,1	436,9
TOTAL	<b>Kok.</b>	<b>548,3</b>	<b>519,7</b>	<b>527,1</b>	<b>504,6</b>	<b>491,5</b>	<b>490,5</b>	<b>491,7</b>	<b>502,0</b>
	<b>Buhar</b>	<b>3.117,1</b>	<b>3.220,5</b>	<b>3.232,8</b>	<b>3.199,5</b>	<b>3.142,8</b>	<b>3.142,6</b>	<b>3.309,3</b>	<b>3.335,0</b>
<b>GENERAL TOTAL</b>		<b>3.665,4</b>	<b>3.740,2</b>	<b>3.759,9</b>	<b>3.704,1</b>	<b>3.634,3</b>	<b>3.633,1</b>	<b>3.801,0</b>	<b>3.837,0</b>
Reference: IEA/OECD Coal Information 2003; DPT, 2006, p.161									

## B. MINING METHOD

As de Jong declares in his study, "Strategic assessment of coal fields in the Netherlands" the mining method is important in feasibility of coal mining due to its relation to output, automation level, risk minimisation and cost effectiveness.

1. The mining method and its relation to output, automation level, minimisation of risks, cost effectiveness: As already mentioned, a labor intensive production process is dominant in the deep underground mining in the Zonguldak basin. Longwall method is dominant in deep underground mining process in Zonguldak except Amasra enterprise of TTK where coal is produced by pneumatic explosion (GMİS, 2008).  
Reference: GMİS, 2008

## C. MINING COSTS: Capacity, production and production costs: a comparative evaluation

Dimensions in evaluating mining costs has been summarized referring to a similar study based on the evaluation of feasibility of mining in the Netherlands (De Jong). Simply, mining costs relate to "a production cost price estimation based on historic

data, data from active mining operations in comparable basins and supplier data". Calculation of mining costs can be actualized taking into consideration of costs of the shaft construction; costs of the coal washery plant, costs and data related to development (number of working days per year, productive longwall days (12 h in two shifts/day), number of longwall displacements per year, rate of average reject content in the Run-of-Mine, existence of additional costs after washing till shipping away, average a total of underground conveyor length, length of yearly development (m) (minimum cross section 2 \* 3 m), length (m) per shift of 5 persons, water inflow in m<sup>3</sup> / min, ventilation in m<sup>3</sup> / min (620 kW), internal transport, estimated maintenance in x% of the yearly depreciated costs, added specific cost estimations involving "depreciation period, land purchase, insurance, mine damage reservation, rehabilitation costs, mine lease, wage level etc (De Jong).

Further assumptions with reference to feasibility has been stated as:

- Estimation of the yearly production to employ an estimated number of employed miners
- Expected mine life span
- The average level of price of coal
- The costs of shaft delving (construction of shafts) and its share in investment
- Future developments for the energy market acting as decisive for the feasibility (De Jong)

"The access to the coal", "manpower requirements" determined to be "the largest operational cost factor", "the coal quality and industrial application of the coal" are the major factors in evaluating mine feasibility (De Jong).

## 1. Capacity of TTK in comparison to other public establishments

Series No.	The Public Establishments	Location	Specialization in production	The share of foreign investment (%)	The number of labour for 2005	Capacity	unit
1	TKİ (Turkish Coal Institution)	Regions	Lignite	0	10152	45000000	ton
2	EÜAŞ*_Afşin Elbistan Linyit Enterprise	Elbistan	Lignite		1644	15000000	ton
	EÜAŞ*_Kangal Coal Enterprise	Kangal	Lignite		345	3800000	ton
	EÜAŞ*_Park Termik _park Tek.	Çayırhan	Lignite			5000000	
3	TTK_ Turkish Charcoal Institution	Zonguldak	Charcoal	0	13200	4500000	ton
		Zonguldak	Charcoal	0	1300	250000	
4	Türkiye Petrolleri A.O. (Turkish Petroleum A.O.)	Ankara	Oil		3906	10111540	barrel
		Ankara	Natural Gas	0		550000000	M3
5	ETİ Maden İşletmeleri (ETİ Mine Enterprises)	Enterprises	Raw boron	0	2530	3420000	ton
			Consantrated boron			2450000	ton
			Refined boron			830000	ton

- EÜAŞ: Electricity Production Anonym Company (DPT, 2007, p.9)

## 2. The establishments in the charcoal sector

The establishments in the charcoal sector						
Order No	The Establishment	Location	Production	Share of Foreign Capital (%)	2005	
					Number of labour	Capacity (1000 ton)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Public enterprise TTK	Zonguldak	Charcoal	-	13.200*	4.500
2	Private Sector 22 Small area	Zonguldak	Charcoal	-	1.300**	250
3	Private sector 4 Large Area	Zonguldak Bartın	Charcoal	-	-	-
<b>Total</b>					<b>14.500</b>	<b>4.750</b>

\* 200 persons working in the subcontracted firms

\*\* Estimated value

It is stated that there exists a tendency of increasing amount of investment in the provision of coal production by the private sector in the basin in the remaining large coal reserves in the recent years. There also exists an expectation on the increasement of charcoal production by the private sector starting from 2006. The comparative evaluation on charcoal production in the basin by TTK and the private sector also reveals the increasing tendency in production and developing capacity toward private sector (DPT, 2006, p. 174-175).

## 2. Changing production levels and capacities for charcoal production

Production in mining sector (in magnitude)														
(1000 Ton)														
Order No	Capital units	YEARS							YEARLY INCREASES (%)					
		1999	2000	2001	2002	2003	2004	2005(T)	2000	2001	2002	2003	2004	2005 (T)
	Mining of Mine Coal	2131	2392	2494	2317	2059	1920	2115	12,2	4,3	-7,1	-11,1	-6,8	10,2
1	Charcoal (Saleable)	2131	2392	2494	2317	2059	1920	2115	12,2	4,3	-7,1	-11,1	-6,8	10,2
1a	Charcoal for coke	262	388	566	448	511	458	304	48,1	45,9	-20,8	14,1	-10,4	-33,6
1b	Charcoal (other)	1869	2004	1928	1869	1548	1462	1811	7,2	-3,8	-3,1	-17,2	-5,6	23,9

Reference: TÜİK in DPT, 2007, P. 35-36.

The Capacity Aspect in the Charcoal Sector												
Order No	Establishment	Capital unit	Capacity and CUR (Capacity usage ratio)	Capacity Unit	YEARS							
					1999	2000	2001	2002	2003	2004	2005	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
1	TTK	Charcoal	Capacity	(1000 ton)	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500
			Realization	(1000 ton)	1.990	2.257	2.357	2.242	2.011	1.881	1.665	
			CUR	%	44	50	52	50	45	42	37	
2	Private sector 22 Small Area	Charcoal	Capacity	(1000 ton)	349	130	142	353	373	394	250	
			Realization	(1000 ton)	141	135	140	75	48	39	*450	
			CUR	%	40	104	99	21	13	10	180	
3	Private sector 4** Large Area	Charcoal	Capacity	(1000 ton)	-	-	-	-	-	-	-	
			Realization	(1000 ton)	-	-	-	-	-	-	-	
			CUR	%	-	-	-	-	-	-	-	

\*Expected \*\* To be started after 2006

Reference: DPT, 2006, p. 175. CUR: capacity usage ratio

The royalty implications in the Zonguldak basin have been started after 1989 that can be explained as start for subcontracting process of coal production actualized by private firms in the basin for the near surface, scattered and small scale reserves under the legal right of TTK on the reserves (DPT, 2006, p.176). This event has started the disintegration process in the vertically integrated state owned enterprise in the early 1990s. The production quantities of saleable hard coal

together with the production values have been stated in DPT (2006, p.176) for the period 1995-2005.

Production Quantities (1000 Ton)															
Order No	Establishment	Capital units	YEARS							YEARLY INCREASEMENT (%)					
			1999	2000	2001	2002	2003	2004	2005	2000	2001	2002	2003	2004	2005
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(5/4)	(6/5)	(7/6)	(8/7)	(9/8)	(10/9)
1	TTK	Charcoal piece	272	289	312	301	281	317	198	6,3	8,0	-3,5	-6,6	11,3	-38
		metallurgic	262	388	566	448	511	458	304	14,8	14,6	-11	11,4	-10	-34
		filtration	1456	1582	1479	1495	1219	1106	1163	10,8	-6,5	1	-18	-9	5
		<b>Total</b>	<b>1990</b>	<b>2250</b>	<b>2357</b>	<b>2242</b>	<b>2011</b>	<b>1881</b>	<b>1665</b>	<b>13</b>	<b>5</b>	<b>-5</b>	<b>-10</b>	<b>-6</b>	<b>-11</b>
2	Private Sector	Charcoal	141	135	137	75	48	39	*450	-4,5	1	-45	-36	-19	1053
<b>General Total</b>		<b>Charcoal</b>	<b>2131</b>	<b>2392</b>	<b>2494</b>	<b>2317</b>	<b>2059</b>	<b>1920</b>	<b>2115</b>	<b>11,2</b>	<b>4,3</b>	<b>-7,1</b>	<b>-12</b>	<b>-7</b>	<b>10</b>
Reference: TTK															

\*

Expected

Production Value (Million YTL)															
Order No	Establishment	Capital Units	YEARS							YEARLY INCREASEMENTS (%)					
			1999	2000	2001	2002	2003	2004	2005	2000	2001	2002	2003	2004	2005
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(5/4)	(6/5)	(7/6)	(8/7)	(9/8)	(10/9)
1	TTK	Charcoal Piece	6,0	11,0	20,6	30,7	29,8	40,6	29,5	83	87	49	-3	36	-27
		Metallurgic	5,8	12,4	35,1	34,0	39,4	50,8	42,8	114	183	-3	16	28	-16
		Filtration	21,8	36,4	50,3	26,2	78,0	81,8	89,6	67	38	-48	197	5	10
		<b>Total</b>	<b>33,6</b>	<b>59,8</b>	<b>106,0</b>	<b>90,9</b>	<b>147,2</b>	<b>173,2</b>	<b>161,9</b>	<b>80</b>	<b>77</b>	<b>-14</b>	<b>62</b>	<b>18</b>	<b>-7</b>
2	Private** Sector	Charcoal	2,4	3,6	6,2	4,7	3,5	3,6	*43,6	50	72	-24	-16	3	1111
<b>General Total</b>			<b>36,0</b>	<b>63,4</b>	<b>112,2</b>	<b>95,6</b>	<b>150,7</b>	<b>176,8</b>	<b>205,5</b>	<b>76</b>	<b>77</b>	<b>-15</b>	<b>58</b>	<b>17</b>	<b>16</b>
Reference: TTK															

\* Expected \*\* private sector values detected according to the average sales prices of TTK (DPT, 2006, p. 176).



### 3. Coal prices by enterprises of TTK

AVERAGE ANALYSIS VALUES IN TERMS OF THE SALES PRICES OF PRODUCED AND SOLD CHARCOAL BY TTK EXCLUDING, INCLUDING VALUE ADDED TAX, FOB/FOT/FOW SALES PRICES									
		AVERAGE ANALYSIS VALUES							
ENTERPRISES	2008	IN ORIGINAL COAL							
	NOVEMBER			VOLATILE	CONSTANT	INFLATIBILITY	TOTAL	BELOW	
	YTL/TON	YTL/TON	HUMIDITY	ASH	INGREDIENT	CARBON	INDEX	SULPHUR	HEAT
	PRICE KDV EXCLUDED	% 18 KDV INCLUDED	%	%	%	%		%	Kcal/Kg
<b>ÜZÜLMEZ WASHERY</b>									
18/150 (PACKAGE)	PIECE, 330,00	389,40	5±1	14±2	29±1	57±2	7-9	0,9	6650±150
10/100 PIECE (BULK)	320,00	377,60	5±1	14±2	29±1	57±2	7-9	0,9	6650±150
0-10 DUST	200 \$	236,00	8	11	29±1	57±2	7-9	0,9	6500±150
FILTRATION	86,15	101,66	14±2	47	28±1	33±2		0,8	3200±100
<b>KOZLU WASHERY</b>									
18/150 (PACKAGE)	PIECE, 330,00	389,40	5±1	14±2	29±1	57±2	7-9	0,9	6650±150
10/100 PIECE (BULK)	320,00	377,60	±1	14±2	29±1	57±2	7-9	0,9	6650±150
0-10 DUST	200 \$	236,00	8	11	29±1	57±2	7-9	0,9	6500±150
FILTRATION	86,15	101,66	14±2	47	28±1	33±2		0,8	3200±100
<b>KARADON (ÇATALAĞZI WASHERY)</b>									
18/150 (PACKAGE)	PIECE, 330,00	389,40	5±1	14±2	29±1	57±2	7-9	0,9	6650±150
10/100 PIECE (BULK)	320,00	377,60	5±1	14±2	29±1	57±2	7-9	0,9	6650±150
0-10 DUST	200 \$	236,00	8	11	29±1	57±2	7-9	0,9	6500±150
FILTRATION	86,15	101,66	14±2	47	28±1	33±2		0,8	3200±100
10/18 BULK	320,00	377,60	5±1	14±2	29±1	57±2	7-9	0,9	6500±150
10/18 PACKAGED	330,00	389,40	5±1	14±2	29±1	57±2	7-9	0,9	6500±150
<b>ARMUTÇUK WASHERY</b>									
18/150 (PACKAGE)	PIECE, 330,00	389,40	5±1	14±2	29±1	56±2	2-4	0,9	6650±150
10/100 PIECE, (BULK)	320,00	377,60	5±1	14±2	29±1	56±2	2-4	0,9	6650±150
0-18	190 \$	224,00	10	12	29±1	56±2	2-4	0,9	6500±150
0-10 ASH	165 \$	194,70	12	16	29±1	56±2	2-4	0,9	5800±150

FILTRATION	86,15	101,66	14±2	47	29±2	34±2		0,8	3200±100
10/18 BULK	320,00	377,60	5±1	14±2	29±1	57±2	7-9	0,9	6500±150
<b>DELIVERY OF ARMUTÇUK CHARCOAL TO KDZ EREĞLİ</b>									
18/150 PIECE,(PACKAGE)	340,00	401,20	5±1	14±2	29±1	57±2	2-4	0,9	6650±150
10/100 PIECE (BULK)	330,00	389,40	5±1	14±2	29±1	57±2	2-4	0,9	6650±150
0-10 ASH	170 \$	200,60	12	16	29±1	56±2	2-4	0,9	5800±150
<b>AMASRA LAVUARI</b>									
18/150 PIECE, (PACKAGE)	310,00	365,80	5±1	14±2	48±1	57±2	1	1	6000±200
10/100 PIECE (BULK)	290,00	342,200	5±1	14±2	48±1	57±2	1	1	6000±200
0-25 DUST	150 \$	177,00	12	15	48±1	57±2	1	1	5800±200
<i>PRIVATE SECTOR</i>									
<b>POWER PLANT FUEL</b>	122,17	144,16	8	38					4400±200
NOTE: The prices of the filtration products belong to September, 2008. 10/100 mm. Coal cannot be sold from places where packaging establishments are available as bulk. The sales are limited by the production and the stock quantity.									

Ref: TTK Web page, 2008 .

### 3. The industrial and commercial costs of TTK

Capital entity: Charcoal (Furthering-Collapsing longwall)		
	2005 (expected)	
	YTL	Share (%)
(1)	(2)	(3)
<b>*INDUSTRIAL COST</b>		
Raw material and materials	11.40	3.58
Energy	24.63	7.75
Direct labour cost	26.90	8.47
Indirect labour cost	118.70	37.36
Amortisman	8.20	2.58
Other	50.57	15.92
<b>Total industrial cost</b>	<b>240.40</b>	<b>75.66</b>
<b>*Other expenditures</b>		
General administrative Expenditures	45.34	14.26
Sales and marketing expenditures	2.44	0.78
Financement expenditures	29.56	9.30
<b>*Total of other expenditures</b>	<b>77.34</b>	<b>24.34</b>
<b>*COMMERCIAL COST</b>	<b>317.74</b>	<b>100.0</b>
Ref: TTK		

Reference: DPT, 2007, p.26.

Change in average costs and average sales prices of coal produced by TTK (\$/ton) (WEC, TNC, 2007, p. 1-21)

<b>World Fossil Energy Production (million ton petrol equivalent)</b>			
<b>Years</b>	<b>Coal</b>	<b>Petroleum</b>	<b>Natural gas</b>
1996	2293.6	3375.9	2012.1
1997	2314.5	3480.9	2015.4
1998	2245.5	3547.6	2061.1
1999	2243.1	3479.3	2116.7
2000	2267.4	3613.8	2189
2001	2369.8	3593.7	2242.9
2002	2380.0	3572	2279.3
2003	2543.6	3705.8	2361
2004	2751.0	3865.3	2433.4
2005	2887.2	3895	2486.7

Reference : (WEC, TNC, 2007, p. 1-10)

<b>EU Prices of World Fossil Fuel Energy Production (million ton petrol equivalent)</b>			
<b>Years</b>	<b>Coal (\$/ton)</b>	<b>Petroleum(\$/bbl)-Brent</b>	<b>Natural gas (\$/mBtu)</b>
1996	41.25	20.67	2.43
1997	38.92	19.09	2.65
1998	32	12.72	2.66
1999	28.79	17.97	1.80
2000	35.99	28.50	3.25
2001	39.29	24.44	4.15
2002	31.65	25.02	3.46
2003	42.52	28.83	4.40
2004	71.90	38.27	4.56
2005	61.07	54.52	6.28

Reference : (WEC, TNC, 2007, p. 1-11)

<b>Production and Consumption Balancesheet for Charcoal in Turkey (thousand ton)</b>								
	1990	1995	2000	2001	2002	2003	2004	2005
<b>Production</b>	2745	2248	2259	2357	2245	2011	1946	2170
<b>Import</b>	5557	5941	10366	8028	11693	16166	16427	17360
<b>Supply</b>	8191	8548	15393	11039	13756	17765	18904	19421
<b>Circuit energy Sector</b>	5444	5508	6228	5772	5563	7750	8939	9517
<b>Power plants</b>	474	1246	1980	2214	1995	3668	4565	5259
<b>Coke factories</b>	4723	4182	4191	3551	3506	4032	4328	4218
<b>Other</b>	247	80	57	7	62	50	46	40
<b>Sectoral Eventual Consumption</b>	2747	3040	9165	5267	8193	10015	9965	9904
<b>Industry</b>	1459	1803	8450	4471	7334	9031	9061	8970
<b>Transportation</b>	13	4	1	0	0	0	0	0
<b>Housing and Services</b>	1275	1233	714	796	859	984	904	935

Reference: Dek/TMK, 2006 (ETKB/APKK/PFD; TTK) in WEC, TNC, 2007, p. 1-23.

<b>The subsidy, production and imported coal prices in EU Countries (2001)</b>				
Countries	Total Sübvansiyon (Milyon \$)	Üretim (Milyon Ton)	Ortalama Sübvansiyon \$/ton	Ortalama İthal Fiyatı \$/ton
<b>Germany</b>	<b>4.643</b>	<b>29,4</b>	<b>159</b>	<b>47,40</b>
<b>Spain</b>	<b>1.194</b>	<b>14,4</b>	<b>83</b>	<b>44,10</b>
<b>France</b>	<b>1.073</b>	<b>2,0</b>	<b>545</b>	<b>51,81</b>
<b>Britain</b>	<b>91</b>	<b>31,5</b>	<b>3,3</b>	<b>51,81</b>
<b>Reference: EIA/DOE International Energy Outlook 2003</b>				

Ref: DPT, 2006 p. 169

Expenditures of TTK in terms of commercial cost (YTL/Ton)												
EXPENDITURES	2000		2001		2002		2003		2004		*2005	
	%		%		%		%		%		%	
Equipment	5,86	4,5	8,0	4,70	13,05	5,89	15,89	5,05	18,49	6,71	20,76	6,53
Service purchasing	-	-	-	-	-	-	-	-	-	-	5,45	1,72
Labor	82,33	63,2	113,63	66,54	146,85	66,42	173,77	55,28	178,18	60,40	206,36	64,95
Clerk	7,55	5,8	8,05	4,65	16,81	7,60	21,44	6,82	25,23	7,88	30,25	9,52
Electricity	4,43	3,4	7,69	4,54	11,94	5,41	12,41	3,95	11,72	4,98	12,85	4,05
Amortisman	0,78	0,6	1,37	0,76	2,21	0,97	5,89	1,87	7,59	1,39	9,35	2,94
Other expenditures	0,65	0,5	1,37	0,76	0,66	0,36	2,46	1,10	6,19	1,17	3,14	0,99
Financial Expenditures	28,66	22,0	30,76	18,06	29,64	13,35	81,48	25,92	48,62	17,46	29,56	9,30
<b>TOTAL</b>	<b>130,26</b>	<b>100</b>	<b>170,87</b>	<b>100</b>	<b>221,16</b>	<b>100</b>	<b>314,37</b>	<b>100</b>	<b>296,02</b>	<b>100</b>	<b>317,74</b>	<b>100</b>
<b>TOTAL (\$/Ton)</b>	<b>212</b>		<b>128</b>		<b>144</b>		<b>204</b>		<b>204</b>		<b>231</b>	

Ref: DPT, 2006, P.184

The Sale Prices of charcoal produced by TTK (YTL/Ton) and the yearly increases (%)													
Charcoal	YEARS							YEARLY INCREASES (%)					
	1999	2000	2001	2002	2003	2004	2005	2000	2001	2002	2003	2004	2005*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(2/1)	(3/2)	(4/3)	(5/4)	(6/5)	(7/6)
Piece	22	38	66	102	106	128	149	73	74	55	4	21	16
Metallurgical	22	32	62	76	77	111	141	45	94	23	1	44	27
Filtration	15	23	34	51	64	74	77	53	48	50	25	16	4
<b>Average</b>	<b>17</b>	<b>27</b>	<b>45</b>	<b>63</b>	<b>73</b>	<b>92</b>	<b>97</b>	<b>57</b>	<b>70</b>	<b>40</b>	<b>17</b>	<b>26</b>	<b>6</b>

Ref: DPT, 2006, P.185

The sale prices of the %25 dusty charcoal produced by the private sector for 2005 has been 100 YTL/Ton, that of %12 dusty charcoal has been 170 YTL/Ton and that of metallurgical coal has been around 96\$.

**World coal prices:**

1973	15 \$/ton (steam coal)
Since 1979	40 \$/ton
The early 1980s	70 \$/ton
The 1990s	40 \$/ton
1999	27-30 \$/ton
2000-2001 years	<b>40 \$/ton</b>

The quantity of charcoal consumption (1000 Ton)															
Sıra No	Kuruluş Adı	Ana Mallar	YILLAR							YILLIK ARTIŞLAR (%)					
			1999	2000	2001	2002	2003	2004	*2005	2000	2001	2002	2003	2004	2005*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(5/4)	(6/5)	(7/6)	(8/7)	(9/8)	(10/9)
1	Domestic	Charcoal	2131	2392	2484	2317	2059	1920	2115	12	4	-7	-11	-7	10
2	Imported	Charcoal	6515	13173	6205	13731	16168	16430	13723	102	-53	121	18	1,6	-16
<b>Total</b>		<b>Charcoal</b>	<b>8646</b>	<b>15565</b>	<b>10699</b>	<b>16048</b>	<b>18227</b>	<b>18350</b>	<b>15838</b>	<b>80</b>	<b>-31</b>	<b>50</b>	<b>14</b>	<b>0</b>	<b>-14</b>

Reference: TTK, DTM

Ref: DPT, 2006, p.185

The charcoal consumption value (Milyon\$)															
Order No	Establishment	Capital units	YEARS							YEARLY INCREASEMENTS (%)					
			1999	2000	2001	2002	2003	2004	*2005	2000	2001	2002	2003	2004	2005*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(5/4)	(6/5)	(7/6)	(8/7)	(9/8)	(10/9)
1	Domestic	Charcoal	96	100	82	93	97	119	152	4	-18	13	4	23	28
2	Imported	Charcoal	307	611	297	685	926	1218	1238	99	-51	131	35	32	2
<b>Total</b>			<b>403</b>	<b>711</b>	<b>379</b>	<b>778</b>	<b>1023</b>	<b>1337</b>	<b>1390</b>	<b>76</b>	<b>-47</b>	<b>105</b>	<b>31</b>	<b>31</b>	<b>4</b>

Reference: TTK, DTM

Ref: DPT, 2006, p.186

## APPENDIX D

### QUESTIONS OF THE IN-DEPTH INTERVIEWS CONDUCTED IN ZMA (KOZLU, ZONGULDAK, KİLİMLİ, ÇATALAĞZI) (16-18 JAN. 2008)

1. In your opinion, what are the indicators in Zonguldak of down-sizing of TTK and restructuring of coal mining sector in this direction ? What are the reflections of the process on the city ?
2. How do you think Zonguldak has stood or is standing against the deindustrialization process ?
3. What are the changes observed following the establishment of the university in the city ? In your opinion, what kind of an impact did the university have on the city and the urban economy ?
4. Regarding the city could you give information on:
  - a. Investments in the city
    - i. Number of newly opened workplaces (in context of industry and by product industry)
    - ii. New housing areas
    - iii. New green areas
    - iv. Infrastructure investments
  - b. Change in certain parameters related to the city:
    - i. Change in energy consumption within the city
    - ii. Expansion or decrease in land in the city
    - iii. Infrastructure consumption in the city
    - iv. Change in population
5. What kind of contribution can Black Sea Economic Cooperation countries make regarding the development of the Zonguldak region ?
6. What are your opinions on the relation between change in state investments and the development of the region ? What are the reflections of this on the city?



7. What are your personal opinions on the vision, strategy and policies related to the development of the region and its restructuring ? In addition to the dynamics we have discussed, what additional dynamics are required ? (in context of both the locality and Zonguldak, in general).

Informants: H.Ö, G.Y., H.K., V.Ç. and İ.M.

# CURRICULUM VITAE

## PERSONAL INFORMATION

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## EDUCATION

Degree	Institution	Year of Graduation
MS	Hacettepe University, Interior Architecture and Environmental Design	2001 1999
BS High School	Ankara University, College Ayşeabla	1994

## WORK EXPERIENCE

Year	Place	Enrollment
1998	PROMİM	Intern L. A. Student
2002- 2009	METU Department of CRP	Research Assistant

## FOREIGN LANGUGES

Advanced English, Intermediate French

## PUBLICATIONS

1. Pınarcıoğlu, M and Güneymen, Ş. (2006). *Managing decline in steel and coal mining towns in developmentalist climate*. Paper presented in Steel Cities Conference, Steel Cities: Tradition, Transition and Transformation. Sheffield, UK.
2. Güneymen, Ş. (2008, July). *Constructing the discourse on landscape and landscape architecture within change and restructuring phenomenon in socio-spatial context through evaluation of changing industrial landscapes in Turkey on a case, the coal mining town, Zonguldak*. Presented in Innovation in Education of Landscape Architecture through Multi-Disciplinary Dialogue: Exploration of in between pedagogy, science and practice languages “together” Workshop. Ankara: Bilkent University.

3. Işın, Ş. (2009). Landscape Architecture Education with Potential to Evaluate and Respond to “Change” in Interdisciplinary Medium. (Turan, B.Y. and Aslan, D., Eds.), *Landscape architecture -Multiculturalıty – Education*. Ankara.

### **HOBBIES**

Oil painting, playing the guitar