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# ANALYSIS OF THE INDUSTRIAL HERITAGE IN ZONGULDAK AND RECOMMENDATIONS FOR ITS REUTILIZATION

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***Abstract***

*Significant changes and transformations took place in the structure of societies and cities with the Industrial Revolution besides technological developments. During this period, industrial cities and industrial societies emerged as a result of the settlements that developed near the mines opened to increase production. A similar process took place in Zonguldak; the coal mines in the region allowed it to be established and developed as a port city in 1849. There are industrial structures and facilities in the city that have remained dysfunctional over time. These industrial values, which gained identity to the city and region where they are located, need to be conserved as a heritage. The aim of the study was to analyze, discuss, and develop recommendations for the current state of this industrial heritage. In this context, first, the industrialization process in the city was examined and the urban effects of the coal industry and its role in the development of other industries were revealed. Then, the status of the industrial heritage and the current ideas and approaches regarding this heritage were determined through different industrial building/facility/campus examples in Zonguldak. At this point, recommendations for conservation and recovery of these values in the city have been made.*

***Keywords****: Industry, Industrial Revolution, Industrial heritage, Adaptive Reuse, Integrated conservation*

## Introduction

The industrial revolution has caused profound changes and transformations in human history. With technological developments, a transition from hand production to mass production has taken place, industrial cities were formed, and the transformation of the agricultural population into an industrial society was realized. As a result of changes in production methods over time, industrial structures began to become dysfunctional; with this process, there occurred also abandonments and extinctions of existing structures. Under these circumstances, the concept of industrial heritage emerged in the 1950s, and especially in countries that experienced the Industrial Revolution early, efforts to conserve these values has begun since the end of the 1970s. In Turkey, however, these concepts started to come to the agenda in the 1990s; however, the practice attempts on this issue are not sufficient. One of the most concrete examples of this is about the industrial heritage in Zonguldak. The city has many industrial heritage values belonging to the Ottoman and Republican periods. It appears that some of these values are not adequately maintained after becoming dysfunctional over time. In the study, the current

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situation of this industrial heritage in the city was examined and suggestions for solving the identified problems were developed. In this context, information was given about technological developments and changes in the structure of society and cities experienced with the Industrial Revolution and international approaches to conserving industrial structures after they become dysfunctional over time have been addressed. Industrialization in Zonguldak, selected as the field of study, was examined in general and its effects on the urban-regional scale were analyzed. The current status of these values has been determined by examining the examples of industrial heritage in the city. It is observed that the industrial heritage buildings in the city have been left idle and without maintenance and destroyed due to unconsciousness and rent pressure. In the study, solution-oriented suggestions were made for the conservation and recovery of such structures.

## Industrial Revolution

The Industrial Revolution is defined as the transformation of hand production to machine production and the transition to the factory production system [1]. The Industrial Revolution was first introduced in the second half of the 18th century in the UK; then, it has spread to European countries and the United States from the beginning of the 19th century [2]. When we look at technological developments, it is observed that the process that starts with the industrialization of an area continues by jumping to another one.

As a result of the increase and acceleration of production, transportation became more important for the transportation of raw materials to industrial centers and manufactured products to markets [3]. Rail and steamship transportations have been a driving force in opening new markets and expanding existing areas [4].

As factory production replaced the old form of production, small artisans and farmers became industrial workers; the cities became interesting due to the increase in new employment, consolidation in agriculture, mechanization, and landlessness [5]. With this process, factory structures began to form in the silhouettes of cities; new building materials and construction systems obtained with the technical developments have brought about changes in architecture [2].

### *The Industrial Revolution in the Ottoman Empire and Turkey*

The Ottoman economy was based on small-scale manufacturing and trade sectors and agriculture before the Industrial Revolution [6]. After the Industrial Revolution, large-scale production capacities were not established in the country and craft production was valued more than industrial production [7]. Industrial enterprises other than factories that met the needs of the government and the military were mostly small-scale facilities with 30-40 employees [8]. However, in the Ottoman Empire, the inability to fully manage resources, the losses of land, the irregularities in the agricultural system, and the industrial revolution that emerged in the West weakened the competitiveness of the country's economy with the West. The political, administrative, socio-economic and spatial changes in the Ottoman State in nineteenth century constitute a wide subject area that requires detailed investigation [9]. Industrialization moves have been seen from the beginning of the 19$^{th}$ century [6]. During this period, modern factories began to emerge and a pre-industry, albeit limited, was born. Especially in the 1840s, state-owned facilities were originally established to meet the demand of the army and the state. At the end of the century, a limited number of factories were established by the private sector [7]. Instead of producing and developing technology, it was taken from outside [10]. This prevented industrialization efforts from creating a radical transformation and caused it to remain a mere attempt [8]. The years between 1908-1923 were the period when the first core elements of the industry that could be realized in the future in the country were formed [11].

The Republic of Turkey took over a non-industrialized and agricultural structure from the Ottoman Empire [12]. It was aimed to establish a private enterprise-based industry in the

country with encouraging measures between 1923 and 1930 [13]. The state's involvement in economic life increased after 1930 [7]. In the First Five-Year Industrial Plan, which was put into practice in 1934, it was aimed to establish factories in industrial branches "weaving, mining, cellulose, ceramics and chemicals. By this means, many industrial plants were built in the country. In addition, the acquisition and nationalization of privileged foreign companies were accelerated during this period. In 1938, the Second Five-Year Industrial Plan was adopted [14]. However, World War II also affected Turkey and this plan could not be implemented [15]. Beginning in 1950, there has been a shift towards liberalism in the country and the importance of statism has diminished [7]. DPT (State Planning Organization-SPO) was established in 1960 to lay the foundations for planned economic and social development; a planned development period was entered after this year [13].

**Effects of the Industrial Revolution on Urbanization**

The industrialization that started in England brought about rapid urbanization [7]. During this period, towns and cities were established near mines and cities became commercial and industrial centers [16]. The industrialization has created a large population growth in existing cities [17]. Settlements along or at intersections along the transportation axes developed with industrialization also gained importance and the population began to increase rapidly in these areas [7]. With this population, the majority of which were industrial workers, unhealthy and unfavorable worker neighborhoods were formed in the cities; workers' homes, which were unqualified, cramped, and lacking many of the services, were built to obtain the maximum profit from the soil [18]. As a result of these problems in industrial cities, modern urbanism ideas were born between 1830 and 1850 [17]. Infrastructure and housing standards were tried to be created in the cities and the spread of cities towards their surroundings was accelerated with the development of transportation. In this case, living places and the workplaces were separated from each other, housing pressures in the cities were somewhat alleviated [19]. Also, it was observed that upper-and middle-income groups settled around the city in the modern post-industrial cities; the lower groups were settled in the area between the city center and the periphery. Regarding the problems experienced in the cities of that period, models such as Ebenezer Howard's Garden City in the late 19$^{th}$ century and Tony Garnier's Industrial City in the early 20$^{th}$ century have also appeared [5].

***Effects of Industrialization on Urbanization in the Ottoman Empire and Turkey***

While finding solutions to the problems of industrial cities was the basis of the emergence of the modern urban plan in Europe, urbanization in the Ottoman Empire depends on economic and social reasons along with industrialization [7]. Significant changes in production and trade functions and socio-economic structure maintained by traditional relations in the Ottoman Empire took place after the mid-19$^{th}$ century [5]. In this period, the orientation of products to the foreign markets instead of the domestic market caused significant changes in trade and cities became trading cities with distribution and collection functions. The inward-oriented urban distribution has become outward-oriented; new port cities have been established and old port cities have developed [20]. The railroad, one of the new transportation technologies, also accelerated the growth and change of cities. In cities outside of transportation connections, the traditional structure has been conserved and no outward opening has been experienced [5]. During the Ottoman reform period, the first efforts of Western-style urbanism arrangements, which were carried out by emulating the zoning regulations implemented in Europe in the 1850s, were observed [21]. Ottomans were influenced by Europe as a result of Westernization movements in the 19$^{th}$ century in design principles, materials, and technical areas. This has also been reflected in the architecture and new types of structures have emerged [7].

With the proclamation of the Republic, spatial regulation strategies were given an important place in line with the mission of creating a national consciousness and building a nation; cities were organized as the places of modernity [22]. The urbanization process was triggered by investments such as the creation of railroad networks and the construction of public structures in cities, especially in Ankara [23]. Anatolian cities on these railroad routes were selected as factory locations [22]. In addition, large industrial initiatives were made in various parts of Anatolia. These initiatives enabled the establishment of new cities and development of existing cities. A holistic planning approach was implemented by creating workers' housing and other social spaces in the factory settlements established in the cities. This approach has aimed to produce urban models to achieve the goal of modernization in the country.

## The Concept of Industrial Heritage

Due to the fact that the existing industrial structures did not respond to the new production techniques, the industrial structures that remained in the city were not able to expand and harmed the environment, the raw materials have become difficult to procure, and the products could be purchased at lower costs from the Far East, the industrial structures have become dysfunctional over time. As a result of this situation, industrial structures have experienced the threat of extinction and notice and conservation of industrial culture have been brought to the agenda in the face of this danger [2]. In this context, the concept of industrial heritage emerged in the second half of the 20$^{th}$ century and has received special attention in countries that have experienced the Industrial Revolution since the 1970s. This concept has been introduced in recent years in countries where industrialization has been more late and limited. Turkey was introduced to the concept of conservation of industrial heritage buildings in the 1990s; after the industrial structures of the pre-Republican and early Republican periods became dysfunctional, efforts to conserve these structures as industrial heritage began to increase recently [24]. The problem of resurgence of unprofitable industrial enterprises occupying large areas of / unused in city centers has become international [35]. The scope of industrial heritage in the Nizhny Tagil Charter, published in 2003, is stated, "Industrial heritage consists of the historical, technological, social, architectural, or scientific remains of industrial culture. These remnants include buildings and machinery, workshops, mills and factories, mines and processing and purification fields, warehouses and stores, places where energy is generated, transmitted, and used, transportation and all of its infrastructure, and also places used for social activities related with industry such as residence, worship, and education." (TICCIH the Nizhny Tagil Charter) [24]. Yao, Wang and Zhang (2019) said about this document is considered "a milestone" in the protection of the world's industrial heritage [36]. Residential areas, social and cultural facilities designed with the effect of industrial production areas are also cultural assets. As can be seen from here, cultural assets; it is shaped by the cultural accumulation of societies, establishes a connection between the past and the present, and takes shape in a long period of time. In this context, protection of cultural assets contributes to sustainable development as well as economic, social and environmental development [25]. Egercioglu and Kaplan (2016) express this issue "A method that place importance on regional and historical researches besides the physical observations in determining the historical, cultural, social and spatial dimensions of the industrial heritage as a whole instead of only perceiving it as a material asset, should be adopted [37]. For the conservation of industrial heritage; international institutions and organizations such as The Council of Europe, TICCIH (the International Committee for the Conservation of the Industrial Heritage), ERIH (European Route of Industrial Heritage), DOCOMOMO (Documentation and Conservation of buildings, sites, and neighborhoods of the Modern Movement, UNESCO, ICOMOS (International Council of Monuments and Sites), and E-FAITH (European Federation of Associations of Industrial and Technical Heritage). It is important that the relevant actors / users participate and collaborate in the process of conserving the cultural heritage assets [38, 39]. The protection and enhancement of the cultural landscape values are a collective responsibility which requires the broad cooperation of the territory's stakeholders [40].

### Industrialization Process in Zonguldak

Zonguldak is an industrial city with coal wealth in the region [26]. Before the coal production, Zonguldak was a bay with a wooden pier located in the district of Ereğli. This pier and its environs constituted a settlement where mariners lived then and that was attached to Tersane-i Amire (Ottoman Naval Shipyard Command) [27]. Coal was discovered in the Ereğli region in 1829. The opening and use of Zonguldak mines was based on the purpose of meeting the energy needs of the state factories and the Navy [28]. First, in 1836, miners of Croatian descent were brought in from Austria for mining activities such as mineral exploration, reserve determination, testing or operation of mineral production in Ereğli coal mines [29]. The production of hard coal in the basin began in the 1840s; the basin developed and grew with new collieries opened and new settlements formed around them when the production accelerated after 1850. The region and the city have always been a point of attraction for the developed imperialist countries due to the coal mine wealth [26]. In 1882, 40% of the coal extracted from the basin was allowed to be sold to the free market and some of the prohibitions were lifted and the ground was prepared for the entry of domestic and foreign capital into the basin [30]. Then, the migration-receiving city has become a large residential and industrial area [26]; production and investments have started to increase in the basin. After 1920, with laws enacted, collieries and companies belonging to foreigners, Armenians, and Greeks in the basin were transferred to the state in time [29]. With the proclamation of the Republic, a planned settlement was established in the city and the region and industrial facilities of different qualities and scales were constructed [26]. In Turkey, between 1930 and 50, statism gained weight and according to the 1st Five-Year Industrial Plan strategy, the privileges granted to foreigners have been abolished. In parallel, the French-owned Ereğli Company, which had the most important share in coal production in the basin's history, was transferred to Etibank in 1937 [29]. In 1940, the whole coal basin was nationalized with the "Law on the State Operation of Collieries in the Coal Basin" [31]. From this date, the administration of the coal enterprises in the basin was given to Ereğli Coal Enterprise, which was established by Etibank, until 1957, to Turkish Coal Enterprises between 1957 and 1983, and to Turkish Hard Coal Enterprise after 1983, which still continues this job [29].

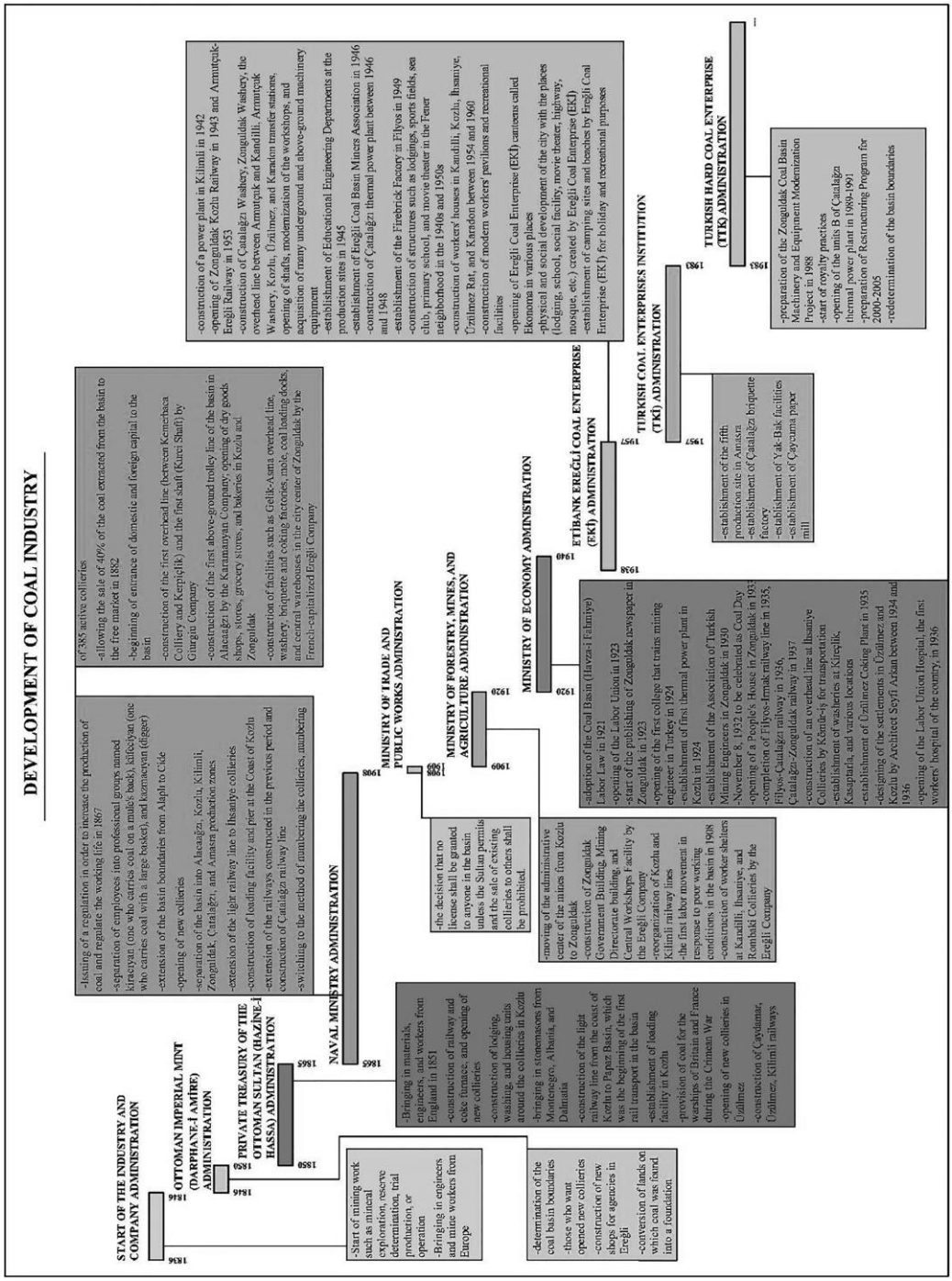
It is observed that various initiatives and investments were made by local and foreign companies during all administration periods that governed these production activities from the start of mining activities in the coal basin until today. The information about this is summarized in Table 1.

Underground and above-ground production facilities such as production structures, colliery, shaft, washery, coke furnace, etc. were built in various trials related to hard coal production in the basin. Transportation structures such as tramway, overhead line, trolley line, railway, railway workshop, loading facility, pier, and port were established to transport coal between the facilities and to other places. The presence of coal in the basin triggered the establishment of other factories; in this context, factories and facilities such as iron and steel factory, thermal power plant, coke factory, brick factory, warehouse, mining machinery factory, and oxygen-acetylene production plant, etc. were built. In various periods, housing facilities such as barracks, workers' dormitories, and settlements were built for employees and apart from these, social and cultural mobilization was also achieved by creating spaces such as social facilities, cinema, sports fields, administrative structure, hospital, dispensary, school, mosque, and various commercial units, etc. Especially, the Fener quarter, which was built by the French-owned Ereğli company in the 1890s and new buildings were added by the Ereğli Coal Enterprise in 1940s and 1950s, the settlements in the Project Türkiş in Zonguldak Üzülmez and the Project Kömüriş in Kozlu, designed by architect Seyfi Arkan in 1934-1936, are exemplary in terms of city planning in the country.

While the developments that started with coal production in the basin provided urbanization, they also led to the development of pioneering conditions in the country. In order to regulate the unfavorable working conditions of the workers, the "Havza-i Fahmiye (Coal Basin) Labor Law" issued by the Grand National Assembly of Turkey (TBMM) in 1921 is the

first labor law of the Republic of Turkey. In addition, many power plants were established in the basin in the historical period to meet the electricity needs of the collieries. For this purpose, the thermal power plant established by Turkish Coal Mines Inc. in Kozlu in 1924 is the first power plant established in the basin and the second in the country.

**Table 1.** The development process of the coal industry in Zonguldak Coal Basin



Other important developments are that the first college to teach mining engineering in Turkey was opened in Zonguldak in 1924 and the Workers Union Hospital, the first workers' hospital in the country, was also opened in Zonguldak in 1936 [29]. The underground and above-ground industrial structures established in different periods in the coal basin are exemplary facilities in the country in terms of reflecting the industrialization movements of both the Ottoman period and the Republican period. These industrialization movements in the basin have brought about interaction not only on an urban scale but also on a regional scale and across the country. The fact that the coal needs of the Ottoman navy and especially the factories in Istanbul after the start of the use of steam machinery in factories were met by the hard coal produced in the basin shows that the basin has a nation-scale sphere of influence. In addition, the presence of coal created interaction on a regional scale, resulting in the formation of new industrial branches. The most concrete example of this is the development in the iron and steel and energy industries in the region. The iron and steel factories established in Karabük and Ereğli due to their proximity to coal deposits provided the establishment/development of the cities where they are located, as well as it has brought about the formation of sub-sectors such as rolling mill, shipyard, and sheet metal production, etc. These industrial interactions in the city and its immediate vicinity are shown in figure 1.

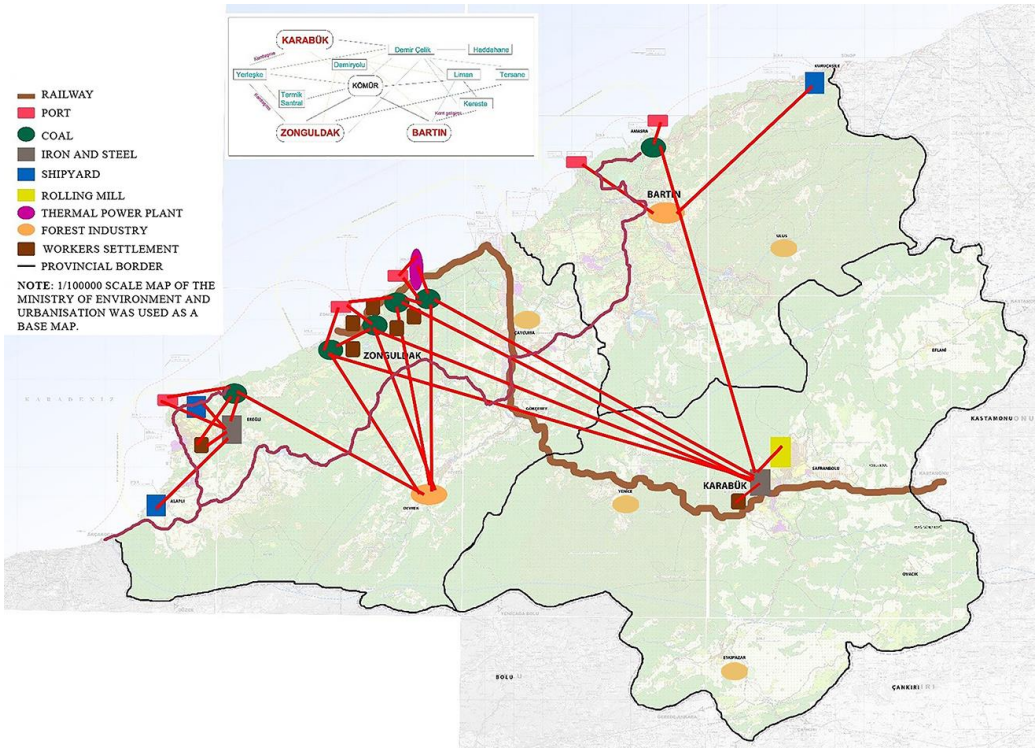



**Fig. 1.** Industrial interactions in the Western Black Sea Region (Zonguldak-Karabük-Bartın)

The effects of coal-centric industrial development in Zonguldak have also enabled the city to gain an identity. However, with the decline in coal production in the basin, especially after 1980, some production sites began to fall out of use over time. These negative situations continue to lead to the loss of the integrity of the concrete/intangible values and the identity of the city, which are important places of memory for the city and the residents.

**Analysis of the Industrial Heritage in Zonguldak with Examples**

Today, the production of hard coal is carried out by the TTK (Turkish Hard Coal Enterprise) at Üzülmez, Karadon, Kozlu, and Armutçuk establishments in Zonguldak and Amasra establishment in Bartın. Since 1980, the coal mining industry in the basin has started to decline in both the amount of production and the number of workers [32]. Since 1988, the royalty system has been implemented to provide non-economical reserves to be operated by the Turkish Hard Coal Enterprise to private individuals or organizations [29]. The total number of workers, which previously exceeded 40 thousand, has now declined to 7 thousand. The shrinking of the Turkish Hard Coal Enterprise also affected the production sites and the sites began to become dysfunctional. It is observed that these values of industrial heritage, which are important components of the urban identity, face dangers such as destruction because of remaining idle, unawareness, and rent pressure, etc. The current situation of these values was analyzed in this study, and thoughts and approaches were put forward. Below, examples of various functions are discussed and examined in this context.

***Central Washery Area***

The demolition process started in 2006 when the Central Washery plant became dysfunctional and the steel components inside were dismantled to be utilized as scrap. The washery area and the resulting building stock have been attractive for rent-driven use by various interest circles. In the face of this danger, a group of intellectuals in the city demanded that the washery area be used as a recreation area with arrangements symbolizing the production process. This initiative was supported by the Zonguldak Democracy Platform, which is a combination of non-governmental organizations. During this period of controversy, the facility was registered as an industrial heritage by the Regional Committee of Cultural and Natural Heritage Conservation of Karabük in 2006. Following the registration decision, two project competitions were organized by the Chamber of Architects of TMMOB (Union of Chambers of Turkish Engineers and Architects) in 2008 and 2010 to reutilize the washery area and bring it into the city life. However, the projects awarded in these competitions were not implemented for reasons such as property and bureaucratic problems. The screening building was also demolished in the following years. Today, there are 3 towers and silo structures left behind from the washery facility (Fig. 2). This uncertainty has continued for many years due to the inability of the decision makers in the city and the institution that owns the area to reconcile and act together. Ownership of the area was transferred from Turkish Hard Coal Enterprise to Directorate General of National Real Estate in 2019. Finally, a project including social and cultural sites has been prepared for the idle area, on which many ideas have been produced on various periods, especially due to its central location in the city.

**Fig. 2.** The current situation of the washery area, 2017

***Electrical Workshop***

The Electrical Workshop (Figure 3) building, which is located in the Mining Machinery Factory complex, experienced a process similar to that of the central washery facility. Regarding this area, the governing authorities in various periods thought that it prevented the development of the city and various ideas such as the construction of a city hospital or the demolition of the building to widen the road have been raised. As a result of the struggle against ideas such as these that will destroy the values of industrial heritage, the electrical workshop building, whose ownership belongs to Turkish Hard Coal Enterprise (TTK) was registered as a cultural asset to be protected by the Regional Committee of Cultural and Natural Heritage Conservation of Karabük upon the application of Zonguldak Culture and Education Foundation (ZOKEV) in 2017.

**Fig. 3.** Electrical Workshop building, 2018

***Examples of Public Purpose Adaptive Reuse Projects***

There are also examples of public purpose adaptive reuse projects related to some industrial heritage structures to maintain an industrial identity in the city. Under the coordination of the Governorship of Zonguldak, Üzülmez Culture Valley Project in the idle area, which includes the Üzülmez Suspended Washery and Hard Coal Operating Enterprise (TİM) Workshop building and was registered and protected by the Regional Committee of Cultural and Natural Heritage Conservation of Karabük in 2009, and Lower Kandilli Architectural Concept Project was prepared for the idle building and area in Kandilli district (Fig. 4). However, these projects have not yet been implemented.

**Fig. 4.** Üzülmez Suspended Washery and Hard Coal Operating Enterprise (TİM) Workshop building (left), Modeling of the Üzülmez Culture Valley Concept Project (right) [33]

***Idle Facilities on Which No Projects were Developed***

The production was stopped in the coking plant located in the center of Zonguldak because of the completion of its economic life in 1970, after being idle, its parts other than the chimney was demolished in 1988. The 63-meter-high chimney, which was made of brick material and belonged to the Turkish Hard Coal Enterprise (TTK), has been registered and protected by the Regional Committee of Cultural and Natural Heritage Conservation of Karabük. Today, the chimney and the open area around it are idle. It was determined that some of the buildings in Çaydamar Coal Enterprise, which were built between 1945 and 1951 and whose activities were stopped in 1994 due to the reasons such as being within the settlement area and causing subsidence, are not used today (Fig. 5); some of the buildings and areas in the complex are rented to private operators from different industries and used as warehouses, car parks, and training centers. None of the buildings in this colliery, whose ownership belongs to the Turkish Hard Coal Enterprise, have been registered and protected. The dysfunctional structures such as crane and propeller, etc., which belong to Turkish Hard Coal Enterprise and are located in the area adjacent to the campus of Bülent Ecevit University in Kozlu district of Zonguldak, are now idle and unregistered. Another important value of industrial heritage is the Çatalağzı washery facility established between 1952-1955 in the Kilimli district of Zonguldak province. After being left in an idle state for many years as a result of its technological obsolescence, the plant was again opened for industrial purposes recently. This washery building is also important in that it has a similar typology to the Zonguldak central washery, which has been demolished. The facility owned by Turkish Hard Coal Enterprise (TTK) is not registered.

**Fig. 5.** Idle buildings in the Çaydamar Enterprise, 2018

***Facilities that have Undergone Adaptive Reuse***

The dorm and dining hall buildings in the Kozlu İncirharmanı Colliery Facilities were leased by Bülent Ecevit University from the Turkish Hard Coal Enterprise and adaptive reuse was implemented to make the structure available for use by the Conservatory (Figure 6). The one-story workers' dormitory building was opened for use as the Conservatory's classrooms, workshops, and teaching staff offices, and the one-story dining hall was opened for use in its original function after they were restored. The idle buildings such as compressor, administrative, and supplementary service, etc., which are outside the campus boundaries, are not used today (Fig. 6). There are also adaptive reuse examples such as turning the Zonguldak School of Mining Engineers, the first college of mining engineers in Turkey, into a high school; the building used as a hospital during the French period into a public institution service

building; the civil servant's club and annex building into a restaurant and wedding and congress hall; and the building called the parsonage into an association building.

**Fig. 6.** The idle building at Kozlu İncirharmanı Facilities (left), the building that adaptive reuse was implemented on and became an educational building (right), 2018

***The Situation of the Workers' Settlements, Lodgings, and Social Facilities***

*Üzülmez*

When one looks at the workers' settlements, which are part of the industrial heritage of the city, it is observed that these values, which show the technology, history, and way of life of the period, are also increasingly threatened with extinction. Most of the residential buildings in Üzülmez campus, designed by architect Seyfi Arkan, are demolished within the scope of the Üzülmez Turkish Hard Coal Enterprise (TTK) Lodgings Urban Transformation and Development Project, which is carried out in cooperation with Turkish Hard Coal Enterprise (TTK) and Housing Development Administration of Turkey (TOKİ), and TOKİ dwellings which do not reflect the identity are being built in their place. The ongoing project is nearly complete. Only the type C houses on the campus (Fig. 7) were registered and conserved and excluded from the project.

**Fig. 7.** The idle building in the Üzülmez campus (left), conserved type C house (right), 2018

After the additional service building of the building in the campus that continues to function as a school became dysfunctional, it was leased to the Housing Development

Administration of Turkey (TOKİ), which continues its construction activities, for use as a warehouse. Today, the structure and garden are neglected. The building used as a club in the area (Fig. 7) is now idle after being out of use. There is no plan about the adaptive reuse of this neglected structure, which has a playing field in front of it. The director's house, which was left out of use near this structure, has been restored and the authorities plan to use it as a museum. On the campus, the Rombaki mansion, which was built in 1912 and is used as a guesthouse today, has been registered and conserved. Regarding this building, which is owned by the Turkish Hard Coal Enterprise, the Governor's Office has the Rombaki Mansion Children's Science Center Project. During the historical period, the Üzülmez Movie Theater, which played an important role in the development of the social and cultural structure of the campus, was completely demolished after being idle for many years.

*Kozlu*

In Kozlu, during the periods of the various coal enterprise managements, places were created for the housing of workers. Here, it is seen that the authenticity of some lodgings has deteriorated over time by its users. Kozlu district administrative building, manager's house, and İhsaniye workers' pavilions (Figure 8) have been demolished and have not survived to the present day. The lodging buildings are unregistered. The Regional Committee of Cultural Heritage Conservation of Karabük registered Ereğli Coal Enterprises (EKİ) Kozlu Kılıç Private Primary School, which was built in 1947, as an immovable cultural heritage in 2012 and took it under protection. However, pressures to demolish this structure are observed in various times. In the past, Kozlu Municipality had the idea of restoring some structures built during the period of French Ereğli Company Enterprise in the Kilise neighborhood and opening them to tourism. However, it was determined that the project could not be realized due to incompatibility between the property owner Turkish Hard Coal Enterprise (TTK) and the municipality.

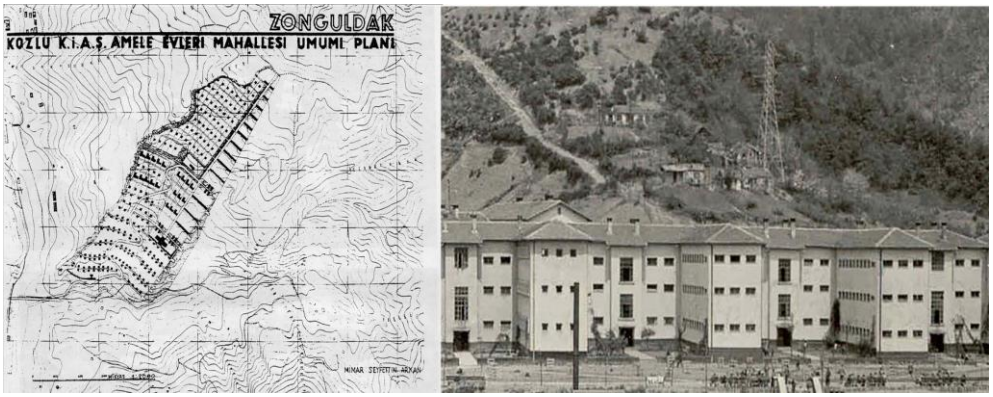



**Fig. 8.** The layout of the project KÖMÜRİŞ (left) [34], İhsaniye workers' dormitory buildings, which could not reach the present day (right) [29]

*Kilimli-Karadon*

Various lodgings and workers' pavilions were constructed in Karadon neighborhood of Kilimli district to house employees in the coal enterprise and other service units of the company during the French and Ereğli Coal Enterprise (EKİ) periods. Units such as schools and cinemas were built in the neighborhood and the development of the neighborhood was achieved in terms of spatial, economic, social, and cultural aspects. Also, in this period when the number of workers was high, many coffeehouses, shops, etc. have also been created near the enterprise. However, as a result of the decrease in production and the number of workers over time, the situation reversed and the places began to be abandoned. Today, the neighborhood, which has lost its old vitality, looks like a collapse area. It is observed that workers' quarters and officer

houses created for workers and officers in the neighborhood have gradually deteriorated, and workers' pavilions have been largely demolished. Two workers' pavilions (Fig. 9) that survived are currently rented for temporary accommodation of workers. There are thoughts about the demolition of these structures in the future. The movie theater in the neighborhood (Fig. 9) has become idle after it has lost its function. After the carpentry building, which was established to meet the wooden needs of the enterprise and other additional services in the period of Ereğli Coal Enterprise (EKİ), was left idle, its ownership was transferred to Kilimli Municipality. This place was leased by the municipality to a private company and then used as a warehouse.

**Fig. 9.** The movie theater building, which lost its original function, in the Karadon Neighborhood (left), the workers' pavilion building that survived (right), 2019

*Kilimli-Gelik*

Gelik town of Kilimli district is a developed settlement with coal industry activities. There has been significant spatial structuring in the town, especially during the Ereğli Company with French capital and Ereğli Coal Enterprise (EKİ). Housing, education, health units, and social spaces were built in various places in the city to attract workers to the mines and improve working conditions. Some of these structures have fallen out of use over time. For example, of the lodgings built in the 1920s and the number of which is thought to be 150-200 (Fig. 10), 8-9 remained today. It is seen that these structures are in poor condition today. The barn building, which was built for the animals used in coal and wagon transportation in the previous periods, is now idle. A dispensary (Fig. 10) was built in the town for the workers employed in the enterprise during the French period. It is thought that this structure, which has been leased to the municipality by the Turkish Hard Coal Enterprise (TTK), will be demolished in the later period.

**Fig. 10.** The lodging building in Gelik town that survived (left), the idle dispensary building (right), 2019

*Zonguldak-Fener Neighborhood*

The first structuring in the Fener neighborhood in the city center was made in the 1890s by the French company that came to the city to build a port to accommodate its employees. With the transition of the management of the basin to Ereğli Coal Enterprises (EKİ) in 1940, buildings such as lodgings, tennis courts, sea club, primary school, movie theater, and mining school were constructed in the Fener neighborhood in the 1940s and 1950s. The neighborhood has been declared urban conservation area and 3rd degree natural protection area in 1996 and put under protection. Today, some of the buildings in the neighborhood are used as the lodgings of Turkish Hard Coal Enterprise (TTK), but over time some of the buildings have been leased to private enterprises. The lighthouse, from which the neighborhood is named, was leased to a private business in 2012, converted into a restaurant, and opened to tourism. The building used by Dutch employees in the city as a church is now used as a restaurant by a private enterprise (Fig. 11). The type B residential buildings in the neighborhood are also used as restaurants today (Fig. 11). Designed as a guesthouse by architect Seyfi Arkan in the 1930s, the type A residential structure has been registered and protected. A project for social and cultural use was prepared by the Governor's Office in 2018 regarding the structure, which has been repaired at various times after being dysfunctional. There are tunnels in the area called back-port in the Fener neighborhood, which were built during the French and Ereğli Coal Enterprise (EKİ) periods to dump the schists that are the washery wastes. These tunnels in the area and the crane tower that operated until the 1960s have remained dysfunctional over time. Zonguldak Municipality has prepared phased landscape projects related to this area. In the first phase, the crane tower was restored and floor and lighting works were performed in the tunnels. Today, although the neighborhood retains its vitality to a large extent, it is observed that there are rent-oriented investment demands by various interest circles due to its positional and spatial characteristics.

**Fig. 11.** Examples of the structures on which adaptive reuse was implemented in the Fener neighborhood, 2019

***Transportation Industry***

One of the topics covered in the study is the transportation industry, which is an important component of industrial heritage. Transportation industry in the region has always been important to facilitate the transportation of coal produced in the basin to other cities and facilities. In this context, domestic and foreign institutions engaged in coal production in the basin have provided for the establishment or expansion of road, port, and railway networks in various periods. These transport networks provided the establishment of inter-urban relations and passenger transport in addition to the purpose of industrial activity. Some of the enterprise structures in the basin have fallen out of use, and the railway connections that provide access to them have been abandoned over time. In addition, tramway, trolley line, and overhead line were also established to serve the production during periods of heavy coal production in the region (Fig. 12).

**Fig. 12.** Gelik-Asma overhead line constructed in 1902 (left) [29],
The idle trolley system at Kandilli (right), 2017

However, because of reasons such as the emergence of other means of transportation due to the development of technology and the decline of production, these have become dysfunctional and their traces have disappeared today. Today, to troubleshoot the problems on the infrastructure and increase the use of railway transportation, the projects on the electrification and signalization of the Adapazarı-Karasu-Akçakoca-Ereğli-Zonguldak-Bartın railway and Irmak-Karabük-Zonguldak railway continue. The presence of these projects is also important for the railway to regain importance, integration of the cities to one another and other cities of the region. In addition, Kozlu-Zonguldak-Üzmez railway line feasibility report and concept development work were carried out as a continuation of the project Railway to Coal, which was carried out by BAKKA, and transportation-related scenarios were created. In these works, it is aimed to develop tourism to include the values of industrial heritage and to provide solutions to the problem of urban transportation.

## Discussions

The developments that started with the transition to coal production enabled Zonguldak to become urbanized and gain an identity over time. This industry created an impact area on an urban and regional scale and triggered the development of other industries in the city and nearby areas. Especially as a result of the problems experienced in the coal mining industry in the 1980s, production in the basin started to decline gradually. This negative process has been an important factor in becoming some of the production structures/facilities and the spaces that serve them in various periods dysfunctional. In this study, the current status of these industrial heritage values was analyzed, the problems arising in this context were discussed, and recommendations on the subject were developed.

The examination of the examples selected within the context of the industrial heritage in the city revealed that there were different situations related to these places such as adaptive reuse, continuing the original function, being demolished, or being left in an idle state. One of the primary problems in this context is the lack of protection of these values. It appears that most of the buildings/facilities in the city are unregistered and not protected. After these places became idle, they are more and more damaged and are in danger of being demolished due to lack of maintenance. As for some buildings/facilities, it is observed that after they have become dysfunctional, ideas focused on rent or demolition have emerged, especially due to their central location within the city. The example of the Zonguldak Culture and Education Foundation

(ZOKEV)'s struggle for the protection of the Central Washery and Electrical Workshop structures is very important.

There is generally a singular approach to protectionism in the city, and integrated protection cannot be provided. During the periods when the elements of industrial heritage were actively working, interactions and functional relationships were established between them at the upper scale, thus the industrial identity of the city was formed as a result of the integration of all of them.

One of the problems with industrial heritage in the city is the problem of ownership. As in the case of the failure to implement the winning project in the competition for the Central Washery area, the property ownership dispute between the Turkish Hard Coal Enterprise (TTK) and the municipalities caused several problems. To find a solution, it is evident that the method of establishing an independent institution with relevant experts for the utilization of industrial heritage in the Ruhr basin, which has a similar industrial background to the coal basin here, should also be applied here at the urban or even regional scale.

Adaptive reuse of the heritage buildings by appropriate functions and methods brings about the conservation of these buildings and the raising of awareness about the issue. In this context, the restoration of some structures at Kozlu İncirharmanı Facilities and their adaptive reuse for use by the Conservatory of the University is an important application. In this example, it is seen that the identities of the buildings are conserved and they are utilized to address the lack of an urban space. The Üzülmez Cultural Valley and Lower Kandilli Architectural Concept Projects prepared under the coordination of the Governor's Office of Zonguldak are also important initiatives. In addition, there are various adaptive reuse applications and idea projects at building scale for public use in the city. However, given the large number of idle heritage values in Zonguldak, the single-scale and few initiatives for industrial heritage are insufficient. There are also new uses for purposes of a warehouse, etc. leased to private enterprises in the city. The approach of preferring such functions that are unsuitable for the structures and new uses that are not for the benefit of the public shows that these values are not given sufficient importance.

Another issue that needs to be discussed is the unresponsiveness to the destruction of these values, which became dysfunctional, or to their idle states. As these tangible and intangible cultural values, which are the witnesses of the technology, history, socio-economic conditions, and lifestyle of their periods, are destroyed, urban memory is also being damaged; and, at the same time, the sense of belonging to the city is diminishing. At this point, a major task falls to Turkish Hard Coal Enterprise (TTK), which owns the majority of the industrial heritage values related to the coal industry, especially in Zonguldak.

The spatial characteristics of the values of industrial heritage have significant potential for solving the spatial deficiencies of the cities. These values identified in the city have some characteristics such as they have outdoor-semi outdoor-indoor spaces, large and high-volume characteristics, and central locations in the city, and they are on the connection points of different transportation lines such as highways, maritime, and railway. These characteristics are significant spatial potentials in terms of meeting the public-oriented needs in the city.

## Conclusions

To protect and maintain industrial identity, which has been going on for years, all of the values should be registered and a holistic protection approach should be applied in Zonguldak. Single-scale plannings and initiatives should be considered as the components of a higher-scale holistic construct, such as region and city. At this point, first of all, holistic planning is needed regarding the entire industrial heritage in the region. Also, some of the railway and light railway lines that provided transportation between the buildings/facilities and cities in the past, but which are now idle, are important potentials that need to be reutilized and revived to achieve this integrity.

In order to restore the memory that is beginning to disappear, the concept of conservation needs to be taken into consideration and industrial heritage values need to be

reexperienced by functioning with appropriate public functions. This will bring about the revival of the urbanites' memories about urban memory and the development of their feelings of belonging and their owning of these values. At this point, it becomes apparent that the values described in the article will provide important advantages for Zonguldak, where difficulties for the settlement are experienced especially due to its topography and the lack of social-cultural spaces are observed.

More support to the initiatives and efforts of the NGOs that are sensitive to the subject is needed for the prevention of inappropriate interest projects related to values of industrial heritage and protection of these values.

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