ASSESSING THE SIGNIFICANCE OF THE INDUSTRIAL PORT OF ZONGULDAK AS A HERITAGE PLACE

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ABSTRACT

ASSESSING THE SIGNIFICANCE OF THE INDUSTRIAL PORT OF ZONGULDAK AS A HERITAGE PLACE

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The shift in technology after the industrial revolution brought forth industrial cities that thrived on industrial production. Industrial ports emerged during the mid to late 19th century in port cities to match the speed of industrial production through industrialized facilities and transportation. The industrial port-cities developed rapidly and became forefront cities in their countries through rapid economic growth followed by socio-cultural growth.

A second shift in technology happened with the invention of containerization during the late 20th century. Ports that could not adapt to containerization became redundant and were relocated to outer peripheries of their cities or downstream. These ports were then adapted into their cities as heritage places through waterfront regeneration and adaptive re-use projects. However, this caused the value of an active industrial port as a heritage place that supports its city as a backbone to be excluded from the perspective of decision makers. This thesis aims to emphasize the importance of active industrial ports for decision makers and the local community as heritage places, that they are still valuable when in active use. This study tries to establish a comprehensive understanding of industrial ports, their developments, transformation processes and value as heritage places.

The Industrial Port of Zonguldak is chosen as a case study for this thesis. The transformation processes, historical timeline, local dynamics, context and current situation of the port is covered in depth to convey its significance not just to decision makers but for all which are concerned with the conservation of cultural heritage. The significance of the Industrial Port of Zonguldak was assessed to prevent further loss of its values, provide a base for future conservation efforts regarding it, and to ensure its continuation as an active industrial port that is a living heritage place.

Keywords: Industrial Port, Port-city, Transformation Processes, Industrial Heritage

ÖZ

ZONGULDAK ENDÜSTRİYEL LİMANININ MİRAS ALANI OLARAK ÖNEMİNİN DEĞERLENDİRİLMESİ

Kocaoğlu, Canberk
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Endüstri devrimi ile beraber ortaya çıkan teknolojideki değişim endüstriyel üretim üzerinden hızla gelişen endüstriyel şehirleri meydana getirdi. On dokuzuncu yüzyılın ikinci yarısında, endüstrileşmeden kaynaklı doğan üretim hızını karşılamak üzere, endüstriyel nakliye sistemleri ve tesisleri ile liman kentlerinde endüstriyel limanlar ortaya çıktı. Endüstriyel liman kentleri, hızla kalkınan ekonomileri ve gelişen sosyoekonomik süreçleri ile ülkelerinde önemli konumlara geldiler.

On dokuzuncu yüzyılın sonlarında, konteyner taşımacılığı ile beraber ikinci bir teknolojik değişim meydana geldi. Bu değişime uyum sağlayamayan özgün limanlar kent merkezlerinde işlevsiz kaldı ve liman faaliyetleri şehirlerin dış periferlerine taşındı. Zamanla özgün limanlar, yeniden işlevlendirme ve kıyı yenileme projeleri ile kültürel miras alanları olarak şehirlerine kazandırıldılar. Ancak bu durum aktif endüstriyel limanların miras alanları olarak öneminin göz ardı edilmesine sebep oldu. Endüstriyel limanların devamlılığı ve değerlerinin korunmasını sağlamak için ana karar mercilerinin ve halkın bu limanların miras alanı olarak değerlerini anlaması zorunludur. Bu çalışma endüstriyel limanlar, gelişimleri, dönüşüm süreçleri ve miras alanı olarak değerleri üzerine bütüncül bir anlayış sağlamaya çalışmaktadır.

Tezin kapsamı ve amacını doğrultusunda Zonguldak Endüstriyel Limanı çalışılmıştır. Yalnızca limanın ana karar mercileri ve limandan etkilenen kişiler için değil, kültürel mirasın korunmasıyla ilgilenen tüm kesimler için limanın dönüşüm süreçleri, tarihsel çizelgesi, yerel dinamikleri, bağlamı ve günümüz durumu derinlemesine araştırılıp sunulmaya çalışılmıştır. Limanın mevcut değerlerinin kaybını önlemek, liman üzerine gelecekteki kültürel mirası koruma çalışmaları için zemin oluşturmak ve limanın yaşayan bir miras alanı olarak aktif kullanımına devam etmesini sağlamak için Zonguldak Endüstriyel Limanı'nın bir miras alanı olarak önemi değerlendirilmiştir.

Anahtar Kelimeler: Endüstriyel Liman, Liman-kent, Dönüşüm Süreçleri, Endüstri Mirası

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LIST OF ABBREVIATIONS

ABBREVIATIONS

BAKKA: Batı Karadeniz Kalkınma Ajansı

EKI: *Ereğli Kömür İşletmeleri*

FICCIM: First International Congress on the Conservation of Industrial Monuments

ICOMOS: International Council on Monuments and Sites

RO-RO: Roll-on, roll-off

TCDD: *Türkiye Cumhuriyeti Devlet Demiryolları*

TICCIH: The International Committee for the Conservation of the Industrial Heritage

TKI: *Türkiye Kömür İşletmeleri*

TTK: *Türkiye Taşkömürü Kurumu*

UNESCO: United Nations Educational, Scientific and Cultural Organization

CHAPTER 1

INTRODUCTION

The shift in the structure of the economy, the advancement in the way that shipments, loading and cargo is handled via technological growth, together with new arising needs of the populace have drastically affected the relation between port and city and how ports are being transformed.[1] Once packed in the city, with huge facilities side by side with historic cores, adjacent to the very heart of the city, ports have, in most if not all cities harbored an economic, memorial, social and cultural connection with their city that shaped an identity.

In the mid to late 19th century through the developments of the industrial revolution that carried industrial production and facilities to the forefront of the economies of countries. Industrial ports were either constructed during this period or were established through the transformation of historic ports. These ports had industrial facilities adjacent or in close proximity to them and they specialized in the transport of industrial production. However, from the late 20th century until now, they have either been limited in their scale of operations or have been left functionless in favor of, newer, more suitable ports, mainly due to the rise of containerization. Container handling became the most profitable port transport system after the 1980s. It required much deeper drafts from ports coupled with an extensive need for infrastructure and machinery. Especially the industrial ports did not have sufficient space to expand or deepen their waters through dredging operations, such as the ones which were located in the middle of river banks were affected by this. To accommodate deeper drafts and larger port facilities new ports was constructed in the downstream or at

[1] (Hoyle, The Port-City Interface: Trends, Problems and Examples 1989)

the edge of the rivers, in contact with the sea. This signified a relocation of ports. After the relocation, the industrial ports that remained in the city center and have lost their functions but were deemed valuable, in most cases, underwent waterfront regeneration projects.

This carriage of ports from historic waterfronts into lower or upper parts depending on the coastal character of the city, or to a remote location, have created a physical discontinuity and a rupture between the built environment of the city, which includes the ports landscape as part of itself, and the character of it as a port city.[2] The structure and the infrastructure of the post-industrial port is then abandoned without a function to be fulfilled, and as heavy as they are, the costly dismantling operations before taking them down for good, end up leaving them to decay, at the same time also providing them a chance to be saved during this period of stagnation. We need the physical aspects of industrial ports to remain intact, as they provide as pillars in the collective built environment of the post-industrial heritage of ports which act as spaces of dependence and engagement.[3] The physical part of these ports which have been outdated in terms of their purpose, belong to the category of industrial heritage, as they were initiated and developed through the age of industry and post-war contexts. Hence, they represent a layer of cultural heritage. This heritage presents us the architecture and details, engineering and machinery, urban design and land-use, relation of water and port, waterfront, and city as tangible aspects. Collective memory associated with the site of the port, the lifestyle and culture of those who were associated with it, such as the workers, traders, craftsmen, and the townsfolk which visited the port for economic or socio-cultural reasons or were subject to its changes to the city or were just exposed visually to it through its skyline and edifices, the important historical events which happened in the vicinity of the port, and the values which presents themselves to the locals and the world through stories embedded into the heritage represents the intangible aspects.

[2] (Hall and Clark 2011)
[3] (Andrade, Morales, et al. 2024)

There were and still are, initiatives taken by local governments, through partnerships of private and public fundings with overseeing institutions to revitalize the ports and waterfronts of cities, with various results which impacted the existing heritage, relation of city with its port and the character of the port. Different approaches in urban planning and the objectives for waterfront regeneration yields different results. Commercial, non-commercial, and mixed-use approaches can be taken as three categories in which waterfront regeneration/revitalization projects move into. According to the category, the functions that will be planned in the area are shaped, new buildings are constructed and older ones are altered to fit the vision of the new plan of the project.

The criteria that are applied in different waterfront regeneration projects, with differing priority shakes up the existing value of the heritage, providing it with new ones, and in some cases destroying some others. The priority differs according to several parameters, such as purpose, function, physical intervention, user group, actors (such as investors and local community) and the importance given to intangible aspects of the site of the heritage and the heritage itself. Given that urban planning strategies and waterfront revitalization projects are long processes with very complex structures, the changes to be made to fit the existing structures to the agenda of the project is difficult. It is a very sensitive process and although it requires a specific approach for every different piece of heritage as it requires a balance between contemporary needs and interventions through new construction technologies and the concern of keeping character, identity, authenticity and physical attributes which provide value in the heritage is achieved.

There are success stories of waterfront regeneration projects such as the Port of Bilbao, Hamburg HafenCity and NDSM Wharf. However, it should be noted that with these projects, the industrial ports cease their original function and the way in which they succeed should be examined. The context of these ports that are transformed changes greatly. In the process of this transformation, many buildings, structures, machinery and infrastructure related to the industrial facilities and the

port's previous functionality, are demolished. Only a certain amount of these is preserved as monuments while others are adapted to new functions at the cost of sacrificing portions of their authenticity.

The area in which these projects are valuable is by protecting the heritage of industrial ports that have been left vacant in the city center after relocation with no chance to expand or adapt to contemporary transportation technologies of modern ports. Unfortunately, through their success, these projects have caused other state authorities and private investors to try to implement carbon copies of these projects to industrial ports that have capabilities of continuing their functions. Industrial ports are unique entities, their characters, identity and dynamics are shaped according to their transformation processes and contexts. Hence, industrial ports are heritage places. It is critical to assess their values to prevent loss of their values and to recognize their roles in the development of their cities and their effect on entire cultures.

The best-case scenario for the retainment of values would be to assure the continuation of these ports. To do so, it is important to understand the way they function, their classifications, relationship with their cities, the criteria for their relevance in today's global market and the necessary developments they need to justify continuation of port activities.

The aim of this thesis is to assess the significance of the Industrial Port of Zonguldak as a heritage place to ensure the retainment of its values through achieving the continuance of port activities and to prevent further losses in its valuable components and identity.

1.1. Problem Definition

Sites of production and transportation in port cities are moving away from the city center to the peripheries for increasing needs of production and transportation or in

favor of entirely new ones. This causes the production and transportation and all related building stock in the city center to lose their functions, they are then either abandoned and left vacant, demolished, or in very few cases adapted to new uses, but mostly with no particular attention and respect to their values and potentials. The heritage building stock which makes up this portion of the city is, as a result, unutilized and discarded.

Zonguldak has been studied extensively as a mining city, through its mining and industrial heritage in the current literature. While sifting through sources such as journal articles, master theses and books, there was plenty of source material that expanded upon the identity of Zonguldak, how it came to be through mining, how its problems emerged through issues with mining, but no extensive resources could be found that delved deeper into the identity of Zonguldak as a port city nor to the significance of its port as a heritage place. The solutions to the problems of the city which emerged and have been ongoing since the latter half of the 20th century, especially after the 1980s, can only be solved through a complete understanding and evaluation of the city.

The city initially was built upon the foundation of mining, through the prospects and value the mining industry and the industrial revolution granted to it. However, the history of the port (Figure 1) is as old as the history of mining in the city and the prosperity of the city would not exist without a proper port and its maritime trade routes that allowed for the transportation of coal. It can even be argued that the beginning of port culture in the city dates even earlier and precedes mining. Before the establishment of the port as an industrial port focusing on the trade and transport of mining, it was used for carrying and stocking lumber and various goods, in addition to passenger transfer. Despite this, there is also no link between the industrial heritage of the city and its port heritage. This thesis aims to unearth the unexplored potential of Zonguldak as an industrial port city, by linking industrial heritage and port heritage together to convey a wholistic Industrial Port City of Zonguldak.

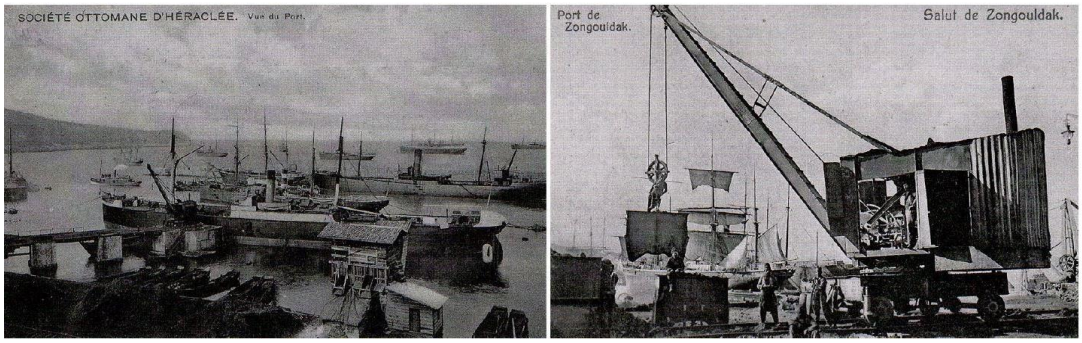


Figure 1 : Ottoman Period Zonguldak, taken from the acrhives of Zonguldak Directorate for Culture and Tourism

The study area is the Industrial Port of Zonguldak, located in the central district of Zonguldak (Figure 2), a province in the Western Black Sea Region of Turkey. It has coasts to the Black Sea from both the west and from the north and is covered by high mountains which form three parallel lines to the coast. The terrain is rough as it is a mountainous region and these mountains are full of deep seams which are constantly being opened that cause landslides, making the area not very suitable for new constructions and settlement.[4] Apart from these seams, Zonguldak has a rich stock of water sources, the biggest one being the Filyos Stream.[20] The city is under the Black Sea Climate, which is rainy throughout the year, especially in autumn and winter. 56 percent of the area is forested composing mostly of broad-leaved forests such as oak, varieties of pines, chestnut and linden, including endemic vegetation as well. The city is composed of six districts: Zonguldak Merkez, Alapli, Çaycuma, Devrek, Gökçebey and Karadeniz Eregli. Zonguldak is one of the most important main coal mining areas in Turkey.

[4] (Quataert 2006)

Figure 2: Aerial photo of Zonguldak, 2022, taken from Directorate General for Mapping, Ministry of Defense

Zonguldak was a small settlement before the establishment of the coal mining activities which started in 1850s.[25] The small settlement then grew into a city through subsequent investments from the government of Turkey, private investments from within the country and international companies established in the area. The advent of industry and the capital brought by coal mining and its subsequent trade through the Industrial Port of Zonguldak resulted in the development of the area. Zonguldak then completely transformed into an industrial city after the foundation of The Republic of Turkey. The city thrived until its eventual decline of industrialization with economic shifts, which started from 1970s and led to a collapse in the 2000s.

The port of Zonguldak is still in use, for cargo operations such as loading and unloading of dry loads. Ro-Ro Dock ceased operations in 2022 due to the Russian-Ukrainian War but have recently re-initiated operations. The industrial production of coal through the enterprises of TTK and the activity of collieries are ongoing, but is facing competition from cheaper coal from privatized mining facilities and exports from overseas. Although some structures of the industrial facilities are being used, others are vacant or unused. Some projects for these vacant buildings were announced but they haven't been started yet such as the project for the previous filtering and storage units of the Zonguldak Central Scrubber, *TTK Lavuar Kuleleri*.

The only registered conservation site in Zonguldak downtown is *Yayla (Fener) Mahallesi* which is located on the coast, adjacent to the port. This district has been a prestigious residential area since the Republican period. It is the only registered conservation site of Zonguldak as a 3rd degree urban and natural conservation site. The backyard of the port includes large scale of production facilities and houses important industrial heritage such as Central Scrubber, Çaydamar Enterprise, and TTK Mining Machines Factory. Üzülmez district and the area of TTK Karadon Enterprise in the northeast of Zonguldak still harbor important building stocks of industrial heritage but the main production has been moved to Kozlu district causing the buildings in these areas to lose their functions. The administrative, social and sports facilities in addition to housings built in Kozlu and Üzülmez districts in the 1930s still stand, and some of these building stock and districts were designed by Seyfi Arkan, now constituting themselves as important parts of the heritage of Zonguldak. Finally, the Çatalağzı region houses a heritage stock from different types of industries such as the Çatalağzı Thermal Power Plant and TCDD Çatalağzı Railway Facilities. Zonguldak is rich in terms of its industrial heritage, through its buildings, facilities, structures and infrastructure.

There has been extensive research and studies made on the rich industrial heritage of Zonguldak. Imamoğlu studied the residential areas built for the personnel working

in the collieries in Üzülmez and Kozlu districts.[5] These buildings were designed by Seyfi Arkan, an important figure of modern architecture in Turkey. A study by Kılınç assessed the industrial heritage building stock of Zonguldak and prepared survey sheets for the buildings significant in terms of their industrial, and by extension, cultural heritage.[6] Another study was made on the mining heritage of Zonguldak, focusing on Kandilli / Armutçuk coal mining region by Aydemir.[7]

Can studied the Zonguldak Central Scrubber, a combination of structures and buildings which collected most of the locally produced coal from the region of Zonguldak and prepared it to be suitable for transport while additionally offering filtration and storage units in itself.[8] It had direct connections to the port's coal loading dock from its period and could transfer coal from its storage units to the dock's crane. The coal would then be transported directly to ships through the conveyor belt systems established between the scrubber and the cranes. The building started operations in the boundaries of the port area in 1957, losing most of its structures in 2006 and being demolished completely except for its filtering and storage units (*Lavuar Kuleleri*) in 2012. *Kent Düşleri 3- Zonguldak Merkez Lavuar Alanı Değerlendirme Projesi Ulusal Fikir Yarışması* was announced as an architectural competition open to public in 2008 regarding the plot previously used for the Central Scrubber and its facilities. At the time the main building of the central scrubber was still standing and the winning project of the competition included the adaptive re-use of that building and the filtration and storage units. In addition to repurposing the layout of the scrubber area. The project was never implemented, the main building was demolished in 2012 and the area is stagnant currently barring its use as a parking area for trucks and cars.

Developments such as these stem from the issue that the port as a whole is not recognized as a heritage site and the connections between its components, history

[5] (Imamoğlu 2003)
[6] (Kılınç 2009)
[7] (Aydemir 2022)
[8] (Can 2019)

and transformation processes with the memory and identity of the city is not brought into attention. The scrubber area was a vital part of the port area between 1953 and 2005 and played a huge role in the operations of the port. The old pier which was demolished around the early 2000s and the workers management building which played a critical role in the port's operations during 1896 and 1953 between this pier and *Şarjöman Rapid* provide us of other heritage structures / buildings which held significance for the port's history and heritage values that were demolished due to negligence of not acknowledging the port as a heritage place. The destruction of these buildings / structures would have never occurred if the port as a whole was recognized as a registered conservation site of industrial heritage and was protected through the measures stated in the 4th article of Nizhny Tagil Charter, Legal Protection, via establishing procedures to prevent the removal or destruction of significant elements following the closure of sections or facilities of the port.[9] The industrial port of the city, as well as the port city character is critical to the identity and values of the city that has been unexplored and understated is interconnected with the mining heritage which has been extensively emphasized. It is not possible to separate these two core identities of Zonguldak. Therefore, unification of these identities and a wholistic grasp on the Industrial City of Zonguldak is only possible through recognizing the values of the Industrial Port of Zonguldak through understanding its history, transformation processes, components and its meaning as a whole.

Industrial heritage consists of sites, structures, complexes, areas and landscapes as well as the related machinery, objects or documents that provide evidence of past or ongoing industrial processes of production, the extraction of raw materials, their transformation into goods, and the related energy and transportation infrastructures.[10] The Industrial Port of Zonguldak (Figure 3), in the perspective of industrial heritage, as an industrial port which is a heritage place has not been studied

[9] ((TICCIH) 2003)
[10] (ICOMOS and TICCIH 2011)

yet. Furthermore, although the port features in its boundary, registered heritage structures such as the *Şarjöman Rapid* and the *Lavuar Kuleleri,* the values of the port as a whole has not been unearthed and is very difficult to safeguard it as a heritage place since it has not been acknowledged as a registered site of cultural heritage. The port's role in the development of the city is critical and it is vital to the identity of the Industrial City of Zonguldak. It has connections with all the industrial heritage in the city as a port's influence is not limited to its area but throughout its hinterland. This thesis focuses on the transformation processes, historical development, character and identity of The Industrial Port of Zonguldak and tries to unearth its values and its significance as a heritage place.

Figure 3 : Retrieved from https://www.visitzonguldak.com/place/zonguldak-limani, Zonguldak Port, Current Situation

1.2. Aim and Scope

Ports are complex entities. They shape not only themselves but also their surroundings. They are crucial in the development of their cities and on the memories of the public. The sphere of influence a port has includes its whole hinterland, which can span an entire region, or multitudes of districts and cities. Studies on ports has the necessity to cover subject from multiple disciplines through different perspectives, depending on the framework. Classification of ports according to

different criteria, in addition to multiple differing approaches trying to understand the development of ports and their relations to their cities exist. There is a necessity to narrow down the scope of the works focusing on ports to be able to convey the essential points in sufficient detail.

The framework of ports, port-cities, the relation of ports and their cities, the approaches on classifying ports, their stages, phases and generations are covered in this study to understand the broad knowledge network of ports. Then, the focus is narrowed down and is expanded on industrial ports, their transformation processes, development in history and identities as heritage places. Three examples are given to explain different transformation processes of industrial ports. The effect of local dynamics, context and different characteristics of each industrial port on their unique identities is elaborated.

Through a wholistic understanding of industrial ports as heritage places, the Industrial Port of Zonguldak is examined in detail as the case study of this thesis. Zonguldak as an industrial port city and the current situation of its port is analyzed in terms of; ownership, public and private space, accessibility, zoning and buildings. To understand the context, the general characteristics of Zonguldak and its historical timeline is provided. The emergence of Zonguldak as a coal basin which transformed into a city through its port and industrial facilities of coal mining is examined. The effect of changing economic policies, different managements, differing political situations and technological developments is elaborated. Two timelines are provided, illustrating the ownership coupled with the economic, social and planning developments that took place in the area in Ottoman and Republican periods.

The industrial port is explored further in its place throughout history. The different transformation periods of the port are divided into five periods and each are explained in detail, in terms of the port's layout, facilities, structures, buildings and activities. A drawing from each period on the scope of the port's area was prepared attached with photographs of each component of the port to visualize their

significance and values. These drawings were produced through the aid of official drawings and projects, archival documents, aerial photographs and old photographs from different time periods of the port. At the end, a timeline illustrating the five periods of the industrial port and significant developments in each period is provided. The aim until this point is to achieve a wholistic understanding of the port's transformation processes, how it operates and the recognition that the Industrial Port of Zonguldak has significance, character and identity.

Finally, the significance of the Industrial Port of Zonguldak is assessed through the value definition system of Özçakır.[11] Age and historical, authenticity, architectural and technical, document, aesthetics, symbolic, identity, memory, prestige, functional and real estate values of the industrial port is assessed and conveyed in detail. A comprehensive outlook on the significance of the Industrial Port of Zonguldak is provided at the end.

The research questions for this thesis will be;

- What are industrial ports, how do they operate and what are their transformation processes?
- What are the periods of the Industrial Port of Zonguldak in terms of its transformation processes?
- Why is the Industrial Port of Zonguldak a heritage place and why is it significant?

The scope of this thesis is the Industrial Port of Zonguldak and its aim is to assess its significance as a heritage place. Raising awareness through the port and its value, the identity of Zonguldak as a port-city and changing the perspective of the decision makers in considering the port as a vital component in the development, character and identity of the city are among the desired outcomes. A step towards preventing the loss of values which contribute to the port's character and identity, and the

[11] (Özçakır 2018)

continuation of the port's activities through necessary developments are trying to be achieved through this thesis.

1.3. Methodological Framework

The existing literature on ports, the notion of port-city, classification of ports, industrial ports and their transformation processes and ports as heritage places specifically will be examined. Examples of industrial ports which have adapted to the modern transportation techniques throughout their lifecycles such as the industrial ports of Varna and Odesa, and those which have proved successful in different criteria such as waterfront revitalization projects following the relocation of their ports such as Port of Bilbao will be examined. This analysis will feature the impact of the transformation processes of these ports on cultural, environmental, social, economic factors together with their effects on existing heritage. The values which were lost through the projects and the ones which were gained together with the state of authenticity will be gauged. The effects of the development of the port on their cities throughout the years in terms of physical and social sustainability will also provide an extra dimension in the analysis.

After understanding and assessing the framework of ports, port-cities, industrial ports, their transformation processes and significance as heritage places and examining the selected cases of Odesa, Varna and Bilbao, the Industrial Port of Zonguldak will be examined in detail.

The history of the port of Zonguldak as an industrial port and its identity will be researched through the existing literature. The history of the region of Zonguldak, with a particular focus on its central district, will be researched to understand the context and its historical development. After collecting sufficient information to identify the areas of interest, a site visit will be conducted. The port in its current situation will be documented through systematic photographing, archival documents and the opinions of experts on the site. The surroundings of the port will be examined

to understand the context of the port. The busy streets, the active and quiet parts of the city in close proximity to the port will be observed. The state of the port in the city center will be analyzed through the perspectives of different state authorities and personal observations, which will be supported by a deep examination of archival documents, literature survey, comparisons and the information gathered through the site survey. Archival documents were gathered from TTK (Turkish Hard Coal Institution), Municipality of Zonguldak, Zonguldak Ministry of Environment and Planning, and Zonguldak Directorate for Culture and Tourism. Old photographs of the port and its surroundings, names of old places which are significant in the context of the port and city, historically important places for the city, the evolution of the port and its changing relation with the city in its different phases of transformation, the history of conservation, list of registered cultural heritage in the city, the systems, structures and infrastructure of the port that are not physically present in the site, , projects and plans of the port that were executed were obtained through means of archival study in the site. Aerial photos from different time periods of the central district of Zonguldak covering the port and its surroundings were obtained from The General Directorate for Mapping.

A deep understanding of the Industrial Port of Zonguldak will be established through understanding and documenting its general characteristics, analyses of current situation, the historical timeline of its city and its place in the context, its transformation processes and development through its lifecycle and its timeline as an industrial port in active use that was constructed in 1896. Its significance as a heritage place will be assessed through this understanding and the recognition of its values which bring out its identity, character and uniqueness. The values will be assessed through the value assessment criteria of Özçakır which features eleven different values for heritage places.[12] A statement of significance will be delivered at the end, summarizing the value assessment by highlighting the key values of the significance of the Industrial Port of Zonguldak as a heritage place. The study will

[12] (Özçakır 2018)

be finalized with a conclusion delivering a wholistic picture of the work together with areas of improvement for further studies.

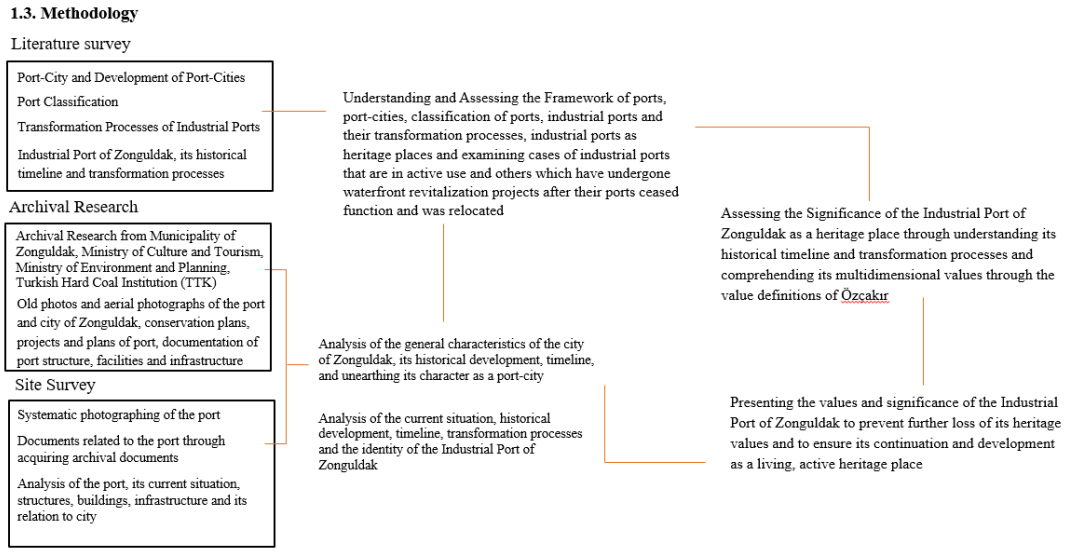


Figure 4: Methodology Framework Chart, produced by the author

CHAPTER 2

THEORETICAL FRAMEWORK: TRANSFORMATION PROCESSES OF INDUSTRIAL PORTS

The joint effort of people who were habiting land in neighbor to bodies of water that would either be in direct contact or connect with open seas brought upon the advent of ports, and through development, port cities. From a geographical standpoint, a port city can spatially and at a local scale, it serves the role of an "area in transition" where port and urban jurisdiction and functions interact.[13] The territories of port cities served to administrate and to facilitate the flows of goods, people, and ideas between a maritime foreland and a transnational hinterland.[14] The main catalyst for the construction of ports and the emergence of port cities was to enable economic gain through trade and transport, and the byproduct of this is the emerging socio-cultural relations between people, goods and notions that flow in, and those which flow out. Such flows are fundamentally shaped by commercial relations, on parallel with the motives of the existence of the city relation, they create new lifestyles and in turn change the built form of urban space, demonstrating the intricate relationship that has always existed between social structure and the physical form of port cities.[15]

The introduction of new buildings materials that reflect themselves on the built environment of the city, new tools to shape and carve out new objects, for religious or practical purposes, or new dialects and ways to write, as well as converse are examples which arise through the “flow” that change the city and its populace. The

[13] (Hoyle, The Port-City Interface: Trends, Problems and Examples 1989)
[14] (Hein, Port City Porosity: Boundaries, Flows, and Territories 2021, 1-9)
[15] (İleri 2012)

result is a city with completely new dynamics from when it lacked its port. Cities were established in places where ports could be built, and ports stayed in close proximity to the heart of the city.[16] The city is not only affected physically through the built environment, but transformed completely in its socio-cultural base, economy, relations with its neighboring towns and cities. In short, the system of the city adapts to the reality of the port. This starts off as a one-way exchange in which the port feeds the city through its benefits that in time transforms into a two-way relation where the city and the port are in a feedback loop mechanism. However, this mechanism features not only benefits from the port to city, and city to port, but negative feedback and implications as well. The port and city are then interrelated and interdependent, and a "port city" is a spatial location having the functions of port and city.[17]

The core identity of a port city comes from that they are a bridge between land and water. They were established adjacent to sea and develop through the sea, driven by trade and production. Although major subdivisions and diversifications from the core identity of a port city occur through time and phases of paradigm shifts in how the port city operates, it remains the same. Assets are generated through these diversification and divisions, and they serve to differentiate and shape the character of each port city. These assets which come with the identity of port cities also differ in value depending on which framework they are looked upon. The relationship of port and port city has always differed depending through which framework it has been looked upon. It can be inclusive or exclusive, clearly defined, or ambiguous. Ports can be thought of as an entity of a city or town which hosts it or as a separate entity completely excluded from its surroundings. In turn, port cities can also be thought of as an entity, a compact whole composed of port and city, with a clear-cut border separating it from its neighboring towns and landscape, or as a complete entity encompassing its surroundings that it affects and is affected by. Their noise and

[16] (Hayuth 1982)
[17] (Yip and Leung 2011)

pollution extend far beyond their own borders and hence they ought not to be separated from their surroundings. However, in literature, it is common to see them defined as entities with clearly defined borders, only including borders of the port and city, combined. It is critical that more concern is given to this notion of rupturing port cities from their surroundings, their effect on their close environment should be thought of as sort of a carbon footprint, as its entire existence can either be the bane or savior of its entire hinterland.

Port cities rely on an underlying system of trade and track of resources in which it is supplied. A port city needs the establishment of 4 key aspects to survive: supply, production, infrastructure, and trade. Ports and cities grew based on mutual benefit and they owed their geographical proximity and relation to necessities of conventional trade.[18] It is for this reason that it is no surprise we see ports in a symbiotic relationship with cities rather than as standalone entities. The city provides the port with personnel, people living in the city to work and produce, which will also sustain and maintain the port. Infrastructure will be integrated with the system of the city, connecting to its already existing water and power systems while providing new ones. Ports functions are related to, but not limited to maritime only. They are not limited to areas dedicated to port functions: ports rely on nearby cities and territories for their labor force, for the location of port-related companies and institutions, and for the social and cultural spaces needed for employees and their families.[19] It is through the change and diversification of these functions that we observe the changes in port and city interface and port city character. Due to natural, economic, political, and socio-cultural circumstances port cities develop and experience change, for better or for worse.

[18] (Hayuth 1982)
[19] (Hein, Port City Porosity: Boundaries, Flows, and Territories 2021)

2.1. Industrial Ports and Their Transformation Processes

The roots of industrial heritage in the context of conservation of cultural heritage dates back to the 20th century, with FICCIM (First International Congress on the Conservation of Industrial Monuments) in 1973, TICCIH (The International Congress on the Conservation of Cultural Heritage) in 1978, the Nizhny Tagil Charter in 2003 and the Dublin Principles in 2011 being prominent breakpoints. After FICCIM, conservation efforts were applied on some of the biggest markers of industrial heritage such as AEG Turbine Hall, The Fagus Works and AD German Warehouse. TICCIH was founded on the 3rd Congress on the Conservation of Industrial Monuments and marked the transition from industrial monuments to industrial heritage, pressing emphasis on historic and age value in addition to their value as relics.[20] Industrial heritage consists of the remains of industrial cultures which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transportation and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education.[21] This definition was established in the Nizhny Tagil Charter for Industrial Heritage, defining specifically what should be considered as industrial heritage. Following the Nizhny Tagil Charter, the Dublin Principles defined clearly once again, the definition of industrial heritage and sought to improve upon the documentation and understanding industrial heritage, ensuring its effective protection and conservation, maintaining its structures and sites and presenting and communicating its values to raise public and corporate awareness.[22] The principles and guidance taken from these crucial documents such as the Nizhny Tagil Charter

[20] (Song 2007)
[21] ((TICCIH) 2003)
[22] (ICOMOS and TICCIH 2011)

and the Dublin Principles have presented a base for the approaches taken in this study regarding industrial heritage structures, sites, areas and landscapes.

Industrial ports emerged as a byproduct of the industrial revolution. Ship sizes were increased with the invention of steam propulsion.[23] Consequently, these bigger ships required deeper waters, more draft, to operate. Ports started to extend downstream to accommodate this requirement. However, their old parts were still in use as cargo handling was still relatively slow, especially in the early 19th century.

The year 1956 is a crucial date as it signified a change of era in ports, and their relations to cities. Technology of transportation took a big leap in the invention of the concept of container by Malcolm McLean and the first patented standard shipping container in that year. The first container ship, Fairland docked in Bremen, in 1966.[24] Until this point, most of the predominant ports were located in the city center. Some were there from their rich history of maritime culture, while some were built in the core of city centers in the era of industrialization to take advantage of the hinterland and resourcefulness of being in a city center. Ports were areas integrated with multi-functional facilities. Large and numerous warehouses, silos, tanks or depots were needed to store and secure goods for long period of times in close proximity to docks. The ships would take days to finish their operations at the minimum, and on occasion take weeks or a month. Buildings such as warehouses were necessary, as they kept the cargo awaiting transport in good condition, safe from undesirable weather conditions and close to the docks, ready to be loaded at any time. Buildings for port personnel and fieldworkers were necessary to be in the port to coordinate loading and unloading activities. Port authorities were in the vicinity of ports to take swift action against precarious issues which would occur in shipments, contacts and entries into the port.

[23] (Takel 1973)
[24] (Schubert 2008)

Customs areas had their own buildings for management. Factories and places of industrial production were integrated one with the port to ensure direct transportation and efficiency in industrial ports. Residential areas of port personnel were in buffer zones between the city and adjacent to the port, with their own socio- cultural facilities. The symbiotic relationship between port and the city dispersed with the arrival of container shipment technologies. There was no longer any need for warehouses as containers would keep the goods safe by themselves and the shipment times were reduced drastically, from days to hours, so they did not even have to remain in the dock for long periods of time. Residential areas of port personnel and affiliated subcultures were made obsolete, the need for the number of port personnel decreased significantly. Container shipment was efficient and faster multiple times, compared to the previous technology. It required heavy machinery and automation, coupled with a need for seawaters way deeper than before. The median draft (depth of water) was 7.5 meters at the time, while container shipment required at minimum 10-11 meters, which increased up to 20 meters currently.

The changes brought by containerization, in extension globalization throw a wrench in the activity of ports. Traditional maritime industries were lost or reduced and the port had been relocated to outside the city where it could meet the requirements of the new model of ports. Namely, bigger areas for machinery, deeper waters and space for dry docks[25]. Port cities were no longer the major gateway between national economy and international markets, nor the source of economic or marine military power.[26] The development of technologies shifted the requirements of space and the hierarchy of occupations.

The industrial production remained but started taking a backseat to developing age of digitalization and information. The first shift determining the port landscape is from human operated mechanical production of iron / steel industries fueled by resources such as coal to machine focused production of chemicals fueled by oil &

[25] A dock which is used for repair of ships that can be emptied of water when necessary
[26] (Warsewa 2017)

gas. The ports which had steel / iron and coal refineries / scrubbers in close proximity started to implement factories capable of producing chemicals. The second shift is from chemical industries to container handling through machine automated processes from a data management process managed by computer engineers. Ports started prioritizing deep enough waters, needed space and infrastructure for computer handling as well as integrating information technologies for controlled and automated transportation processes. The third expected shift, currently not fully realized, is the shift from container handling to biobased industries managed by internet engineers managing port processes through web architecture[27]. Jansen groups these shifts into phases of 'Industrial Revolution' and analyzes them in terms of period, energy, production system, progress of civilization, production factor, skill leader, aimed learning path, dominant innovation of transportation, port location criteria and communication (Table 1).[28]

[27] The process of designing, creating and implementing internet-based computer programs
[28] (Jansen 2016)

Table 1: Transport evolution of ports pre-industrial and post-industrial revolution divided into periods, taken from Jansen

Phase	Pre-industrial revolution	1st Industrial Revolution	2nd Industrial Revolution	3rd Industrial Revolution	4th Industrial Revolution	Beyond the 4th Industrial Revolution
Period	Until 18th Century	18th - 19th Century	1st Half 20th Century	2nd Half 20th Century	Early 21st Century	Late 21st Century
Energy	Man / Horse Power	Coal	Oil & Gas	Oil & Gas Nuclear power	Renewable energy (wind, biomass)	Renewable (solar, hydrogen)
Production system	Single or small series production	Mechanical production	Mass production, Make-to-stock	Mass customisation Make-to-order	Distributed manufacturing	Self-sustained manufacturing
Civilisations progress in	Settlements with access to water	Dispersed cities	Agglomerated cities	Metropolital cities	Dispersed metropolital cities	Dispersed society
Human as production factor	Artisan workshops / guilds	Human is in controle of machine	Machine in control of human	Human in control of computer	Network in control over human	Human in control of network
Skill leader	Master	Mechanical Engineer	Industrial engineer	Computer engineer	Internet engineer	Quantum mechanics engineer
Learning aimed at	Arts and crafts	Product	Tasks	Knowledge	Connecting	(Self-) sustaining
Dominant transportation innovation	Sailing ship (ocean going)	Rail Steamship	Automobile Truck	Jet fuelled airplane Bulk vessel (container, bulk)	Autonomous vehicles / vessel	Physical internet
Port as location for	Trade	Steel industry	(Chemical) industry	Container handling	Biobased industry	Circular industry
Communication	Voice and signals	Telegraph	Telephone	Telematica (internet)	Internet of things	Quantum internet

There are several approaches in which the development and transformation processes of industrial port cities can be examined. All these approaches either stem from the ones which were claimed previously, share some commonalities, or learn from their predecessors. The main sparking point about the differences of these approaches though, should be what they focus on as the main driving factor of development. However, it should be noted that financial purposes and economy appears as the purpose for the existence of port cities and geography plays a big part where it can

continue to exist. If there is no financial motivation or funds, the port is highly unlikely to undergo a transformation and if there is no suitable land for the development plans, for instance a relocation, expansion or integration, such plans will again be scrapped. The term port-city interface was coined by Hayuth as an imaginary line which exists between land belonging to port ownership and urban areas under city ownership.[29]

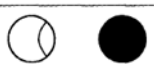
Bird takes on an approach of port-led growth model and describes it in six stages in the Anyport Model. This model narrates through the development of ports through their transformation process from small lateral quays to the development of wharfs, and to the separation between the docks and port facilities with the central business district, to the complete detachment from the oldest facilities to peripheries due to necessities of containerization and cargo handling, need for bigger spaces of storage and larger ships are.[30]

Hoyle examines the evolution of the port-city interface in 6 stages (Table 2):

- Primitive port city,
- Expanding port city,
- Modern Industrial port city,
- Retreat from the waterfront
- Redevelopment of the waterfront
- Renewal of port/city links [31]

[29] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)
[30] (Bird 1963)
[31] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)

Table 2: Stages in the evolution of port-city interrelationships. Taken from Hoyle 2000, Global and Local Change on the Port-City Waterfront (Diagram by Bob Smith,

STAGE	SYMBOL ○ City ● Port	PERIOD	CHARACTERISTICS
I Primitive port/city		Ancient/medieval to 19th century	Close spatial and functional association between city and port.
II Expanding port/city		19th–early 20th century	Rapid commercial/industrial growth forces port to develop beyond city confines, with linear quays and break-bulk industries.
III Modern industrial port/city		Mid–20th century	Industrial growth (especially oil refining) and introduction of containers/ro-ro (roll-on, roll-off) require separation/space.
IV Retreat from the waterfront		1960s–1980s	Changes in maritime technology induce growth of separate maritime industrial development areas.
V Redevelopment of waterfront		1970s–1990s	Large-scale modern port consumes large areas of land/water space; urban renewal of original core.
VI Renewal of port/city links		1980s–2000+	Globalization and intermodalism transform port roles; port-city associations renewed; urban redevelopment enhances port-city integration.

The Port Generation Model takes on the development of ports through generations. These generations are;

- Local port
- Regional port
- Global port

A local port grows into a regional port with increased connections, more shipments and the development of its trade and infrastructure, while a regional port can transform into a global port through advance utilization of technological advancements and macroeconomic strategies.[32] Drawing from these approaches, we can define the main stages of a port, from its advent in history to modern day times in 4 comprehensive stages. (i) Construction of the port and culmination of traditional port city, (ii) addition of new quays and expansion of the traditional port from the core to outer wings of the city center, (iii) the retreat of port from the city center and urban core to landscape and waterscapes, and lastly, (iv) separation of the port from the city as a standalone entity.

[32] (UNCTAD 1992)

Though there are exceptions to these 4 stages, it is evident that most ports have undergone such cycles throughout their lifespan. London Docklands, Hull, Port and City of Genoa, Amsterdam, Baltimore and NDSM Wharf can be given as examples. Hamburg is more of an outlier as it tries to expand its port even though it is not suitable for modern day transportation technologies and port driven economic activity. It did not go into the 3rd stage and is not confined by the 4th as its traditional port has expanded, included more functions inside of itself in addition to purely port driven economic and trade activities and did not lend itself entirely or mostly to private institutions as it is mostly government driven. Hamburg will be analyzed further in the upcoming sections as it signifies crucial points to draw from in the context of redevelopment and transformation processes of port cities.

The industrial port city comes into the picture in late 3rd or 4th stage. The way in which transportation and navigation changed due to the utilization of steam and the ports were modernized. Dock alignments were extended, and harbor mouths were narrowed by lengthening breakwaters and to gain deeper water depths called for a change in the morphology of port cities.[33] Construction of railways and roadways paved the way for an increase in speed and quantity of transport, which meant the ports would require more storage spaces and larger ships to keep up. As presented in the 2nd stage more quays and expansion and later, the transition to the 3rd stage, a relocation. At this stage, the port has already distanced itself from the city and converted into an industrial or transit port, the port would grow further and further away until it completely separates itself to become working in autonomy, while the remains of the traditional port would assume different functions.[34] This detachment brought forth different approaches to deal with the detached ports stuck in city centers, occupying areas of great importance.

Waterfront revitalization emerged as a concept in the 1960s, predominantly in North America as a way to re-use the facilities and spaces of traditional ports which have

[33] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)
[34] (Meyer 1999)

become redundant through re-planning and commercializing.[35] They would be ruptured from their port-based functions and identity and assume them only as cultural, touristic, and recreational through this approach. The port cities of Boston, Baltimore and San Francisco reflect this. In Europe, however, in contrast to North America, maritime character and heritage preservation is emphasized. The re-use and refunctioning are approached in a different way, the port functions and its spaces are transformed according to different values.

Ports are complex entities, reflected in their need to be investigated through frameworks such as the port-city interface. Hence it is strenuous to put them into clear categories. However, to differentiate between ports in a technical way and to understand them better, an effort at classifying them is necessary.

A study by Sheikholeslami and Langeroodi classifies ports[36] according to their;

- Port usage
- Geographical location
- Type of water corridor
- Functional role
- Role in transportation
- Duration of operation
- Length of service per day
- Ownership
- Usability
- Covered area

In terms of port usage eight types were listed;

- Passenger port

[35] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)
[36] (Sheikholeslami and Langeroodi 2024)

- Cargo port
- Container port
- Military port
- Fishing port
- Extractive port
- Research port
- Complex port

Ports reserved for only a specific use type is categorized into the first 7 categories, while those with multiple use is categorized as complex port. Passenger ports are used for passenger transfer, cargo ports for handling of cargo, container for transportation of container goods, military port for military purposes, fishing ports for fishing activities, extractive port for extracting resources such as salts from the sea or oils from wells and research port for research in the sea for equipment and aquatic life. [37] Their names imply their uses. Although it should be noted that most, if not all, ports that are active in current situation would be complex ports.

According to geographic location, they are divided into seven;

- Coastal port
- Seaport
- Island port
- Dry port
- Floating port
- Polar port
- Subsea port

[37] (Sheikholeslami and Langeroodi 2024)

Coastal ports are located at the coast of a river, seaports are located in the sea, island ports are located on the coasts of islands, dry ports are located in inland territories and have no sea connection, floating ports are located on sea and have the ability to move, polar ports are in sea surfaces that are frozen and subsea ports are situated below sea surface level. [38]

In terms of corridor types, they are divided into two;

- Warm water
- Closed water

The former can be a river, ocean or sea and the latter is either a lake or river.

Based on functional role, ports are divided into nine;

- Ancient port
- Access port
- Commercial port
- Industrial port
- Key port
- Hub port
- Smart port
- Maritime-based common terminal
- Port-city

Ancient ports are the first ports where the sea transportation started which spans several centuries back in their establishment, access ports are the simplest type as they only provide access to sea transportation as they allow the ships to dock but do not offer any services, commercial ports are where ports act as centers of trade in terms of cargo handling and passenger transfer, industrial ports are ports that have integrated industrial production, its facilities, personnel and system in addition to

[38] (Sheikholeslami and Langeroodi 2024)

handling of cargo, key ports are ports which are located in the intersection of the network of multiple ports and serve as a critical point in maritime activities, hub ports act as a command center and serve to direct and manage other the activities of other ports, smart ports are ports which use digitalization and new age technologies to navigate and plan their operations, maritime-based common terminals are ports which act as common transportation terminals in multimodal networks and port cities are ports that are in city centers or in relation with a city that have factored in the development of the urban fabric, activities and character of that city.[39]

Through their role in maritime transportation networks, they are divided into seven;

- Port of access
- Feeder port or distributor
- Hub port
- Interchange port
- Logistics center
- Complementary port
- Central port

Ports of access only serve to create access to the network and offer no additional services, feeder ports distributes the sea traffic from hub ports to lower-level, non-hub ports, hub ports acts as the manager of a series of ports as a core port, they play the biggest role in the network with the least amount of direct access but the highest amount of traffic, interchange ports provides exchange between cargo and passenger transfers for ships, logistics centers aid other ports and ships through offering shipbuilding and maintenance services, complementary ports are ports that are built and integrated to existing ports that cannot be improved due to their circumstances and central ports are where the coordination, control and supervision of all ports are

[39] (Sheikholeslami and Langeroodi 2024)

carried out, they area a level above of hub-ports as they do not only distribute and manage traffic flows but oversee the whole operational cycle of a network of ports.[40]

In terms of operational duration, they are divided into four;

- Permanent port
- Temporary port
- Periodic port
- Emergency port

Permanent ports operate continuously, temporary ports are operated for a limited time before being closed, periodic ports operate in certain time periods and emergency ports are planned to solve crisis situations and are only open when such situations occur, until they resolve.

In terms of service duration, they are divided into three:

- Continuous port
- Scheduled service port
- Scheduled service port

Continuous ports operate constantly without stopping, ports with scheduled service only operate in regular, predetermined time periods during the day and ports with unscheduled services operate in irregular time periods during the day, decided by demand.

In terms of ownership, they are divided into three;

- Private port
- Public port
- State port

[40] (Sheikholeslami and Langeroodi 2024)

Private ports are owned by private institutions or companies, public ports have their shares owned by the people, state ports are owned by the national government.

Based on port usability, they are divided into three;

- Closed port
- Controlled port
- Free port

Closed ports are only available to the extent of purposes and activities of its owner permit, controlled port is available for use by certain groups that have right of use, 3rd party companies operating on state ports by contracts is an example to controlled ports, and free ports are available for the use of all, accessible by public and open to use through fees by benefactors.

Finally, based on coverage zone, they are divided into five;

- Dedicated port
- Local port
- National port
- Regional port
- International port

Dedicated ports only serve specific and planned routes, local ports operate within a network of ports or cities in close proximity, national ports operate within the range of ports limited to their country, regional ports operate in a network of a collection of neighboring countries and international ports operate within the scope of all available and feasible waters that maritime trade activities can be initiated.

Table 3: Port classification categories and types, table compiled by the author, classification, Source: Sheikholeslami and Langeroodi, 2024, Port Classification

Port Usage	Geographical Location	Water Corridor	Functional role	Transportation role
Passenger port	Coastal port	Warm Water	Ancient port	Port of access
Cargo port	Seaport	Closed Water	Access port	Feeder port
Container port	Island port		Commercial port	Hub port
Military port	Dry port		Industrial port	Interchange port
Fishing port	Floating port		Key port	Logistics center
Extractive port	Polar port		Hub port	Complementary port
Research port	Subsea port		Smart port	Central port
Complex port			Maritime-based common terminal	
			Port-city	

Duration of operation	Length of service per day	Ownership	Usability	Covered area
Permanent port	Continuous port	Private port	Closed port	Dedicated port
Temporary port	Scheduled service port	Public port	Controlled port	Local port
Periodic port	Unscheduled service port	State port	Free port	National port
Emergency port				Regional port
				International port

Within the context of this study, “mining port” under the port usage category emerged as an addition to the classification of Sheikholeslami and Langeroodi (Table 3).[41] Industrial ports such as the Industrial Port of Zonguldak, are tied deeply to the development and history of industrial activity in their cities. Moreover, it is not common to find mining cities in contact with water as in the case of Zonguldak. The juxtaposition of a mining city and port city is rare and valuable. The mining city and port city provide a unique value together, as a whole. This conclusion has provided the idea to add the classification of “mining port” as a port which is primarily supplied by local industrial production and supply chains of raw materials such as coal, which are extracted from the mines, refined and stored in various industrial facilities. These industrial facilities are either connected closely with the port through land transportation and / or railroad networks or are adjacent to the port or part of the port area. The activities of the mining port are largely dependent on the transport of local industrial production but can feature diversified port activities and may adapt to different technologies and transportation methods.

[41] (Sheikholeslami and Langeroodi 2024)

The study by Roa et.al approaches the classification of ports in a more compact approach. The criteria are the aspects that allows them to meet their demands.[42] Eight categories are proposed to classify ports before further classifying them according to size (Table 4). These categories are;

- Deepwater Seaport
- Seaport
- River Port
- Harbor
- Pier, jetty or wharf
- Port Terminal
- Off-shore Terminal
- Canal

Table 4: Ports according to size and classification, taken from Roa et.al, 2013, Ports: definition and study of types, sizes and business models

	Very large	Large	Medium	Small	Very small	TOTAL	%
Deepwater Seaport	18	10	4	0	0	**32**	4,0%
Seaport	15	81	333	70	0	**499**	62,2%
River Port	1	6	36	29	5	**77**	9,6%
Harbor	0	1	24	98	1	**124**	15,5%
Pier, Jetty or Wharf	0	0	3	31	28	**62**	7,7%
Port terminal	0	2	1	0	0	**3**	0,4%
Off-Shore Terminal	0	0	1	1	1	**3**	0,4%
Canal	0	1	1	0	0	**2**	0,2%
TOTAL	**34**	**101**	**403**	**229**	**35**	**802**	
%	4,2%	12,6%	50,2%	28,6%	4,4%		

The classified ports are then grouped according to their size; small, medium, large and very large. 802 ports from 196 countries are investigated and reveal that the most common type of port is seaport and the most common size is medium.[43] Deepwater seaports are defined as ports with draft [44] deeper than 13.72m. These ports emerged

[42] (Roa, et al. 2013)
[43] (Roa, et al. 2013)
[44] The vertical distance from the water surface to sea floor

to meet the requirements of modern standard of ports that came forth with containerization. River ports are located at a bank of a river and have varying drafts. Harbors are defined as any body of water which provides shelter against weather conditions that ships can moor or anchor while ports are defined as the collection of installations around a harbor which serve loading and unloading operations. A port may have one or more harbors or a harbor may have one or more ports. Pier, jetty or wharf refers to a standalone dock or pier. Port terminals are dedicated to one type of service, such as coal, or a type of grain, and perform automated activities in bulk. Off-shore terminals are flanked by the sea at all sides and do not have coasts. Canals are facilities built along canals which serve the functions of maritime trade and port activities. [45]

Port classification through the development cycles of ports have been analyzed in 1992 in UNCTAD[46]. Ports were grouped into 3 generations and timeframes rather than disassembling it into parts according to its attributes (Table 5). The first-generation port is characterized by a monopolistic, isolated port. The port users' needs were not taken into consideration and the management of ports were independent. The cargo movement is slow and productivity is low. Despite this, they remained greatly effective and powerful due to their monopolized access to global trade items and maritime activities.

[45] (Roa, et al. 2013)
[46] United Nations Conference of Development

Table 5: Three Generation Port Model, taken from United Nations Conference of Development (UNCTAD), 1992

	First generation	Second generation	Third generation
Period of development	Before 1960s	After 1960s	After 1980s
Main cargo	Break bulk cargo	Break bulk and dry/liquid bulk cargo	Bulk and unitised, containerised cargo
Attitude & strategy of port development	-Conservative -Changing point of transport mode	-Expansionist -Transport, industrial and commercial centre	-Commercial oriented -Integrated transport centre and logistic platform for international trade
Scope of activities	1) Cargo loading/discharging storage, navigational service -Quay and waterfront area	1) + 2) Cargo transformation, Ship-related industrial and commercial services -Enlarged port area	1) + 2) + 3) Cargo and infomation distribution, logistic activities -Terminals and distribelt towards landside
Organization characteristics	-Independent activities within port -Informal relationship between port and port users	-Closer relationship between port and port users -Loose relationship between activities within port -Casual relationship between port and municipality	-United port community -Integration of port with trade and transport chain -Close relationship between port and municipality -Enlarged port organization
Production characteristics	-Cargo flow -Simple individual service -Low value-added	-Cargo flow -Cargo transformation -Combined services -Improved value-added	-Cargo/information flow -Cargo/information distribution -Multiple service package -High value-added
Decisive factors	Labour/capital	Capital	Technology/knowhow

The second-generation port in contrast considered their users' needs and provided industrial and commercial services. Industrial ports that started to emerge after 19th century is represented in this generation. The port developed and expanded toward its hinterland through connecting with industrial productions such as steel-iron, heavy metallurgy, coal and petrochemicals. They were characterized by large warehouses, integrated industrial facilities and the ability to handle large amounts of refined and raw materials. These ports were not only centers for transports like in the first generation but centers where industry and commerce converged. Railroads would extend into the docks and a consideration for the back-and-forth transport between the industrial facilities such as factories and refineries were though out and executed to be available efficiently. The focus was on the relationship between industrial production and its trade as a driving factor. The ties with the public authorities were much closer in these port as they needed resources and co-operation from the state to function. The era of industrial ports was cut short, as the decade

when they were most prominent, between 1960-1970s, coincided with the invention of containerization.[47]

The third-generation ports emerged in the 1980s, after container shipment solidified its place in the age of globalization. During the age of second-generation ports, raw materials were shipped from source to manufacturing areas to be refined. The importing ports have changed to accommodate refining the products themselves, netting higher gains through shipping finished products. The cargo transported on international trade routes increased significantly due to increased volume of container trade. The communication and cargo transfer systems also evolved and became increasingly more convenient to use, yielding faster shipments and better coordinated transportation efforts. Products became readily available and the aim switched from attaining raw or finished product to better and cheaper products through the effects of the rising consumerist culture. The markets proved difficult to be isolated through these developments and the increased accessibility of information and market competitiveness. Ports had to meet a new set of requirements to comply with to keep themselves afloat. That they were concerned with only the transport activities occurring in their territories had to incorporate all stages of their transport system, in which shipments from port only comprised as a sub-system. This covered the whole process, national inland transport to international sea and inland transport. The concept of intermodalism[48] gained prominence and started to prove as a necessity for ports aiming to survive in the competitive market. The increase in trans-shipments followed as the trade routes around the world expanded with Asia joining Europe and America as a force in the maritime industry with its deepwater sea ports. The vessels also were getting more specialized through advancing logistics. The trend of international ports involved in the whole process of transportation networks was expected to continue during the writing of this study, in 1992, and has followed up accurately with continuance of greatly increased volume

[47] (UNCTAD 1992)
[48] Goods carried in a container through multiple different transportation methods

of container trade. Bigger vessels, deeper seaports and expanded facilities also kept increasing in parallel.

The Industrial Port of Zonguldak is a medium sized seaport according to the classification of Roa et.al. [49] According to Sheikholeslami and Langeroodi's classification, based on usage is a complex port, a coastal port in terms of geographic location, an industrial port according to its functional role, a port of access in its role in maritime transportation networks, a permanent port in terms of operational duration, a 24-hour service port in terms of service duration, is a state owned port in terms of ownership, a controlled port in terms of usability, and an international port in terms of coverage zone.[50] It was constructed in 1896 as a first-generation port and have evolved into a place between the second-generation port and the third-generation port according to UNCTAD's classification as it developed its facilities and incorporated a ro-ro dock, but does not have a dedicated container terminal.[51] According to Hoyle's stages of port-city, it emerged as an expanding port/city, then reached the stage of modern industrial port/city and have skipped the remaining three stages as it has not been relocated nor received a waterfront regeneration.[52] Finally, it is situated in a place between the 2nd and 3rd Industrial Revolution of Jansen's classification of phases of ports. [53]

2.2. Industrial Ports as Heritage Places

Industrial ports emerged at the second half of 19th century.[54] They are characterized by large industrial production facilities, docks and complexes built on landfill, rows of steam-powered, then electric cranes, railroad connections, large hinterlands, sharp

[49] (Roa, et al. 2013)
[50] (Sheikholeslami and Langeroodi 2024)
[51] (UNCTAD 1992)
[52] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)
[53] (Jansen 2016)
[54] (Andrade and Costa, Touristification of European Port-Cities: Impacts on Local Populations and Cultural Heritage 2020)

boundaries between themselves and the city, and large workforces. The necessity of these components emerged with the invention of steam ships and railroads and that departure and arrival times could now be calculated.[55] Their purpose was to capitalize on trade of raw materials extracted from sites such as collieries. The loading and unloading activities were excruciatingly slow and tedious before the heavy machinery that came with industrialization. Cranes and conveyor belt systems solved these issues and became integral parts of industrial ports in terms of their economic significance and efficiency. Consequently, wooden sailing ships had disappeared from the ports and replaced with iron ships with substantially bigger sizes.[56] Landfill on sea or rivers for industrial ports were exercised to provide the necessary area to match the speed of industrial production with that of trade and transport. The areas of industrial ports emerged by being established on the non-existent (land-filled) areas combined with previously underused areas of port cities.[57] Hence, the second-generation port, the industrial port emerged, as the expanding city port.[58]

The prime of industrial ports lasted from the late 19th century till the 1980s. Ports thrived through the industrial revolution. While effecting the world greatly, this prime period was short-lived. They no longer served as the gateways between national economy and international markets.[59] After the 1980s, the decline of industrial ports was visible all around the world. The industrial ports that have taken over cities and hinterlands was shrinking to their cores or being abandoned. The high number of employments granted to port personnel and industrial facilities working in unison with ports were being downsized. Once entirely state-owned port areas and facilities of industrial production was being privatized to match the economic trends. Globalization was all the commotion and the local was being pushed aside. Cities

[55] (Schubert 2008)
[56] (Schubert 2008)
[57] (Hoyle, The Port-City Interface: Trends, Problems and Examples 1989)
[58] (Schubert 2008)
[59] (Warsewa 2017)

such as Liverpool, Marseilles and Bilbao which relied on industrial production and trade to function were met with the shutdown of their industrial ports, warehouses and railway networks.[60] This trend, however, was not able to erase the industrial ports nor could it completely replace them. Ships and port activities still remain in the city, a complete relocation of the port was not inevitable. Even in waterfront which have gone redevelopment and revitalization efforts, port activities still take place and the sight of ships remain. Ports of Zonguldak, Varna and Odesa for instance, though in different scales, had re-structuring programs of their ports exercised, but still remain as active ports. As port are complex entities, multiple approaches to deal with solutions existed from different contexts. Although similarities existed in the approaches taken towards the development of ports, each of them had a different transformation process. Their history, regional characteristic and local factors, had an effect on their development as much as globalization.[61] Through their value, industrial ports resurfaced. This value, came from their technology, collective memory, the people involved and their entity being a complete depiction of an era. Their value made them remain as active ports, or triggered their redevelopments. It was because each industrial port was unique that they received attention and effort.

The development of industrial port cities is attributed to the balance between ecological change and technological advancements, coupled with the correlation between maritime perspectives and urban planning concepts.[62] However, this ideal forgoes the factors of architecture, heritage, and the involvement of the people. The quality of the built environment, its history, respective heritage values, the style, the era it represents, as physical structures and as meaningful connections in people's memories and daily lives should not be omitted. Port cities need to develop shared values to respond these different perspectives and priorities brought forth by port

[60] (Lorente 2002)
[61] (Bothfeld 2008)
[62] (Hoyle, The Port-City Interface: Trends, Problems and Examples 1989)

authorities, actors, municipalities, corporations, cultural institutions and finally but most importantly, their inhabitants and communities.[63] Maritime heritage structures like cranes or warehouses, while being crucial for the cultural heritage framework, may not be significant at all for the economic framework as they are only structures which have lost their use value, unable to generate profit.[64] However, these two frameworks can intersect to create a solution in which both benefits. In this case, such a solution would include the preservation, enhancement, or emergence of lost cultural heritage values of the port city character which would profit through these values. To illustrate, ports that have undergone the disassociation of their industrial ports in city centers to outer peripheries and the developments that followed together with industrial ports that have expanded and avoided relocation will be given as examples.

2.2.1. Port of Odesa

Port of Odesa (Figure 5) is located on the Odesa Bay, in its western shores. It is the largest port in Ukraine and is located along the coast of Odesa, on the Black Sea. The port is protected by 4 harbors in addition with 3 breakwaters. The port handles general cargo, bulk cargo, liquid bulk, grain and containers. It houses the Ukraine shipyard for maintenance of ships. In addition to these, the port also owns a passenger terminal. The port has direct access to railways and car traffic is isolated through a ramp.

[63] (Hein, Hamburg"s Port Cityscape Large-scale urban transformation and the exchange of planning ideas 2011)
[64] (Tommarchi 2020)

Figure 5: Port of Odesa, produced by the author, original image from Google Earth Pro

The port (Figure 6) handles 50 million tons of annual cargo. Its facilities include a container terminal, a freight terminal, an oil and gas terminal and a passenger terminal and a shipyard. The port is state-owned and houses numerous 3rd party companies which pay fees to operate in the port. It has stayed competitive and active despite its rough period in the end of 20th century and still serves the industrial region of the country.

Figure 6: Port of Odesa, current situation, retrieved from Adobe Stock

Odesa emerged as a city through the construction of its port. The first pier of the port was enacted in 1794 (Figure 7). The port had 2 areas of water where ships could dock and take shelter in, and functioned as a second-generation port.[65] A shipyard was constructed in the vicinity of the port.[66] It served as a free port until 1859 and was exempt from taxes. Due to its prominence and development, it quickly transformed into an industrial port in the mid-19th century. Bulk cargo terminal, warehouses for goods and grain terminals were established, followed by an oil and gas terminal. The coastline was cut off from the city with railroads. It became a transport hub, exporting goods such as various grains and timber. The industrial port of Odesa became a center of maritime activities, economy and trade.

[65] According to classification in (Hoyle, The Port-City Interface: Trends, Problems and Examples 1989)

[66] This shipyard is still in active use and serves as one of the oldest shipyards in Ukraine

Figure 7: Port of Odesa in its early years, retrieved from https://scalar.usc.edu/works/odessa/media/the-port-of-odessa

Odesa had advantage of geography. Its estuaries were convenient for the construction of cargo docks and carried the potential of even being a hub port. Hence, the city continued its growth due to its industrial port and activities of trade in the Black Sea. In 1956, it started to move bulk cargo to its hinterland in Sukhy Lyman[67], expanding its hinterland. [68] Ro-Ro terminals were established later and more roads to accommodate the land transportation were built This was followed by more investments. A container terminal was built in 2001 through increasing port area with landfill. Effort was also given for expanding the existing cargo terminal. The port expanded along the coastline (Figure 8). Through continuous investments, modernization to evolving standards of ports and diversification of port activities, the industrial port of Odesa followed its trajectory of one of the significant transport and passenger hubs of the Black Sea.

[67] Translates as 'dry estuary'
[68] (Khalin and Kiely 2019)

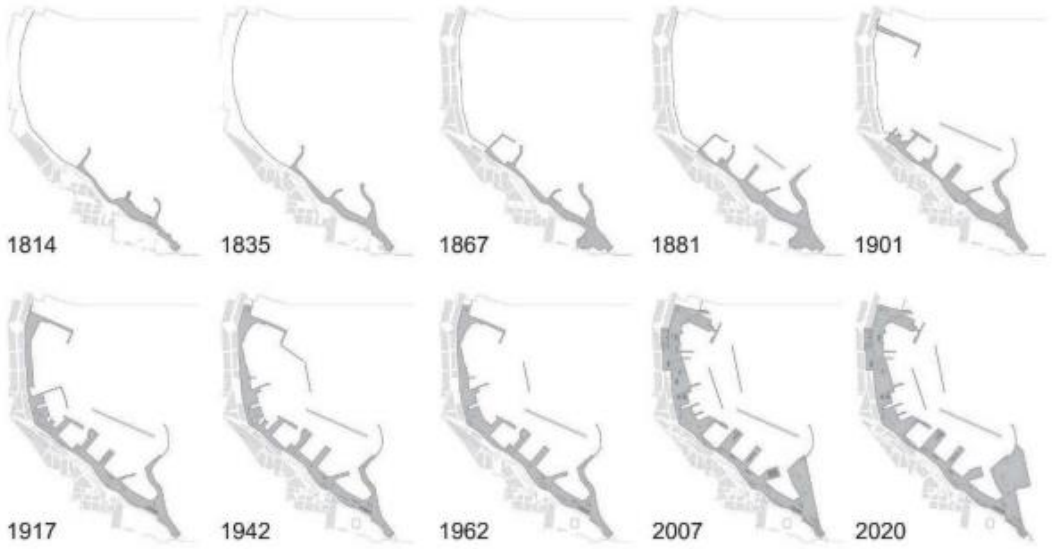


Figure 8: Transformation of Port of Odesa, taken from Polischuk and Lorens

Port of Odesa is a medium sized seaport according to the classification of Roa et.al.[69] In accordance with Sheikholeslami and Langeroodi's classification, based on usage is a complex port, a coastal port in terms of geographic location, an industrial port according to its functional role, a hub port in its role in maritime transportation networks, a permanent port in terms of operational duration, a 24-hour service port in terms of service duration, is a state owned port in terms of ownership, a controlled port in terms of usability, and an international port in terms of coverage zone.[70] It was constructed in 1794 as a first-generation port and have evolved into a third-generation port according to UNCTAD's classification.[71] According to Hoyle's stages of port-city, the port emerged as an expanding port/city, then reached the stage of modern industrial port/city and have skipped the remaining three stages as it has not been relocated nor received a waterfront regeneration.[72] Finally, it matches the 3rd Industrial Revolution of Jansen's classification of phases of ports. [73]

[69] (Roa, et al. 2013)
[70] (Sheikholeslami and Langeroodi 2024)
[71] (UNCTAD 1992)
[72] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)
[73] (Jansen 2016)

Port of Odesa (Figure 9) is important as it is an industrial port that did not overgo a complete overhaul through an urban regeneration project. The reason lies in its ability to adapt to the model of third generation port[74] with its expanding facilities and new container terminal. It also expanded its railroads and land road network and with an expanded hinterland, raised its value. The size of the port was similar to Zonguldak before its major expansions. The reliance of industry and cutoff from the city through roads is another similarity. The difference is that Port of Odesa held on to its situation as one of the most important ports in its country while The Port of Zonguldak fell behind due its lack of expansion and stagnation of port areas such as the Train Ferry Dock.[75]

Figure 9: Port of Odesa, current situation, retrieved from https://discover-ukraine.info/places/southern-ukraine/odesa/2601

[74] Generation of ports in (UNCTAD 1992), a third-generation port emerged through adaptation to globalization, and new transport Technologies such as containerization

[75] Context will be given in detail in Chapter 3, for information Train Ferry Dock was a 200-meter landfill expansion in the Port of Zonguldak that functioned only from 2004-2009. It is currently inactive although it was built with significant investments.

The Industrial Port of Odesa is a heritage place through its unique character and transformation processes. This unique character comes from a multitude of factors and value definitions. The port has developed the city of Odesa into its current form and it is deeply rooted in the history of the city as even the foundation of the city was simultaneous with the construction of the port. Through trade of industrial and agricultural production, the port elevated the city's economy. Through its maritime culture as a continuously operating port, it established the identity of a port-city and a presence of port culture in its citizens. The memory of the port is ingrained in the memories of the locals through its continuous, ever-expanding image. The port features areas available to public in addition to its customs areas. There is a maritime museum in the port commemorating the port culture of the city and several monuments are situated in close proximity to the port. The view of the port can be observed vividly from the viewpoints of each of these monuments (Figure 10).

Figure 10: Port of Odesa, from the viewpoint of Monument to the Sailor's Wife and his child

There are buildings and structures with particular importance that are available to the public in the port. Specifically, the passenger terminal building, also referred to as seaport terminal (Figure 11), has a peculiar architecture and serves as the symbolic building of the port. The building has been re-purposed and is being currently used as a multicultural event hall, hosting exhibitions and concerts in addition to its permanent function as a maritime art gallery. The building was opened in 1968 and has undergone its fair share of interventions. However, it has kept the authenticity of its construction technique and architectural qualities. This building is located on a landfill flanked between the customs areas of the port. This landfill acts as a platform for cultural activities and appreciation of maritime culture (Figure 12). The statue of 'Golden Boy' and the Monument to the Sailor's Wife and his child which are monuments to the maritime culture of the city, St. Nickolas Church, Hotel Odesa and an open-air museum exhibiting artifacts of maritime culture such as anchors and naval guns is located on this landfill.

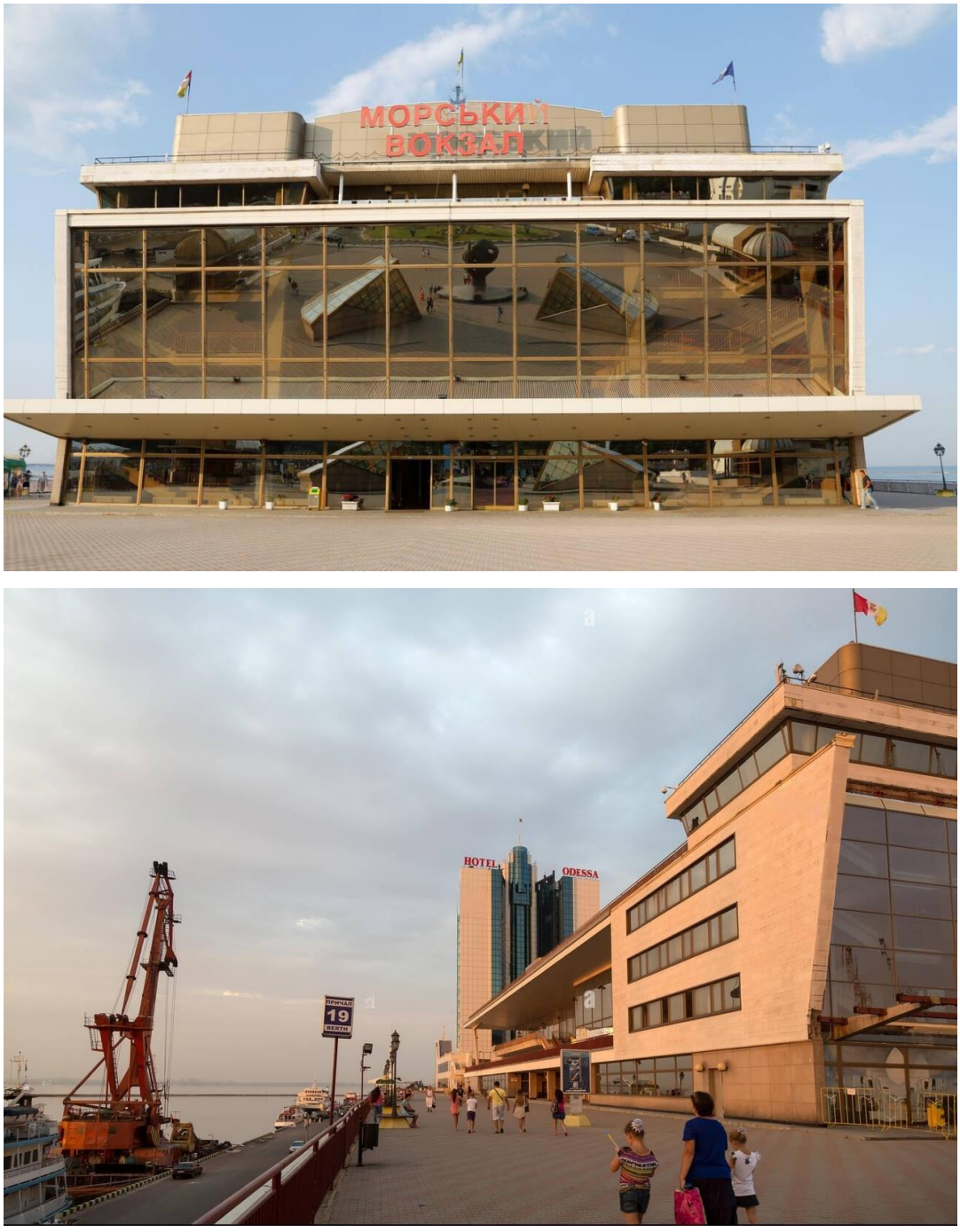


Figure 11: Seaport Terminal front view (top), retrieved from https://www.alamy.com/stock-photo/a-odesa.html?sortBy=relevant, Seaport Terminal side view (bottom), retrieved from https://www.alamy.com/stock-photo/odessa-sea-ukraine-passenger-terminal.html?sortBy=relevant

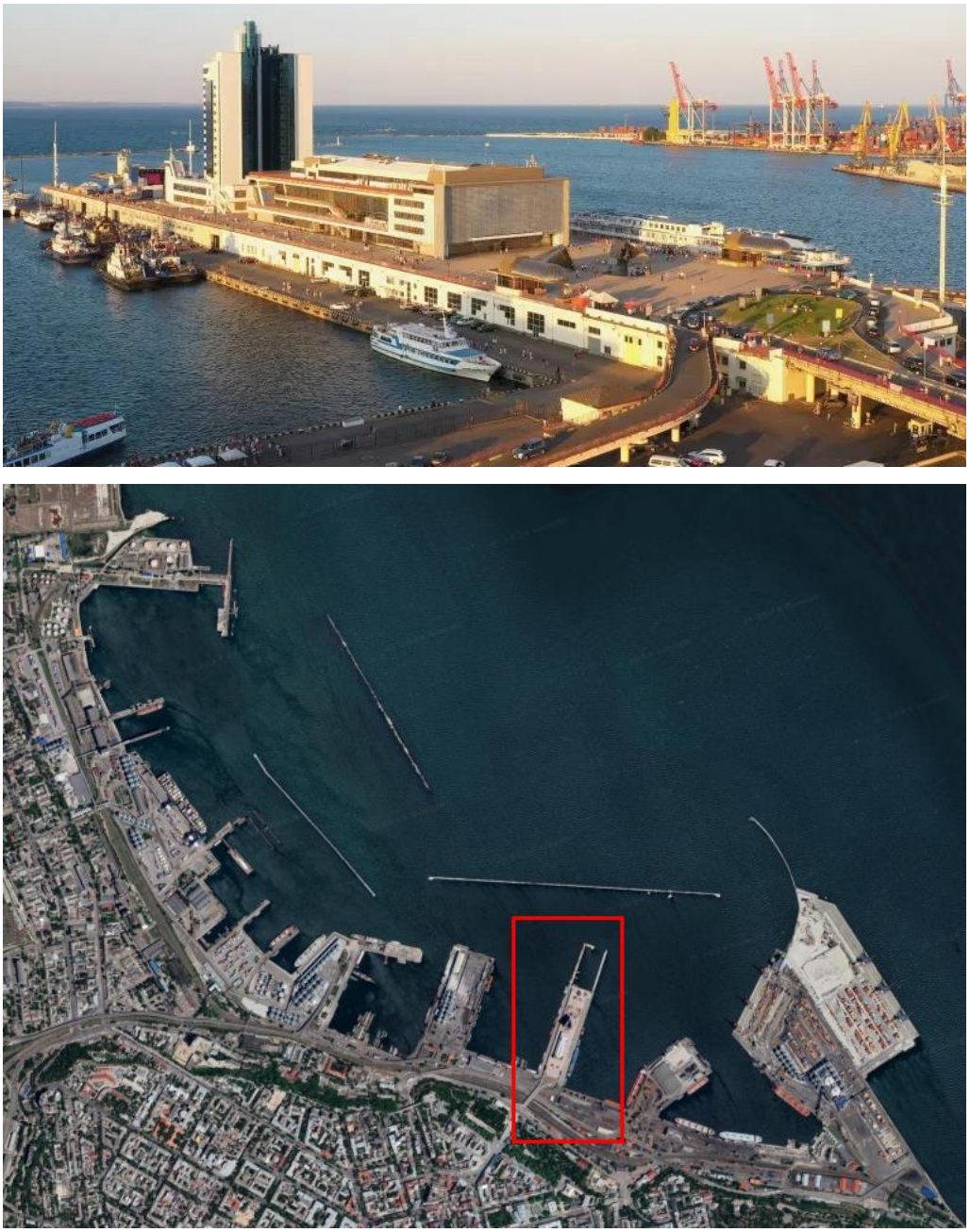


Figure 12: Platform for Cultural Activities (top), retrieved from https://www.dreamstime.com/hotel-odessa-cruise-ship-terminal-odesa-port-view-potemkin-stairs-evening-city-sea-scape-image269187120, the place of the Platform for Cultural Activities on the port (bottom), edited by the author, original image from Google Earth Pro

The cranes, machinery, the hustle and bustle of cargo handling, the traffic of trucks from ro-ro ships carrying freight on the ramp behind the port, the wagons travelling on the adjacent railroads carrying cargo to the port present a unique image. This is further strengthened by the particular expansion of the port through its coastline, the location and orientation of its breakwaters / moles, its arrangement of docks and their machinery coupled with the unique architecture of the buildings of the port. The majority of this image of the port has been preserved since 1905. The Industrial Port of Odesa (Figure 13) presents itself as a harmonious unification of an active industrial port and a cultural center for the public. This intricate balance that is very difficult to achieve enriches its character and grants it significance. The port serves its city and locals on many different fronts, from functional, economic and real-estate values to cultural, social, memory and symbolic values.[76] The multidimensional qualities of the Industrial Port of Odesa coupled with its inseparable role in the identity of the city of Odesa and its citizens, signifies it as a heritage place.

Figure 13: Port of Odesa, current situation, retrieved from https://www.alamy.com/stock-photo/city-center-odessa ukraine.html?sortBy=relevant

[76] Value definitions in (Özçakır 2018)

2.2.2. Port of Varna

Port of Varna is located at the shores of the Black Sea and the Varna Lake, in the northeast of Bulgaria, city of Varna. It is the biggest port in Bulgaria and handles pan-European corridors No:8 and No:7 (Rhine-Main-Danube) in addition to the international transport corridor between Europe-Caucasus and Asia. The port currently has two terminals, Varna East Port Terminal and Varna West Port Terminal (Figure 14). Varna East is in the Bay of Varna, near the city center while Varna West, the modern expansion port is located at the northern coast of Black Sea, on the west shore of Beloslav Lake. Services include stevedoring, cargo storage and forwarding, weighting, trimming, etc. Various ships such as bulk carrier, general cargo, tanker and container ships commence their operations divided among both terminals. It is a continuous port and operates 24h a day.

Figure 14: Varna East Port Terminal, right, Varna West Port Terminal, left, produced by the author, original image from Google Earth Pro

Varna East Terminal (Figure 15) was opened in 1906. It has 14 berths with a total length of 2345m and draft of 11.5m. The terminal has docks which can handle general cargo, bulk cargo, liquid bulk, edible liquids, Ro-Ro, containers and passengers in addition to marine and technical services. There are 22 portal cranes, 1 mobile crane, 1 gantry crane, 1 quay crane for grain and 1 unloading facility for molasses situated on these docks. The port is connected with the land road network and has a storage base 5km away from the port operating also as a dry dock. It specialized in the transport of grains in its early phase as an industrial port, before

expanding and modernizing and works are currently underway for its improvement of facilities and infrastructure in that regard.[77]

Figure 15: Varna East Port Terminal, retrieved from https://port-varna.bg/en/TERMINALS/Varna-Iztok

Varna West Terminal (Figure 16) was opened in 1974 as the modern expansion of Varna East Terminal. It is situated 30km outside of the city of Varna, on the west shore of Beloslav Lake. It has a maximum draft of 11.2m with a quay length of 3430m. Open are storage covers 346.393 m^2 and warehouses cover 37.806 m^2. Modern technological lines are available for handling of container, cargo, soda ash, fertilizers, cement, coal, ores, phosphates, silica, and liquid chemicals. The terminal

[77] Information gathered from the official site of Port of Varna, retrieved from (https://port-varna.bg/en/TERMINALS/Varna-Zapad 2024)

handles general cargo, bulk cargo, liquid bulk, ro-ro and containers in addition to marine and technical services. It has multi-purpose berths for handling different types of cargo in different scenarios and capacities. All of its berths and warehouses has access to the rail and road networks. It is adjacent to chemical factories of Devnya and this allows for the continuation of the industrial port model of factory to ship.[78] The terminal has been expanding its coverage to grain exports in the last 20 years in addition to its existing services. The characteristics of this port, especially its affinity for container handling, solidifies it as Bulgaria's container hub.[79]

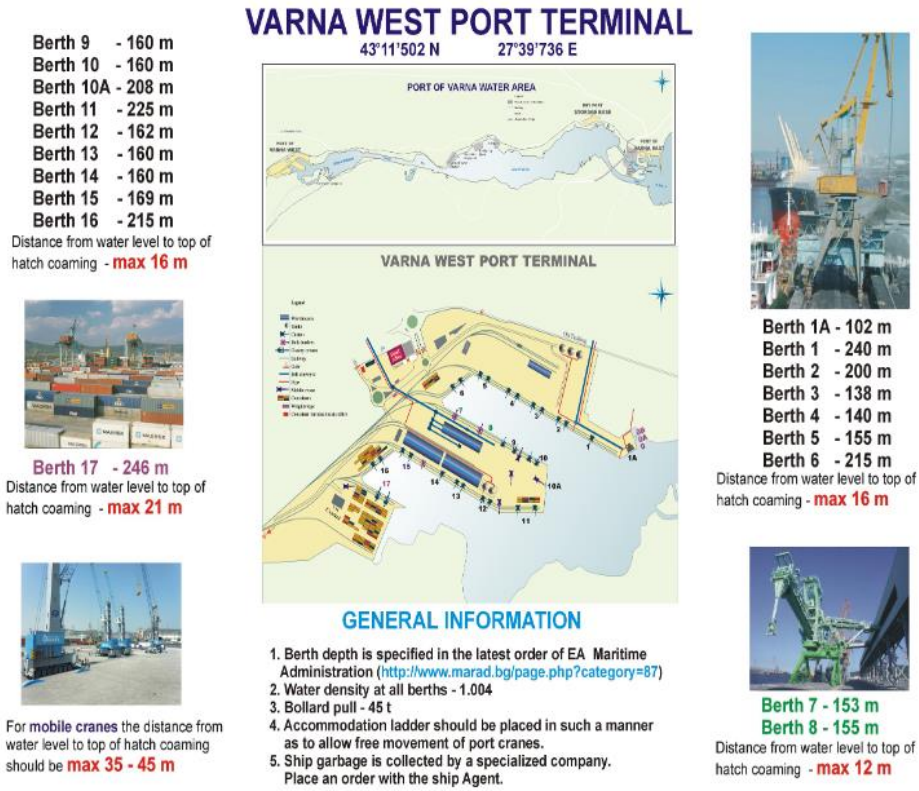


Figure 16: Varna West Port Terminal, https://port-varna.bg/en/TERMINALS/Varna-Zapad

[78] Industrial ports are characterized by having industrial facilities directly inside or adjacent to the ports from which they would load directly and efficiently into ships without losing resources on land transport to docks

[79]Information gathered from the official site of Port of Varna, retrieved from (https://port-varna.bg/en/TERMINALS/Varna-Zapad 2024)

Port of Varna (East) emerged directly into the age of industrial ports as a second-generation port.[80] In 1906, a channel was built to connect Varna Lake to the sea. Varna East Port Terminal and its facilities were built at the end of this channel. The port struggled in the period of World War I, when the city fell under Romanian rule and it lost its hinterland and Russian Traffic.[81] It recovered after the Second World War, growing exceedingly fast as was typical of port cities in that period.[82] In 1966, a passenger terminal was built on the pier that separated the beach from the port facilities (Figure 17) and a ferryboat terminal was built in the 1970s on the western shore of Varna Lake. [83]

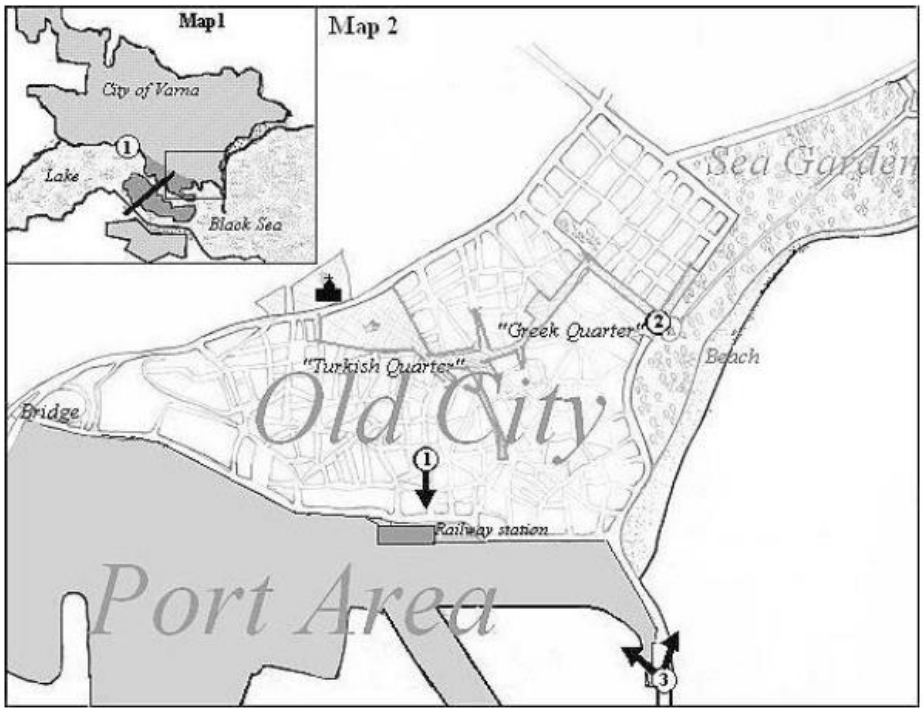


Figure 17: Maps showing Port of Varna and the zoning of the region surrounding it, 1: Railway Station, 2: Separation line of Old City and Sea Garden, 3: Ferryboat Terminal, taken from Bothfeld, 2008

[80] From (Hoyle, Global and Local Change on the Port-City Waterfront 2000) and (UNCTAD 1992) generation models, a port which runs with a rapidly industrialized core and landfill areas
[81] (Bothfeld 2008)
[82] (Hamilton, Andrews and Milanovic 2005)
[83] (Bothfeld 2008)

The significance of the port was growing but Varna-East would not be modernized until the early 2000s. Since containerization was an extension of globalization, it was not favored in the development schemes of the Soviet run ports. The port endured tough times due to this and the political turmoil at the end of 20th century. Concerns were raised as other ports in the vicinity such as Burgas and Constanta were gaining prominence and there was a consideration of waterfront regeneration projects for the port. However, it regained its ground through the Law on Sea Space, Inland Waterways and Ports which allowed ports in Bulgaria to have better operation cycles, which in turn attracted investments towards the port. At 2006, a new management information system was announced complying with the standards of data exchange through computerized systems in port.[84] Together with this system the docks were modernized to be better suited as an active port and succeeded. The port reached peak freight numbers in 2011 (Figure 18) and continued its upward trajectory till the current situation.

Figure 18: Port of Varna, 2011, retrieved from http://varna-bulgaria.info/2011/port-of-varna-gets-record-high-freight-traffic-in-august-2011/

[84] (https://port-varna.bg/en/TERMINALS/Varna-Zapad 2024)

Varna, similar to Zonguldak was not associated with the image of a port-city. It was known as a seaside destination and the port activities were affiliated with the same negative connotations in Zonguldak such as pollution, noise, cluster of machinery and a blockade between the public and the waterfront.

Varna has become the third biggest city in Bulgaria and the Port of Varna (Figure 19) together with its two terminals, East and West, is the biggest port of the country. Similar to Port of Odesa, though built a century later, it managed to also avoid waterfront regeneration taking over port activities. It is clear to see the effects a port has on its city and that an active port, even if late in terms of worldwide trends, can still succeed through concentrated and meaningful effort towards attaining contemporary standards. The development which took place in Varna will not yield the same result for other ports and port cities, but represents the notion that active ports are truly beneficial in the developments of their cities. Industrial ports, need not be the subject of waterfront revitalizations and that adaptive re-use or regeneration of their facilities are not the only way out. Though it requires significant state funds and carefully laid out plans with collaboration from private institutions and multiple stakeholders, modernization of industrial ports is a very strong path for industrial ports that are becoming redundant. The cases of Varna and Odesa signifies this.

Figure 19: Port of Varna East Terminal, current situation, retrieved from https://harboursreview.com/port-varna.html

Port of Varna has become the biggest port in Bulgaria. It has resisted turning into a waterfront regeneration area. Adjacent quarters and their aged buildings outside of the port have undergone conservation efforts. There is a Sea Garden adjacent to the port, which serves as one of the landmarks of the city that holds symbolic significance and important memories for the locals.[85] It also hosts various cultural events and provides a vast amount of public space adjacent to the coastline. There are multiple sea resorts along the coastline, which Varna is known for. These factors all strengthened the cause for the continuation of port activities as they allow for sufficient public interaction with the coastline. Moreover, the economic capital

[85] (Bothfeld 2008)

generated from these resorts reinforced the economy of Varna, possibly allowing for more investments on the port which was already thriving due its prominent geographic location and continuous development.

Through its development, the transport activities of the port have become crucial to the trade in Black Sea, especially through ro-ro and container handling operations. The port is not situated in deep waters of a river, and there is no risk of collapsing its breakwaters through dredging operations to deepen the draft (depth) of the port. Considering that there is no pressure created by a of lack of urban land, lack of public space in the coastline nor a conundrum caused by geographic impossibilities of expanding the port, there is no apparent reason for the port to cease its operations. Hence, through these factors and the valuable input of the decision makers of the port, it has been actively used since it began operations.

The circumstances of this port illustrated above is unique to the Port of Varna. It is a medium-sized seaport according to Roa et.al.[86] In accordance with Sheikholeslami and Langeroodi's classification, based on usage is a complex port, a coastal port in terms of geographic location, an industrial port according to its functional role, a hub port in its role in maritime transportation networks, a permanent port in terms of operational duration, a 24-hour service port in terms of service duration, is a state owned port in terms of ownership, a controlled port in terms of usability, and an international port in terms of coverage zone.[87] It was constructed as a first-generation port and have evolved into a third-generation port according to UNCTAD's classification.[88] From the perspective of Hoyle's stages, it started out as an expanding port/city, then reached the stage of modern industrial port/city and have bypassed the remaining three stages as it has not been relocated nor received a

[86] (Roa, et al. 2013)
[87] (Sheikholeslami and Langeroodi 2024)
[88] (UNCTAD 1992)

waterfront regeneration.[89] It has matched the 3rd Industrial Revolution of Jansen's classification of phases of ports. [90]

The Industrial Port of Varna is a competitive port in its current situation, owing to its continuous development. The necessary infrastructure, terminals and machinery were added to the port as needed to match the evolution of sea trade. The of external factors and its surroundings supports the realization of this continuous development of the port. There is significant functional and economic value offered by the presence of the active port but the significance of the port comes from a multitude of aspects. These aspects come in the form of technical, architectural, emotional and socio-cultural values.

The port holds a special place in the memories of the locals. Monuments in the city depicting the major events. The Pantheon, a monument located in the Sea Garden, depicts the resistance to fascism in 1970s features images of the port. [91] The port's presence in the collective memory of important events solidify its values of symbolic and memory, in addition to its economic and functional values. Through its central position, the port acts as a starting point for experiencing the history of the city, as it is adjacent to the Sea Garden and the city center which features historic quarters. Souvenirs and attractions related to the image of a port city is all over the streets and quarters in close proximity to the port. Moreover, the impact and presence of the port is visible throughout the city, never fading from the views of the public and the image of the city as the cranes and the machinery of the port occupy the silhouette of the city.

What makes the Industrial Port of Varna a heritage place is the combination of its continuous presence and the dynamics of its surroundings. The development of Port of Varna and its relation with its city is unique. It covers a significant place in the image of the city. Through its special set of circumstances, the location and form of

[89] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)
[90] (Jansen 2016)
[91] (Bothfeld 2008)

its breakwaters, its two terminals, its situation of docks, the arrangement of machinery, its technology and construction techniques, the circulation of port personnel and continuous activities, the ever-transforming port image, the connotations of port in the memories of the people, and the character of a unique port-city made possible only by the existence of the Industrial Port of Varna, solidifies it as a heritage place.

2.2.3. Port of Bilbao

The Port of Bilbao (Figure 20) is situated on the mouth of the Bay of Biscay, at the Estuary of Bilbao, where rivers Nervion, Ibazaibal and Cadagua converge, around the area of Santurtzi and Zierbena. The port has a container terminal, general cargo dock, docks for liquid bulk and dry bulk cargo, ro-ro dock and a passenger terminal. It officially began operations in 1975 after the decision to relocate port facilities was taken by the city council of Bilbao. During its first phase the port had only access to bulk cargo terminals and docks for general cargo, supported by deepwater docks. Warehouses and open storage areas were built to shelter cargo waiting shipment. Navigation and pilotage services were given as expected of all ports from industrial onwards. It added a Ro-Ro terminal at 1980 and container terminals in mid 1980s and continued its developments to remain competitive as an active port. Port of Bilbao currently handles near 40 million tons of cargo annually and acts as a hub port in the waters of Europe as a significant Port of Spain.

Figure 20: Port of Bilbao and Port Area before Bilbao Ria 2000 (top), produced by the author, original image from Google Earth Pro, Zoning of Port of Bilbao (bottom), retrieved from https://port-of-call.co.za/2023/11/24/port-of-bilbao-in-a-prize-winning-city/

The port originally was located deep in the river Nervion, around the city center (Figure 20). Until the late 20th century it was the biggest industrial Port of Spain, due to its industrial production and capacity of transport (Figure 21). Through investment in iron and steel industries and drawing even foreign investments, through the city flourished through its industrialization.[92] This continued until the economic slump of 1975 which was due to the inevitable reduction in industrial production of steel and iron industries and the shortcoming of shipbuilding due to emerging shipbuilding in Asia.[93] The city and its port hit a dead end as its industrial development was halted and sought out a differing approach rather than doubling down on the modernization of existing facilities.

Figure 21: Industrial Port of Bilbao, mid-20th century, in original location along River Nervion, retrieved from https://www.gettyimages.com/detail/news-photo/port-sur-le-nervion-%C3%A0-barakaldo-dans-la-banlieue-de-bilbao-news-photo/1147968375

[92] (Zulaika 1998)
[93] (Areso 2010)

Following the decline of industrialization, a government lead effort by the province of Biscay and the city council of Bilbao a strategic plan was approved for a waterfront regeneration project. Bilbao Ria 2000 was established in 1992 as agency to mediate between the state and private institutions. The port administration was then morphed into a joint-stock company. This made it possible for carrying out large-scale plans for infrastructure, architecture, and urban developments for reshaping the area. Due to the continuous size increase in modern ships and the limited capacity of Nervion river in terms of its depth, the decision to move the port to the Abra Bay at the mouth of river Nervion was taken and the territory of the port was relocated downstream.

Bilbao Ria 2000 as the public company responsible for the Urban Regeneration of Metropolitan Bilbao began the transformation area in through environmental, transportation and urban development projects. The freed-up space was then used for multi-purpose areas and socio-cultural facilities. Multiple world-famous architects were invited such as Santiago Calatrava, Frank Gehry and Zaha Hadid to design the spaces of the port of Bilbao. The space previously occupied by shipyards, container handling facilities, blast furnaces, cranes and docks were replaced with promenades, parks, open air art-galleries, new neighborhoods and business areas.[94] Guggenheim Bilbao (Figure 22) was constructed in 1997 and started the musealization[95] of the area. Metro Bilbao was constructed, further increasing ease of access to the area and solidifying its image as 'Metropolitan Bilbao'. The Zorrotzaurre Industrial Zone which used to host the warehouses, shipyards and industrial production facilities were transformed into cultural spaces, office buildings and coworking areas by Zaha Hadid Architects. The Euskalduna Shipyard was converted into a conference center while retaining the unique architectural character and expression of a prominent industrial shipyard. More connections were given to the industrial heritage through

[94] Information gathered from Bilbao Ria 200 Official, retrieved from https://www.bilbaoria2000.org/en/bilbao-ria-2000/the-transformation-of-bilbao/
[95] Making an object suitable for an exhibition

a Basque Railway Museum and conversion of docks and warehouses to exhibition spaces, office buildings and socio-cultural spaces.

Figure 22: Guggenheim Bilbao, retrieved from https://www.guggenheim-bilbao.eus/en/the-building

The transformation of Port of Bilbao (Figure 23) elevated a declining city of industry through the complete transformation of its industrial district and industrial port. Although the project is deemed as a big success and is seen as a blueprint for revitalizing declining industrial ports, it should be kept in mind that it worked due to the circumstances that it was executed in Bilbao. The 'Guggenheim Effect' is exclusive for its context and it is likely to not emerge in another context. Each site of industrial ports is unique. Moreover, in the early stages, the project was met with harsh resistance from the public.

The shutdown of industrial facilities and the port left many without jobs and the idea of turning the economic heart of the city into lavish socio-cultural spaces with an

extensive budget was not welcomed. However, it should be stated that the aim of the project was actually to attract investments and increase opportunities of economic growth. The waterfront regeneration would serve to gather the sufficient funds and attraction to jump-start the new facilities needed for the modern-day economy. It was not an isolated effort to remove the industry from the city nor to turn the cities back on it. Urban development, economic growth and keeping the port-city identity was at the core of the aims of the project. However, there is another side of the project's outcomes. Gentrification occurred and the people of Bilbao could not afford prices in the revitalized area. The unemployment rates in the metropolitan region increased and a serious portion of the economy had become dependent on tourism. The large-scale infrastructure projects and the port was actually supporting the city, not so much the 'Guggenheim Effect'.

Majority of the port structures, infrastructure and the industrial production facilities feeding the port has been taken down in Port of Bilbao. Despite this, there was an effort to actively preserve some significant buildings, structures and machinery which were either turned into monuments or were repurposed through adaptive re-use. The memories of the port were trying to be preserved through these efforts. The architectural and technical value of the buildings from the period when the port was active is kept through these re-purposed buildings, documenting their construction technique, technology and architectural qualities while also making use of their spatial qualities. Port of Bilbao is a heritage place through the manifestation of active efforts of trying to preserve its values even though it has undergone a massive transformation. The key values of the port were lost during this process as only some of the major structures and components were kept and the character of an "Industrial Port of Bilbao" and its value as a whole was lost. New landmarks and a whole new context emerged on the area. Only traces were left of the history, memories and the physical presence of the industrial port character of Port of Bilbao. The economic load of the city was shifted from industrial activity to cultural tourism. This

transformation, according to many, have kept this city afloat, but there is no denying the damages it has done to the industrial port heritage of the port city of Bilbao.

Figure 23: Port of Bilbao, before and after waterfront regeneration, taken from Areso, 2006

2.2.4. Assessment of Case Studies

Industrial ports signify the manifestation of an era. Industrialization, mass production, trade of raw materials, factories and refineries, heavy machinery and large workforces, a closed port system, adjacent production and transportation, large landfills, networks of railroads passing through the city extending to the port, and more are all reflected in industrial ports. Each industrial port has different dynamics, local character, transformation process, development agenda. They are modernized because they are deemed significant enough to justify investment huge sums of money, effort and consideration into. The investment for ports constitutes some of the large investments required for states to devote themselves. Improvement of infrastructure, expansion of land over sea, establishment of dry docks, expansion of the hinterland, installation of new facilities and purchase of new heavy machinery such as gantry or quay cranes, multi-year management plans for efficiency and staying afloat the competitive market are arduous and demanding. Despite the hurdle, multiple states over the world have preferred to commit to their ports. It is because, they are valuable and that they are unique.

The cities that developed due to their ports, particularly due to industrial ports, through rapid industrialization understand the value of their ports. The ports are modernized and kept running, if there are means to accomplish so, for they are most valuable when they continue their function. However, as stated previously, no transformation process of two different ports is the same. There are cases in which the modernization of the industrial port is not the preferred outcome. Numerous factors play a role in this. Physical conditions surrounding the industrial port may not be adequate for it. The city may be too packed to accommodate the modernization and expansion of the port in its original location, the water may not have enough potential maximum draft to allow the bigger ships to operate in their waters, the native resources of the area may have been dried out, no longer justifying the factories and large industrial areas, there may be a residue of pollution that needs

purification or there may not be enough space to allow for an expansion. The political agenda and aims of the state or the municipality of the city may be different. Promoting the city and serving multiple sectors of economy may be preceded as more preferrable when compared to the continuation of the port in its original location. In these cases, revitalization projects or waterfront regeneration projects take place. Cases of Bilbao, Amsterdam, Hamburg are examples of this. The port is relocated to a suitable location, downstream in the case of Bilbao, on the opposite bank in the case of Hamburg, outside the city in the case of Amsterdam. Especially in ports with historic backgrounds, this practice is more common. Amsterdam, Hamburg and Bilbao are all ports with historic background. It is because they evoke certain memories, emotions and a local culture that this is being preferred over continuation.

The culture of dockworkers, wooden ships, boats, sailor districts and harbors of old trigger nostalgia and a sense of belonging. The public are able to bond with these places easier. In America, where the approach of waterfront regeneration started, the approach is different as it is to provide more capital through diversifying the functions of the ports and presenting an attractive waterfront to the public and the tourists rather than a 'sense of place' as it takes a backseat to economic and political agendas more so than in European countries. In any case, it is much harder for the public to bond with industrial ports. The noise generated from the activities of heavy machinery and constant operations, the pollution from chemicals and industrial products, the large bodies of ships, cranes, warehouses, silos and tanks occupying the 'view of the sea', the isolation of the waterfront and the city due to specialized road networks adjacent to the port such as railroads and ramps, the restriction of access to the port being viewed as a cutoff from the coastline and large areas of landfill over sea all contribute to a negative perception of industrial ports. However, much of what makes these ports valuable is being glossed over and problems are being attached to them which do not truly exist.

Industrial ports are closed-off entities due to regulations and the way they operate and that is needed for them to function but they do not occupy entire coastlines. In

the industrial port cities, in nearly all of them, there are coastlines available to the public, in most cases larger than the area the port occupies and this carries to the post-industrial period of these ports. The fixation on the continuity of these coastlines stems mainly from trying to adapt the approaches deemed successful in America such as in Baltimore and Boston, which were then continued with examples such as Hamburg and Bilbao. The public will keep demanding a scenery or a promenade for their waterfronts as those notions are associated with a positive image, leisure and comfort. Ports need not be accessible, moreover it makes more that they are not. Ports contribute greatly to a state's economy and need to adhere strict regulations to monitor over what is being transported, by whom and through what means. They always need to be on the lookout of smuggle efforts and transport of dangerous or hazardous materials. The weight of handled freight by cranes and general operations also brings about a risky environment. Moreover, the potential of inner-city ports for modernization of their facilities and ability to keep functioning is often overlooked in favor of gentrification, especially in Europe, due to the success of London Docklands and the belief that it would work at any port, which is dubbed as 'Docklands Syndrome'.[96]

In most waterfront regeneration efforts, the area of industrial port is completely taken over and the activities are relocated away from the city center, either towards the outskirts or at the inner or outer edge of the bay in case of a river. The continuation of the industrial port is lost through this method, but keeping its identity and memory through other means is exercised. However, the image and identity of an industrial district is reduced to fragments of traces and the port which has been as old as the city were replaced with contemporary buildings. It is, therefore, controversial whether if waterfront regeneration efforts succeed in keeping the industrial port heritage or results in dispersing it. Therefore, I argue that the scenario in which the industrial port is adapted to technological changes and continues activity is the one that keep its heritage alive the most. Only in cases where it is physically impossible

[96] (Charlier 1992)

to adapt the port to modern standards should approaches such as waterfront regeneration should be considered.

The industrial port is closely tied to the character and development of the city, hence major transformations of ports also lead up to major transformation in cities as is the case in Port of Bilbao. The outcomes of actions in ports should be carefully planned and discussed by the stakeholders, professionals from multiple disciplines such as planners, architects, industrial engineers, marine engineers, port personnel, financers and academics. Heritage is best kept if its subject functions. Hence, it is the most optimal scenario in ensuring the heritage of industrial ports that they continue functioning through adapting, in their original location. This has been the case for Ports of Varna and Odesa, as they chose modernization of its dock and the expansion of facilities.

Trying to replicate these projects will more likely than not, yield the same outcome as the objectives, planning methods, financing and scale will be very different in addition to geographical conditions, technical possibilities, historical development, constellation of stakeholders and transport connections with the hinterland.[97] More crucially, they have their own identities, local culture, port heritage, history and local dynamics and their projects were designed accordingly. Each port city has a distinctive identity which shapes how the port and city interact.[98]The maritime identity of each port city was shaped in response to different stages of urban development and trade related urban strategies.[99] Industrial ports were never available to the public and they do not need to be as long as alternatives exist for the public to engage with the waterfront. Waterfront regeneration is one, of multiple approaches to preserve the heritage of industrial ports.

Ports carried their cities into what they are now. Industrial ports, their sites and structures such as cranes and warehouses have received recognition as having

[97] (Schubert 2008)
[98] (Lee 1998)
[99] (Boelens 2009)

Outstanding Universal Value. They have been listed as UNESCO World Heritage sites such as Speicherstadt and Kontorhaus District with the Chilehaus Building and the Port of Valparaiso.[100] Sites of Japan's Meiji Industrial Revolution: Iron and Steel, Shipbuilding and Coal Mining in Japan is another example covering an entire area pivotal in industrial production through iron / steel industries, coal mining and shipbuilding. Liverpool Maritime Mercantile City was also part of the list until it lost its coastline and port character greatly and was delisted in 2021. Although there are some examples akin to the ones given above, there is an underrepresentation of heritage of Industrial Ports, their structures despite the fact that their roles in the development of entire cities, regions and economies as continuously growing entities. They contribute to the memory, culture, landscape and images in their sphere of influence.

The waterfronts and harbors represent a collective sense of memories and identity, through its components such as port hardware, infrastructure, machinery, systems and history.[101] Numerous industrial cities have carried over as some of the biggest cities in their countries and kept their prominence, whether through waterfront regeneration or through modernization and expansions of their current ports. Odesa and Varna have transformed into hub ports of the Black Sea and have become the biggest ports in their countries while Bilbao still holds a substantial place in the economy of Spain as a post-industrial city through its 'Bilbao Effect' and serves as the inspiration for many others. Industrial ports are heritage places due to their, history, technology, structures, systems and relationships with their cities. They represent a whole century and the continuation of a legacy. They are developed because of their significance. They adapt, evolve and transform because they are heritage places. It is crucial that these values be recognized and that they are not lost due to negligence. Though there are numerous success stories of ports with continuous operation since their emergence or through waterfront redevelopments,

[100] (Dai, Hein and Baciu 2021)
[101] (Kermani, Vrijthoff and Salek 2020)

there is also numerous industrial ports that are having their heritage undervalued and are losing important parts of their identity.

The Industrial Port of Zonguldak is such a case. The city is not being associated as a port city and is under the shadow of a mining city. Despite undergoing numerous transformation processes, it has lost many of its structure's characteristic from its activities in the mid-20th century. The industrial port is facing the risk of ceasing activities and this is reflected in the many planning attempts shrinking the port and giving its areas to recreational purposes. It is critical to assess the significance of Industrial Port of Zonguldak as a heritage place, to have it recognized as a crucial part of the city of Zonguldak and world heritage and ensure its preservation.

The general characteristics of the Industrial Port of Zonguldak, its analyses of current situation, the historical development of the city of Zonguldak, the transformation processes and the developments of the port will be illustrated further in chapter 3. The value assessment of the Industrial Port of Zonguldak and the case for why it is a heritage place will be elaborated following the attempt to fully understand its significance in terms of its historical timeline, components, meaning as a whole, multidimensional values, character, identity and unique presence in chapter 3.

CHAPTER 3

THE INDUSTRIAL PORT OF ZONGULDAK AS CULTURAL HERITAGE

The Industrial Port of Zonguldak (Figure 24) was constructed in 1896 and is still currently in active use. The port is located in the central district of Zonguldak, at the coastline of the city center. Its north side is mainly accessible to public while its south-western side is a customs area and is not accessible by public. It is being managed by TTK (Turkey Hard Coal Institution) and is owned by the state treasury. Zonguldak emerged as a city and gained prominence through its industrial production of coal and the presence of its port. The port has undergone numerous transformation processes. This chapter will cover the general characteristics of the region of Zonguldak, the analysis of the current situation of the port, followed by the historical development of Zonguldak and finally, the transformation of the Industrial Port of Zonguldak throughout history.

Figure 24: Industrial Port of Zonguldak, 2024, photograph taken by the author

3.1. General Characteristics of Zonguldak

Zonguldak is situated in the Western Black Sea Region and it is surrounded by Bartın from northeast, Karabük from east, Bolu from the south and Düzce from west, while its north is covered by the Black Sea. It is home to a very mountainous terrain 56 percent of which is covered by mountains (Figure 25). 31 percent is covered by plateaus and 13 percent by plains. The area is rich with its water resources such as numerous streams coursing through its borders, Filyos (Figure 25) being the biggest and most notable of them. Due to abundant rain, the region is lush with forests, which cover 52 percent of the province.[102] The streams contribute to the mountainous terrain of the area by dividing it with a network of valleys. The province ranks 8th in the country in ratio of forest covered area to total area and has 4 natural parks; Milli Egemenlik, Göldağı, Danaağız and Harmankaya.

[102] (Modül Planlama, 1/5000 Implementation Plan for Waterfront Renewal Project, 2019)

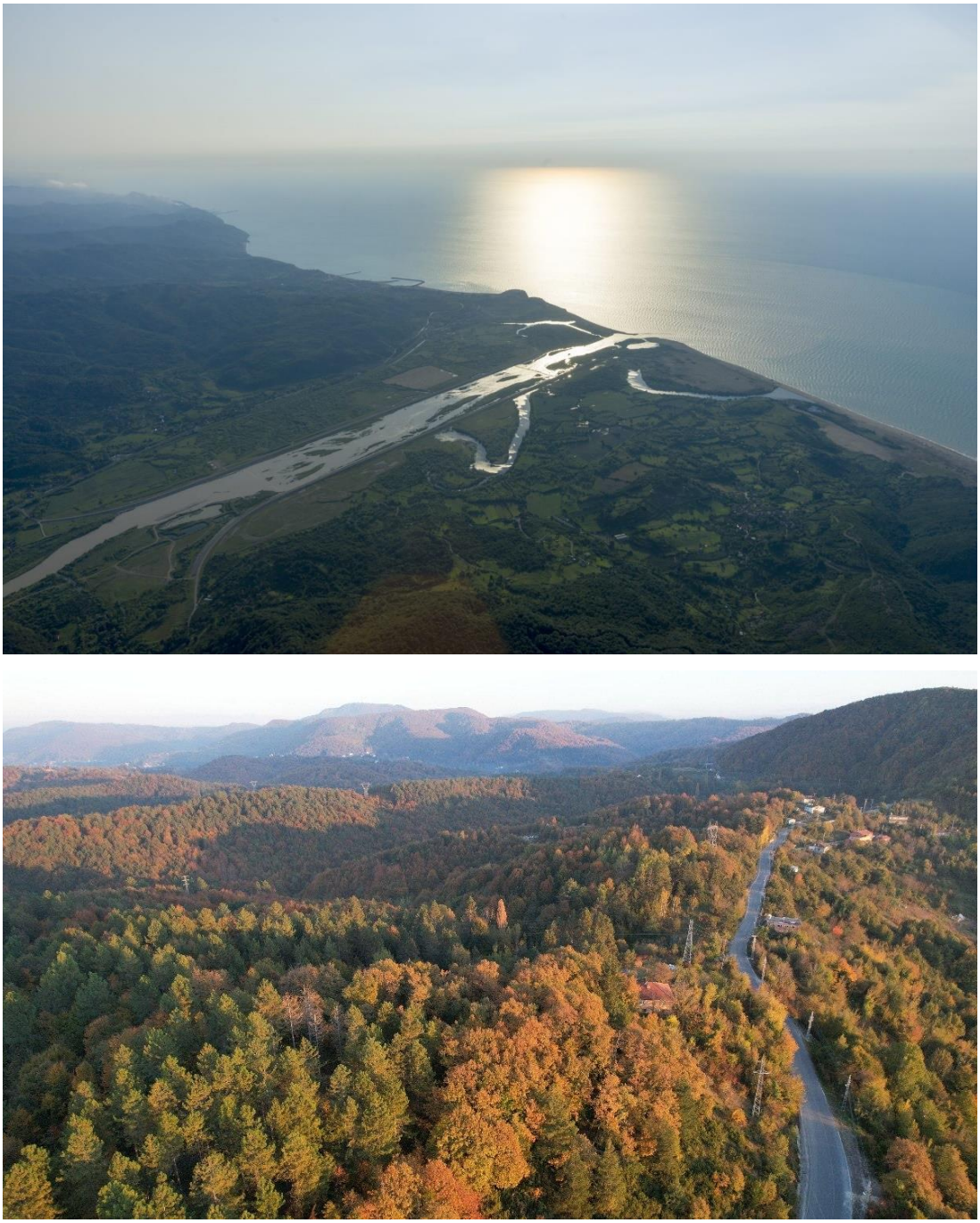


Figure 25: Filyos stream (top), retrieved from https://batikaradeniz.gov.tr/?p=3105, Zonguldak forests (bottom), retrieved from https://www.ensonhaber.com/yasam/zonguldakta-kent-ormani-gorenleri-buyuluyor

The province consists of 8 districts, 25 municipalities and 327 villages. The districts are Alaplı, Çaycuma, Devrek, Kdz. Ereğli, Gökçebey, Kilimli, Kozlu and *Merkez* (central district) (Figure 26). It covers ‰ 4.2 of Turkey, with its 3.304 km^2 area, excluding lakes. In terms of km^2 per person, it ranks 11th among 81 provinces with 179 per km^2. In accordance with TÜİK, the recorded population of the province is 591.492 and the rate of population increase is ‰ 5.1. The ratio of people living in centers of province and districts to others is % 62.9. Ereğli has the biggest population with 175.294, followed by Zonguldak Merkez, 117.360. The least populated district is Kilimli with 33.639. Recorded end of 2023, % 14.9 of the population is elderly. The central district of has 5 municipalities and 50 villages. It is on 41 27 north latitudes and 31 47 east longitudes. [103]

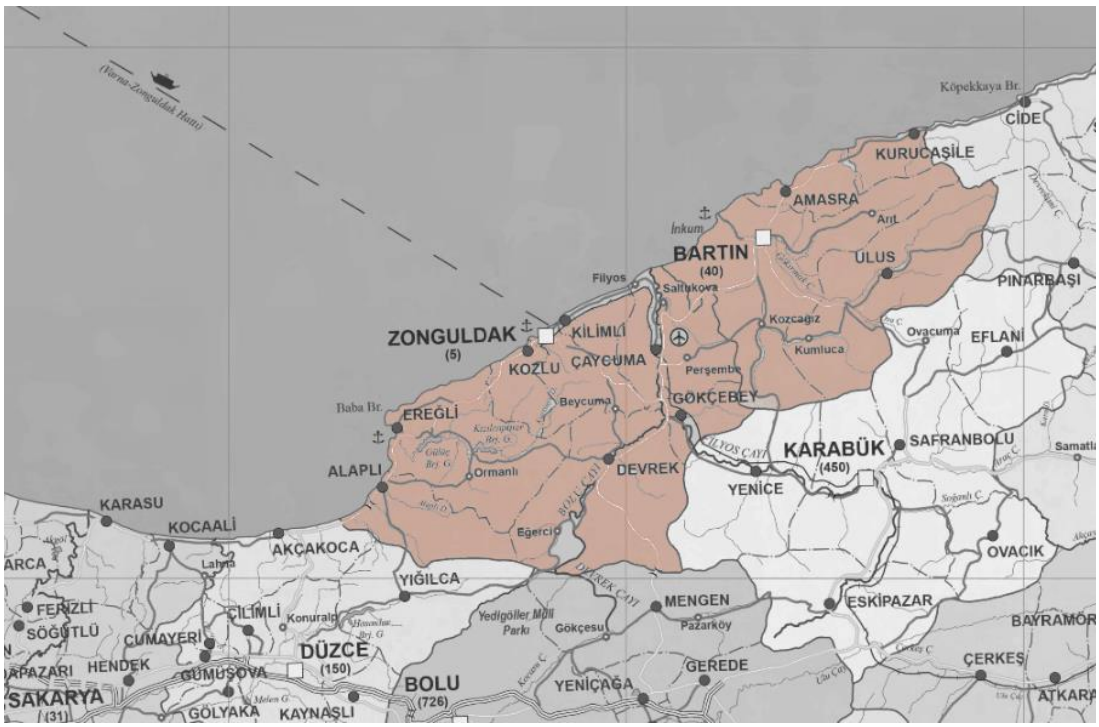


Figure 26: Map of Zonguldak and Legal Boundaries, courtesy of Directorate General for Mapping, retrieved from https://atlas.harita.gov.tr/#7.85/41.537/32.838

[103] (Zonguldak Valiliği İl Brifingi 2024)

Zonguldak basin is the only area of Turkey which has reserves of hard coal. The reserves range to 1.5 billion tons of hard coal, 60 percent of which is inside the provincial borders. Coking coal being only available in Kozlu, Üzülmez and Karadon facilities of TTK. One of the biggest iron-steel manufacturers and one of the only integrated horizontal steel producers in the country, ERDEMIR (Figure 27) is located in the district of Kdz. Ereğli. In addition to this, Organized Industrial Complexes in Kdz. Ereğli, Çaycuma and Alaplı were reported as working full capacity, end of 2023, with 7.458 personnel. The number of industrial facilities in the province is 707 recorded end of 2023. The province is also generating % 41.7 percent of the country's natural gas and also ranks 6th in electrical energy produced. Apart from industrial production, farming activities including wheat, barley, corn, hazelnut, chestnut, strawberry, apple and various vegetables such as potato and sunflower are ongoing. Most notably, Zonguldak is 6th in hazelnut production and 5th in chestnut production. [104]

The country's first and only Mining Museum (Figure 27) has been active since 2016. It's application to ERIH (European Industrial Heritage Route) has been approved in 25th of January, 2022. Zonguldak Coal Geopark was designated as a national Geopark by the UNESCO Turkey National Commission in 23rd of January, 2023, which signifies it as one of the only three national geoparks in the country. In addition, 5 museums and historical sites, 9 libraries, 7 theaters and 23 cinemas exist as places of cultural interaction.[105]

[104] (Zonguldak Valiliği İl Brifingi 2024)
[105] (Zonguldak Valiliği İl Brifingi 2024)

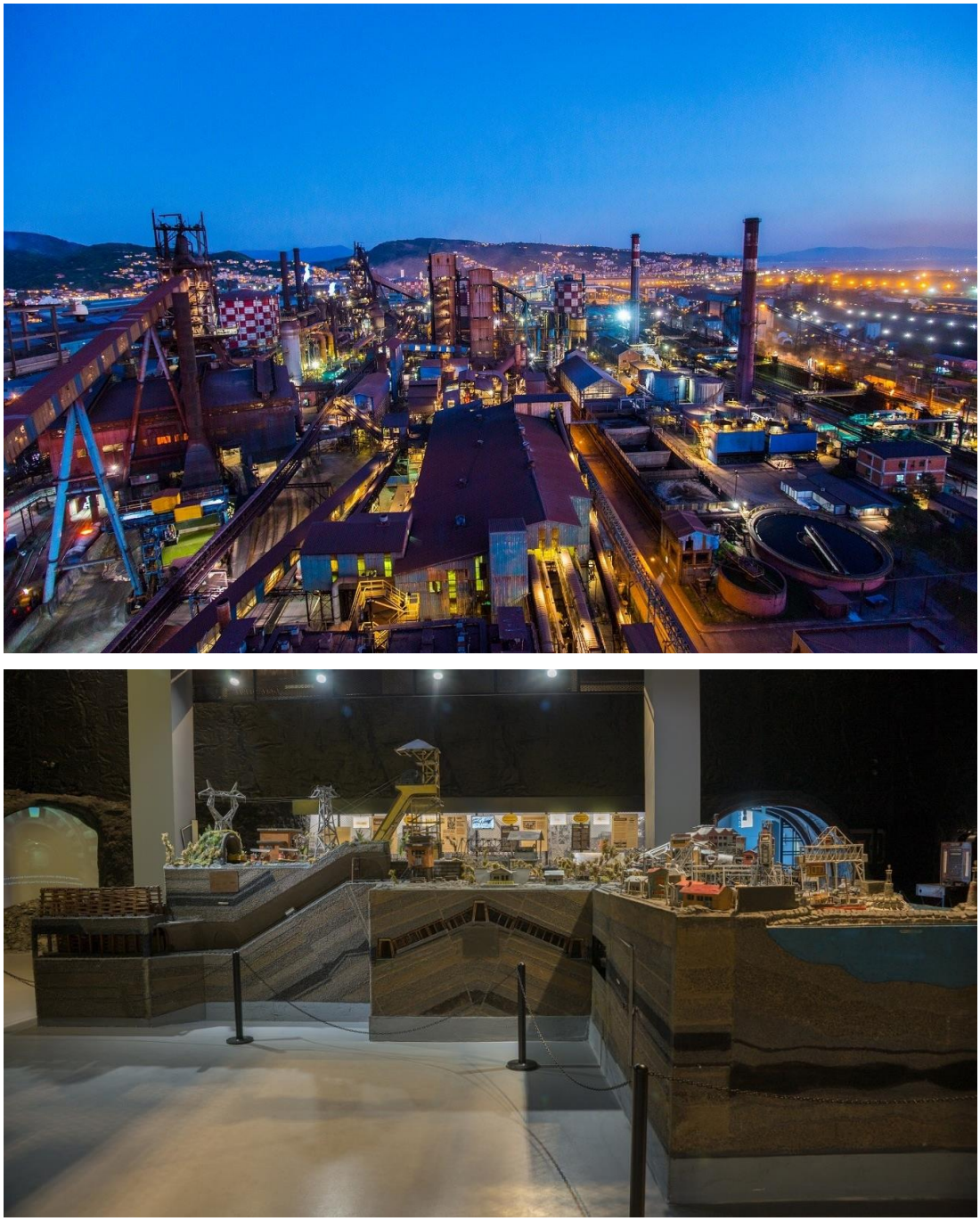


Figure 27: Erdemir factory (top), retrieved from https://www.erdemir.com.tr/, Mining Museum, interior (bottom), retrieved from https://www.zonguldakmadenmuzesi.com/en/gallery

In terms of land transport (Figure 28), there is 421 km of land roads and 69 km of railroads. The railroads are mainly connected between industrial facilities. For instance, there is constant cargo transfer to Kardemir in Karabük from Zongulda through railroads. Passenger transfer of railroads is limited to Karabük and Zonguldak. In terms of sea accessibility, there are 5 ports in the province, which handled 24 million tons of load, end of 2024. Port of Zonguldak (Figure 28) has capacity of 2.2 million tons while Erdemir Port in Ereğli (Figure 28) has approximately 20 million tons of capacity. Eren Port (Figure 28) has capacity of 10 million tons and serves the thermal power plant located behind it. Filyos Port (Figure 28) has 25 million tons of capacity and is among the 3 biggest ports in Turkey. Finally, in terms of air transport, the airport of Zonguldak is situated in Çaycuma district and is an international airport but also serves regionally to Karabük, Bartın and Zonguldak.[106]

[106] (Zonguldak Valiliği İl Brifingi 2024)

Figure 28: Ports of Zonguldak Region, (top) produced by the author, original image from Google Earth Pro, Roads of Zonguldak, (bottom) retrieved from https://www.kgm.gov.tr/Sayfalar/KGM/SiteTr/Bolgeler/15Bolge/Iller/IlZonguldak.aspx

3.2. Zonguldak as an Industrial Port City

Figure 29: Industrial Port of Zonguldak, Ottoman Period, taken from the archives of Zonguldak Directorate for Culture and Tourism

Port is an area of land reserved for transfer of passengers from other means of transportation to sea or vice versa and the handling of cargo, carrying withing itself the technical means and logistics of loading, unloading and storing cargo as well as having sufficient enough draft[107] for passage of ships, situated at the end of sea, lake or streams which is protected naturally or artificially.[108] Ports are used frequently for import and export purposes, and it is not uncommon to see industrial facilities in close proximity or within the hinterland of ports for ease of logistic and transportation networks from production to shipping. Industrial ports are ports that have emerged in the mid to late 19th century through the need of capitalizing on the transport of industrial production enabled by the industrial revolution. The port of Zonguldak

[107] Distance between the waterline and the lowest point of the ship, can be thought of as depth
[108] (Doğaner 1991)

(Figure 29) was constructed at the end of the 19th century and its main purpose was to enable the transport of coal. Hence, it is an industrial port. Industrial ports undergo numerous changes due to the shifting dynamics of technologic, economic, social, cultural, political and planning factors. Their heritage depends on the developments that take place in their transformation processes. This chapter will focus on the origins and transformation process of the Industrial Port of Zonguldak. The study area will be the port, its facilities and structures. (Figure 30) The surroundings and the city will be used as context and for analyses involving the hinterland of the port.

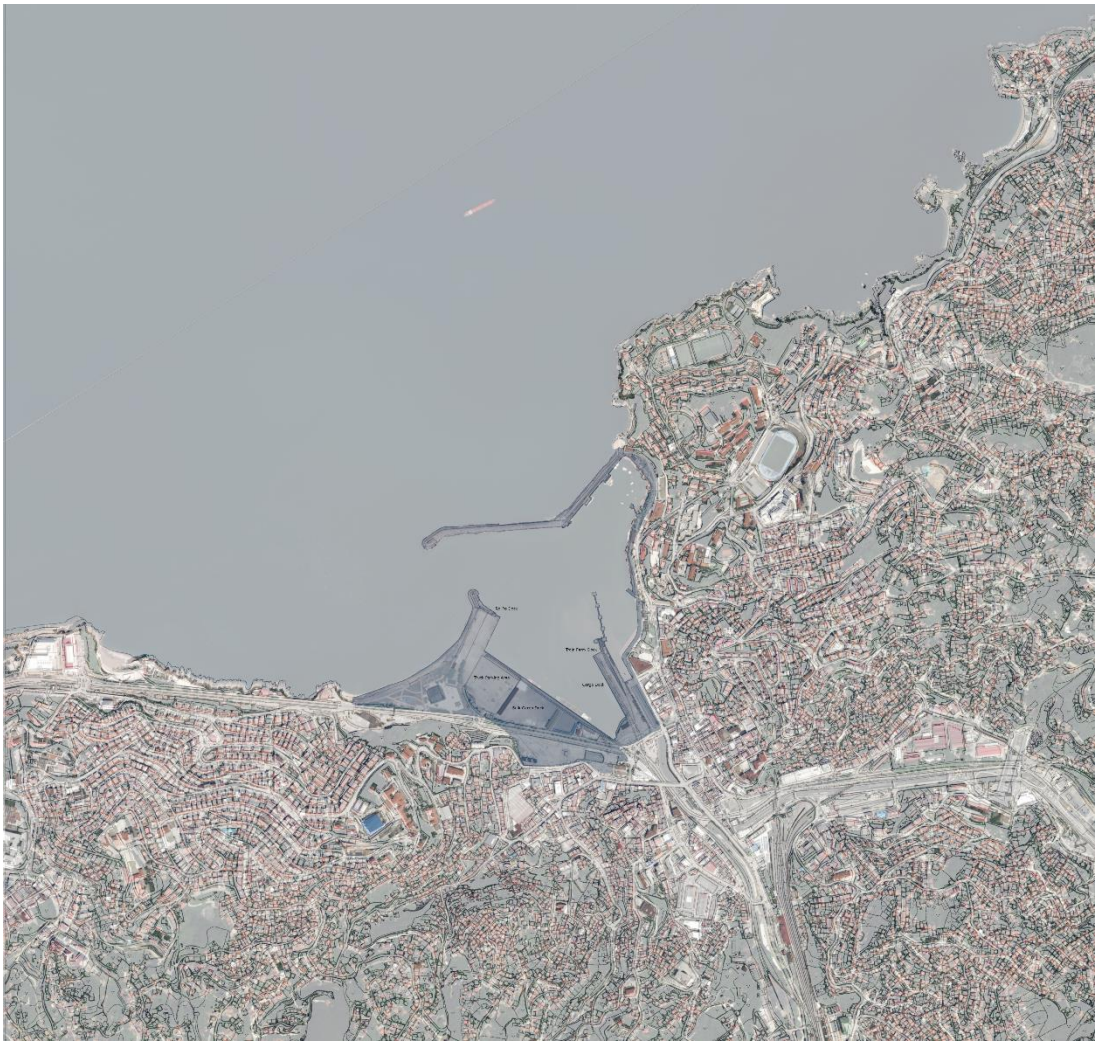


Figure 30: Study Area highlighted in blue, produced by the author, base image taken from the Directorate General for Mapping and base drawing taken from Zonguldak Municipality

3.3. Analyses of Current Situation

The Industrial Port of Zonguldak (Figure 31), commonly referred to as Zonguldak TTK Port, was built on 1896 and is still active under the management of TTK (Turkiye Taskomuru Kurumu). It is the oldest port to date in Zonguldak. It is located in Milli Egemenlik Caddesi, Kargo Merkez at the coordinates "41º 34′ 45″ K – 32º 04′ 30″ D / 41º 23′ 10″ K – 31º 37′ 50″ D". The port has a maximum draft (depth) of 9 meters, currently 7.5 meters as recorded in 2023, and the maximum deadweight is listed as 28 thousand deadweight (155 million tons). The main mole of the port was constructed in 1958, currently the port has 2 moles, referred to as "*yeşil mendirek*" and "*kırmızı mendirek*". Total export was recorded as 132 thousand tons, while import was 1 million 38 thousand 120 tons as of 2023. 305 ships were recorded during this period, which roughly equates to 1 ship per day, and considering the operations of a single ship requires 2-3 days, it can be stated that the port is quite active.

Active services include mandatory assistance (Port Regulations) of mooring boats and tugboats for cargo ships, shifting and various others through TTK, navigation services through the Coast Security General Directorate, 24 hours a day, with 3 shifts, for ships that enter or exit the port.[109] The inventory of ships include one navigator boat, 2 mooring boats and 2 tugboats. For handling there are 2 electric quay cranes, weighing 5 and 15 tons, mobile cranes with the capacity of carrying 10 to 15 tons of weight, several machines with different capabilities and forklifts. The port is governed through the ISPS regulations (International Ship and Port Facility Security Code) to ensure safety and security. The ships that want access to the port get permissions from the Port Authority of Zonguldak, through agencies, whose offices are located adjacent to the cargo area, with delivery orders, stating which ship will arrive at exactly what hour. After their permissions is granted, they are let inside according to their applications numbers. The loads are then unloaded onto the bulk cargo dock or to the wagons after an agreement is reached regarding pricing and regulations, between authorities and the responsible from the ship. It is noteworthy to mention that almost little to no

[109] (www.taskomuru.gov.tr 2024)

passenger transfer takes place in the port, and that nearly all operations are forms of handling cargo. The pricing differs for each dock but the calculation is always USD per tons. If the operations are handled by TTK, the pricing per ton nearly quadruples, so most of the companies using the port prefer to handle loading and unloading operations by themselves, by only paying the fee. The pricing is the same for railroad transfers as well, USD per ton for the cargo loaded into the wagons.

The major economic capital of the port was the transportation of coal until the 2000s, but through the years has shifted to Ro-Ro transportation. These changes can be attributed to several factors. The immediate ones which come to mind are the reduction in coal production, the cost of mining coal domestically versus importing it, the state of the port against the newly emerged ports in the vicinity and the limited capabilities of the physical and tectonic characters of the ports, in addition to inventory and budget.

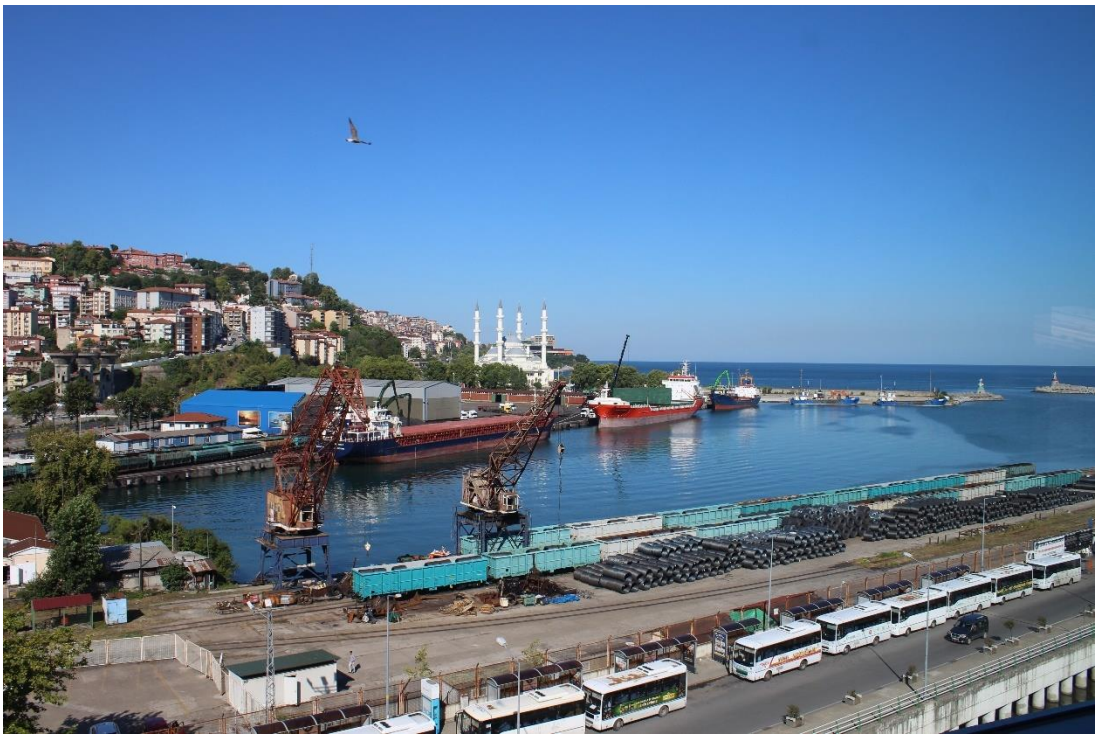


Figure 31: Industrial Port of Zonguldak, overview, photograph taken by the author

3.3.1. Ownership

Figure 32: Ownership Analysis Map, produced by the author, base image taken from the Directorate General for Mapping and base drawing from taken from Zonguldak Municipality

The port of Zonguldak belongs to the treasury, and is government owned, currently being managed and rented to 3rd party companies by TTK (Figure 32). This ownership right comes from the extension of the law given to *Ereğli Şirket-i Osmaniyesi,* the French company established in 1892 that managed port and mining operations during the Ottoman Period. It was a port prerogative and was held by the French company until it was eventually bought out by EKİ in the Republican period. After the bankruptcy of the Etibank, all assets and rights of EKI was transferred to TTK. It is the extension of the same prerogative that was given to its predecessors that allows TTK to manage the port and its facilities. The duration of this right is until the

disbandment of the company. The ownership of the port belonged to TTK until 2009, after which it was transferred to the treasury due to a lawsuit involving the legalities of coastal lines. The port which was the property of the company was taken through the reasoning that they are in the area of coastal lines and that they must belong to the treasury of the state. Currently, there is not any lots regarding the port and the entirety of it belongs to the treasury. The customs area and the *kırmızı mendirek* is being managed by TTK while the rest of the coastline is available to the public.

3.3.2. Public Private Space

Figure 33: Public / Private Space Analysis Map of Port of Zonguldak, produced by the author, base image taken from the Directorate General for Mapping and base drawing taken from Zonguldak Municipality

The port is almost divided by an axis from the middle in terms of public and private space (Figure 33). North-northeast parts of the port are available to the public, with the exception of the areas of the Coastal Guard and Boat Services of TTK (mandatory service that must be taken by incoming ships, given with mooring boats, tugboats and navigator boats and adequate personnel from TTK), which have their edifices located just before the coastal guard (Figure 34).

Figure 34: Coastal Guard and Boat Services Section of the Port, from Mining Engineer's Association deck, (top), photograph taken by the author, Aerial view, (bottom), courtesy of TTK

3.3.3. Accessibility

3.3.3.1. Pedestrian Accessibility

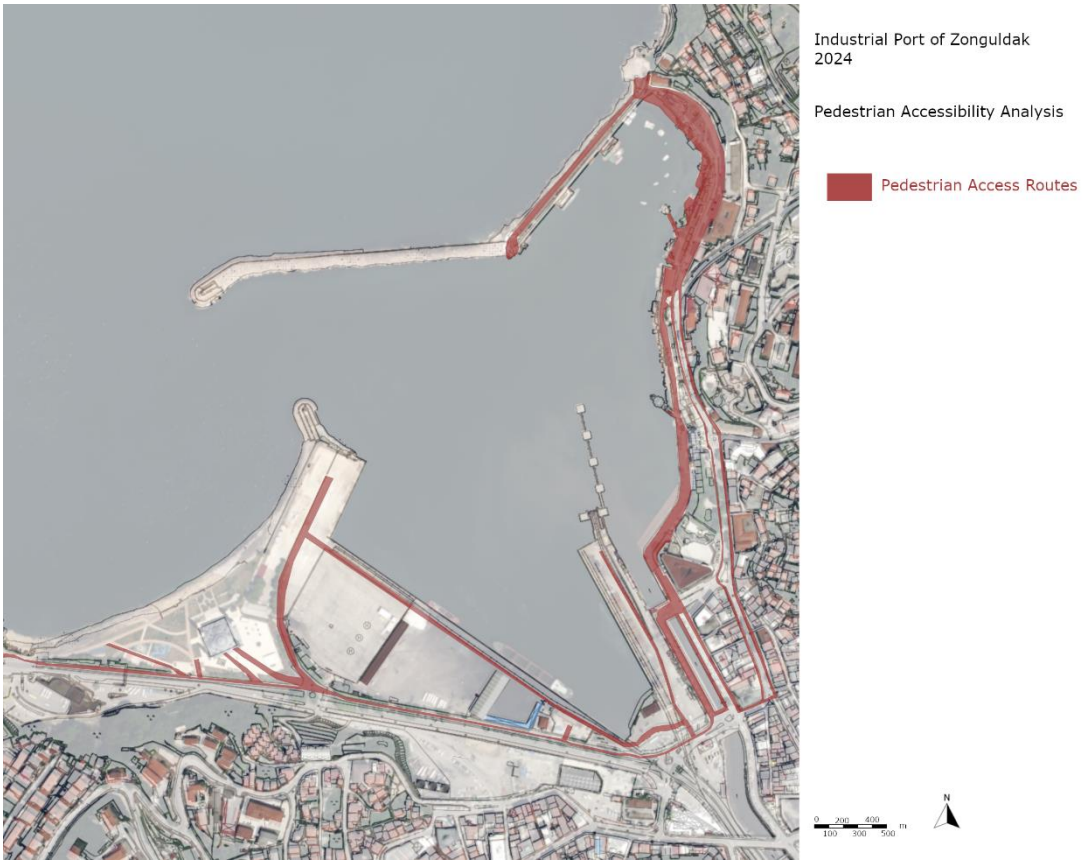


Figure 35: Pedestrian Accessibility Analysis Map of Port of Zonguldak, produced by the author, base image taken from the Directorate General for Mapping and base drawing from taken from Zonguldak Municipality

The north-northeast part of the port is accessible through pedestrian sidewalks and a promenade through the coastline (Figure 35). The south-southeast part, the customs area, is closed off to the public, pedestrian routes are available to those with access. There are 3 pedestrian entrance points to the customs area, all of which also are the vehicle entrance points. The southwest is accessible to the public and is no longer a customs area, since the urban redevelopment project there took place, removing the storage spaces and port structures in favor of a mosque and recreational area. This part

features several entrances for pedestrian access and 2 for vehicle access. The area behind the coastal guard and boat services are accessible through a small arch and stairs which lead to the backside of the port, that faces the sea. This area is frequently used by the public for socializing, sitting down and gazing at the sea, taking a stroll and other various activities, it even leads to small café where people can sip their teas, dine and gaze at the sea. This café is situated exactly at the intersection where the two arms of the *kırmızı mendirek* (the older breakwater / mole of the two, located at northside) intersect. Access to the end of the mole is allowed, but is not very safe (Figure 36). It is possible to sight fishermen there but the general public do not approach it as it is not advised as to as well, for its risks.

Figure 36: Road leading to the end of the *kırmızı mendirek*, photograph taken by the author

3.3.3.2. Railroads and Vehicle Accessibility

Figure 37: Railways and Vehicle Access Routes Analysis Map, produced by the author, base image taken from the Directorate General for Mapping and base drawing taken from Zonguldak Municipality

The port is one of the very few ports in Turkey which has access to railroads and its own railroad hinterland. These railroads are connected at The Train Station of Zonguldak. They are then distributed to all directions, mainly to the port, and to outside the city to connect with Istanbul and Ankara lines, in addition to all the lines which supply the provinces of Zonguldak Region. The railroads intersect multiple vehicle roads in Central Zonguldak and form a busy junction adjacent to the customs area of the port (Figure 37). There are signs and an electronic traffic sign system exclusive for trains. The lines extend in two lines each to the Bulk Cargo Dock, Cargo Dock and Train Ferry Dock, for a total of 6 lines which extend inside the port.

Previously there were two more lines which extended throughout the northern coastline all the way to the end of the current Coastal Guard. Currently the railroads are completely absent on the northern side of the port. There are 2 access points for vehicles into the customs area. One directly leads into the RO-RO Dock while the other leads to the Cargo Dock and the main building of TTK Engineers. The vehicle access points are also the exit points, both of which are not very wide and they both open up to very busy roads in terms of traffic, especially the entrance to the Cargo Dock. Entrance to the northern side of the port through vehicle is possible, but is mainly used as a car park, not an active road. The road parallel to the Cargo Dock is one way and loops through. The roads in *Gazipaşa Mahallesi* is two way and can be used to lead up to the customs area, the car park in the north, or to reach other parts of the city. Railroads are still densely present in the city center, although not as strongly as before.

3.3.4. Zoning

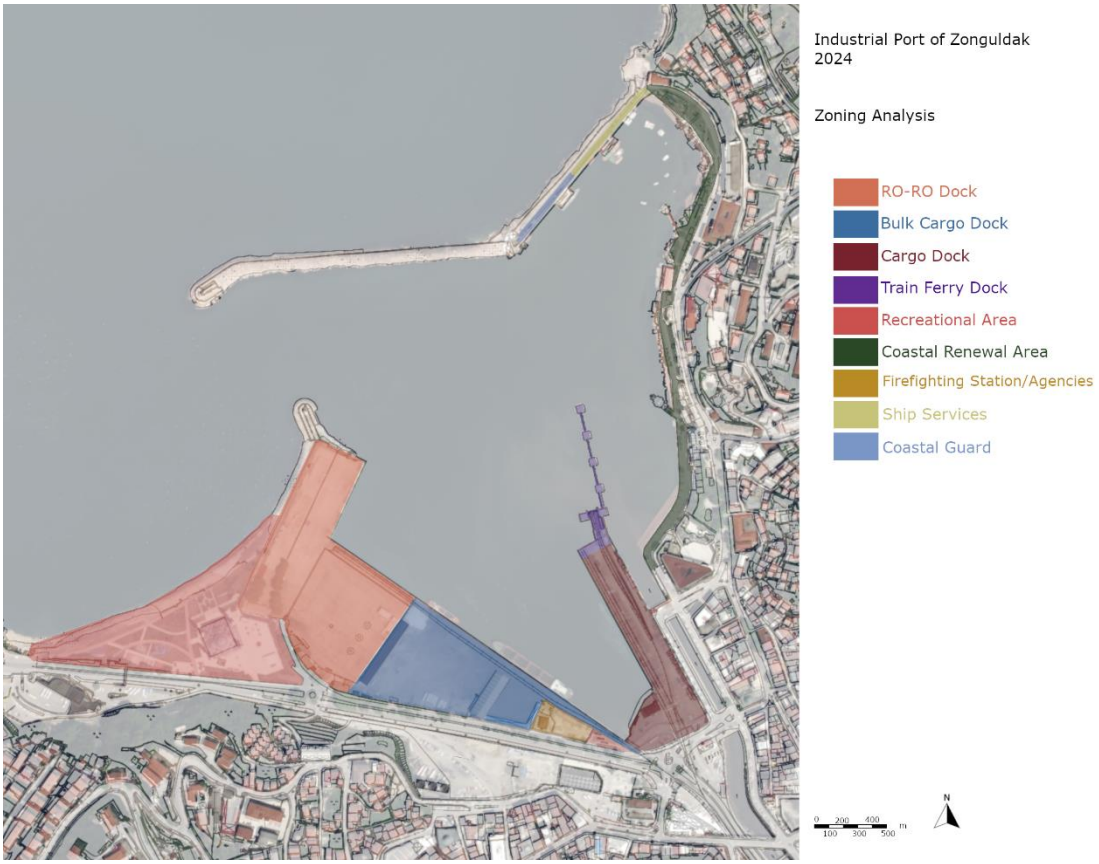


Figure 38: Zoning Analysis Map of Zonguldak, divided by zones, produced by the author, base image taken from the Directorate General for Mapping and base drawing taken from Zonguldak Municipality

The port has 4 docks in its vicinity (Figure 38). Their access to public is closed off for they reside in the customs area.

These docks (Figure 39) are;

Train Ferry Dock

Cargo Dock

Bulk Cargo Dock

Ro-Ro Dock

Figure 39: Docks of Zonguldak, Bulk Cargo, RO-RO and Cargo Dock, (top), Train Ferry Dock and Dolphins (bottom), produced by the author, original image by courtesy of TTK

Train Ferry Dock has 4 breasting dolphins (Figure 40), these are structures used for berthing and mooring of vessels that serve to greatly reduce the required size of pier. They support the pier or quay by resisting lateral loads (wind and wave). Reduction in the lateral loads allows for the construction of a smaller pier or quay, which becomes critical where the ports area is small and the layout of the port is compact, as is the

case in Zonguldak. In addition to the dolphins, there is a structure for locking ships and a hydraulic ramp (Figure 41). The train ferry dock is not in active use currently. In previous years where the coal transportation was at the forefront of the port, cargo would arrive through the railroads which extend till the end of the train ferry dock, where they would be lifted and transported directly to the ships with ease. This is one of the few train ferries which exists in Turkey, and through its history it carries significant value. This dock ceased operations as of 2015, because of insufficient traffic of ships using this service, coupled with lack of required railroad hinterland.

Figure 40: Train Ferry Dock overview (top), breasting dolphins (bottom), photographs taken by the author

Figure 41: Hydraulic ramp (top), railway tracks and connection with Cargo Dock (bottom), photographs taken by the author

Cargo Dock (Figure 42) is 215 meters long and 50 meters wide with 10.750m2 of available open space, 2 meters high from sea level. It is mainly used for unloading cargo from ships with the help of the 2 electric powered cranes that are present in the port of which have been operating since 1953. The capacity for this dock is 2 cargo ships simultaneously, and the dock is in active use. The unloading of rolled tin and sheet metal to wagons (Figure 43) is the most common activity of transportation that takes place in this dock. After unloading, the wagons, which are property of TCDD, go the central station in Zonguldak and are then transported to everywhere in Turkey which has connections to the railroad of TCDD, most notably such as Ankara, Eskişehir, and most notably Karabük, for Kardemir is the main beneficiary the transportation of iron, steel and coal that occurs from the Port of Zonguldak.

Figure 42: Cargo Dock, photograph taken by the author

Figure 43: Rails of electric powered crane (top), wagons and load handling (bottom), photographs taken by the author

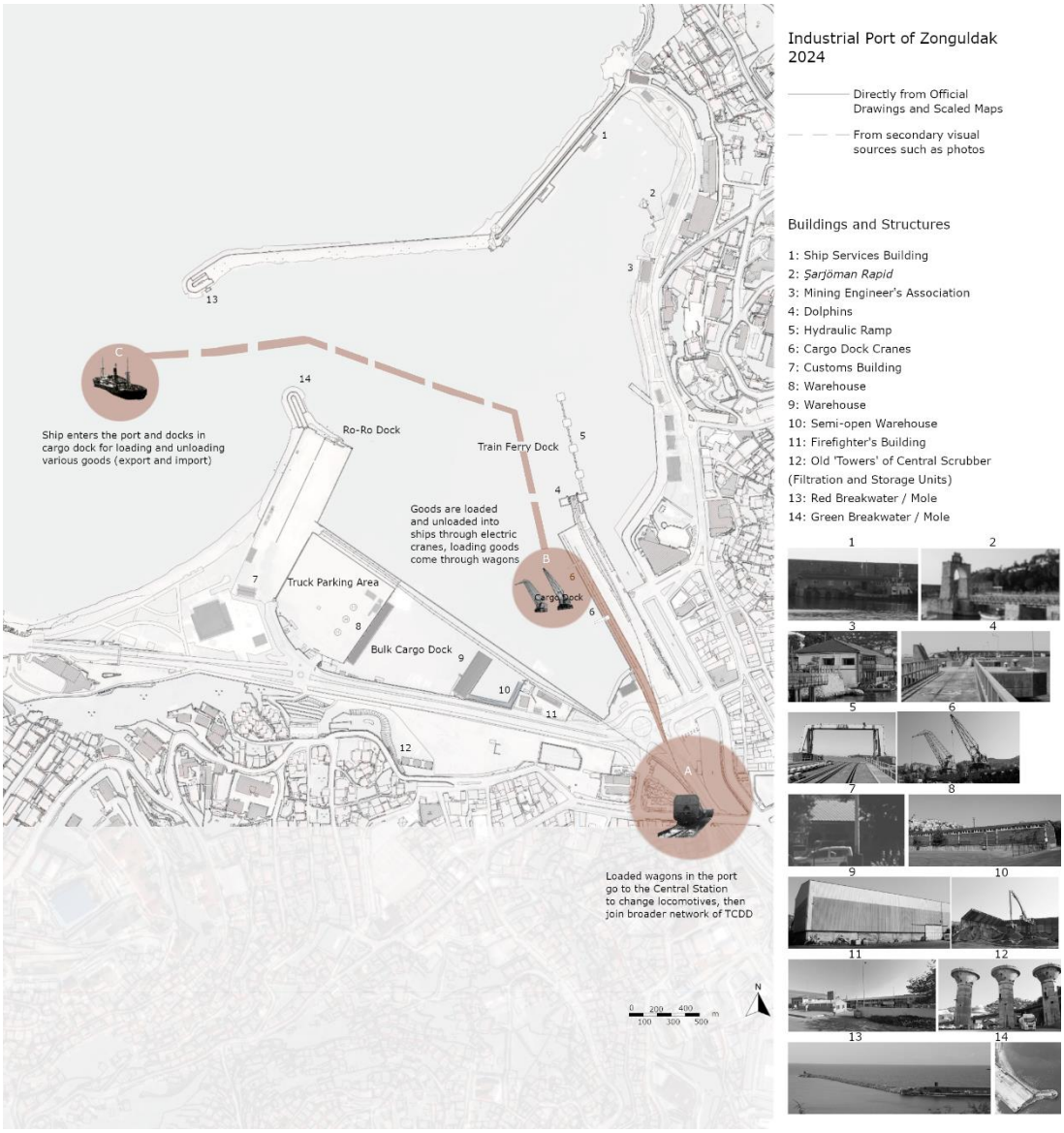


Figure 44: Port Activity Diagram of Cargo Dock, current situation, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

Cargo Dock handles export and import operations for general cargo such as rolled tin and sheet metal (Figure 44). For import operations, the ships from international ports in the Black Sea which bring goods of general cargo informs the port in advance, then wait outside the port until the procedures are worked out after which they enter the port and dock at cargo dock. The cargo is unloaded via two electric-powered cranes directly into the wagons of TCDD at the dock. After loading finishes, the wagons are

driven out the port via a locomotive into the central train station. The wagons change locomotive here and are transported to various cities in Turkey such as Ankara, Eskişehir and Karabük through the broad railroad network of TCDD. For export operations, the goods which are to be exported are transferred to the port with wagons via railroads as well. The wagons with loaded goods of general cargo arrive at the cargo dock and are then unloaded through the electric-powered cranes into the ships which will transport them to ports in the Black Sea.

Bulk Cargo Dock (Figure 45) is 360 meters long, 50-150 meters wide with 27.000^{m2} of open space, 2 meters high from sea level with an active railroad connection. This dock is in active use, authorized by TTK for the work of 3rd party companies. The common process is the unloading and loading of imported powder coal, mainly from Russia, which is loaded into wagons of TCDD to be sent to steel/ iron refinery factories, mainly Kardemir, to be burned as fuel to generate energy for refinery processes of steel and iron.

Figure 45: Bulk Cargo Dock, photograph taken by the author

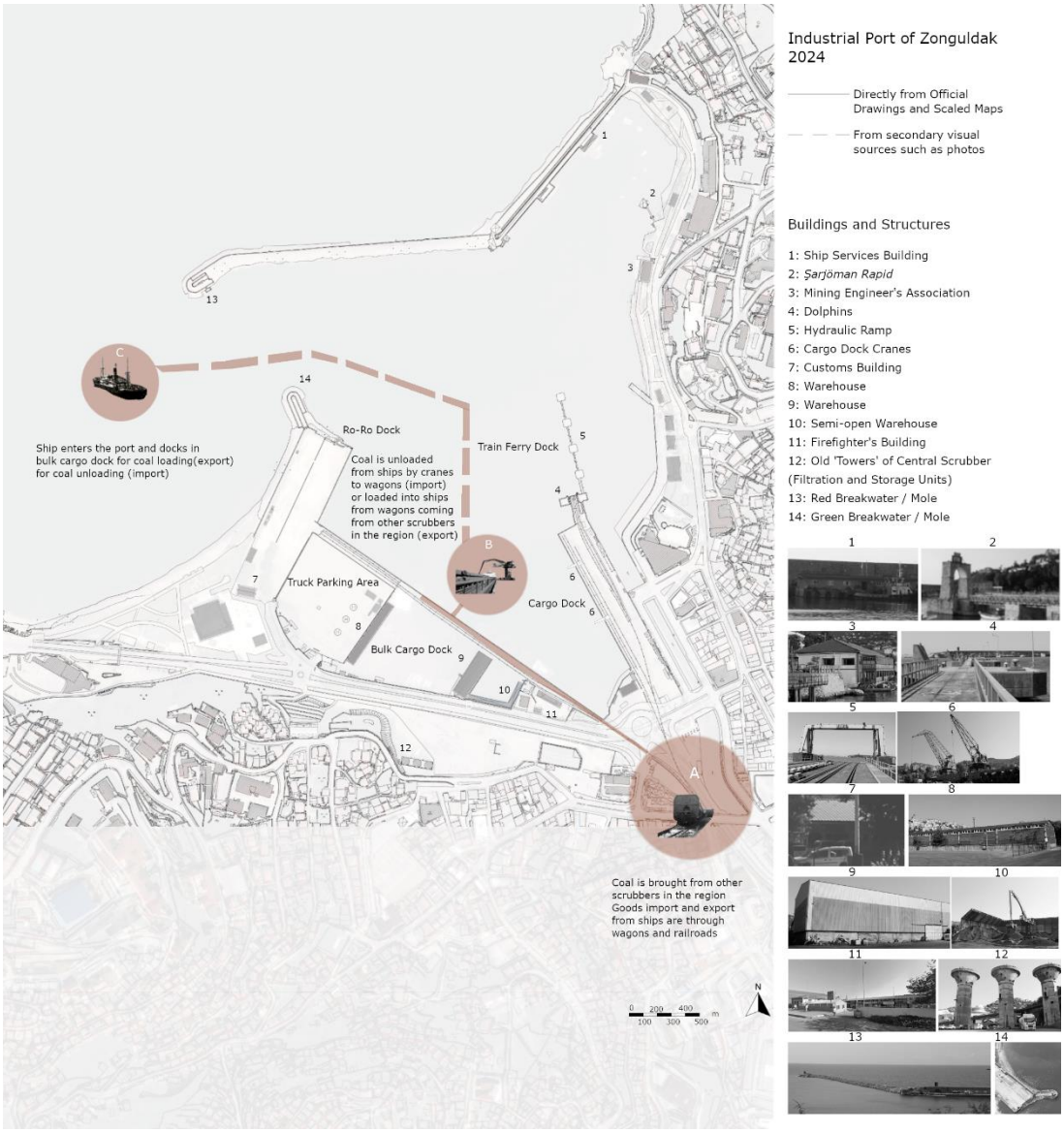


Figure 46: Port Activity Diagram of Bulk Cargo Dock, current situation, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

The Bulk Cargo Dock handles export and import operations for the loading and unloading of coal (Figure 46). For export operations, the locally produced coal is brought from the scrubber / coal washery facilities in the region such as the Çatalağzı Scrubber into the port through wagons driven by a locomotive via railroads. The coal is then loaded into the ships with mobile cranes. The ships exit the port and transport the loaded coal as import to the international ports in the Black Sea. For export

operations, the ships carrying coal from international ports, especially from the Black Sea, informs the port in advance and docks at the Bulk Cargo Dock after procedures are cleared. The coal from the ships is unloaded through mobile cranes into either wagons or to the semi-open storage area. The coal from the storage area is loaded into wagons via the cranes as well. The wagons are driven by a locomotive outside the port to the central station where they change locomotives and set out to the steel and iron factories around Zonguldak through railroads of the broader network of TCDD. The purpose of exported and imported coal is the same, they are used for fuel in factories of heavy industries. The import of coal has increased significantly since the 1980s and export has decreased drastically. The port, between 1896 and 1980s, nearly only dealt with exporting coal, with very little, if any import.

The Ro-Ro Dock (Figure 47) is 125 meters long, 50-150 meters wide with 40.000^{m2} of open space, 2 meters high from sea level. It has 3 ramps which the Ro-ro (Roll-on/roll-off) ships can use the unload the vehicles they are carrying onto the dock. Therefore, maximum capacity of simultaneous ships is also 3. The ships of this type that come to the port generally hover around the capacity of 80 trucks. These trucks carry lumber, logs, rolled tin, hard coal, ferrosilicon, iron, coke powder (*kok tozu*) as goods for export and plumbing fixtures, iron, products of cement, citrus fruits, firebrick, flowers as goods for import. The trucks go through an X-Ray scan after they are unloaded from the ships through the ramps before they are allowed access to the open area parking space (Figure 47), to prevent smuggling. They are also weighed during the scan, when fully loaded, and when all goods have been unloaded, the information is then registered under the plate of the vehicle.

Figure 47: Ro-Ro Dock and ramps (top), Truck Parking Area (bottom), photos taken by the author

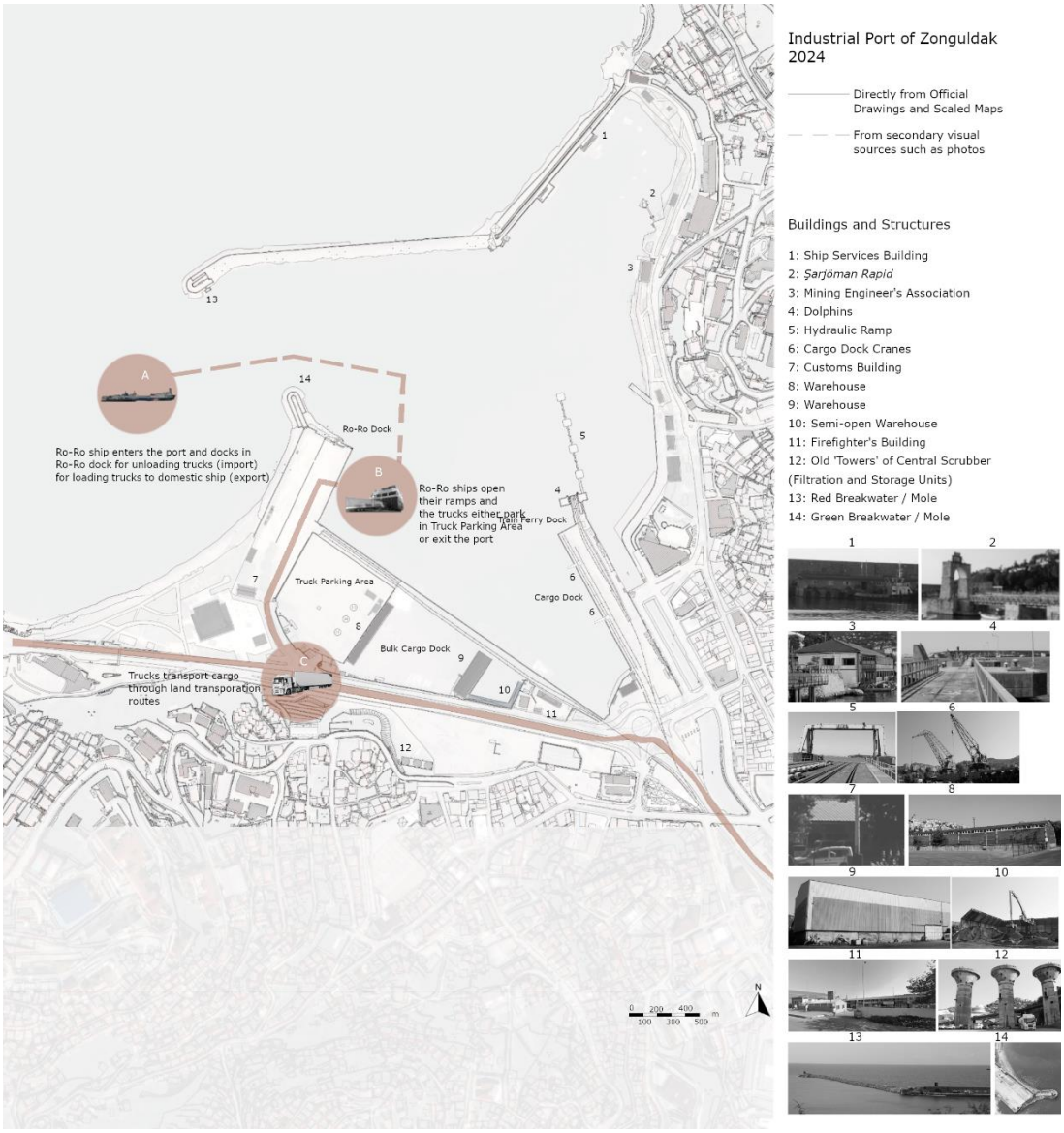


Figure 48: Port Activity Diagram of Ro-Ro Dock, current situation, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

Ro-Ro Dock handles operations of export and import involving Ro-Ro ships (Figure 48). These are the kind of ship which carries trucks loaded with goods and includes built-in systems with ramps to allow the circulation of the trucks. For import operations, the ships inform the port in advance and proceed to dock at Ro-Ro Dock after clearing the procedures. They dock vertically facing west in line with one of the 3 Ro-Ro ramps of the dock. The trucks are driven out the ships via the built-in ramps

of the ship or the ramps of the dock and are then weighed and checked in the customs area. The trucks leave the port after receiving clearance or wait and park in the Ro-Ro truck parking area according to their schedules before setting out. The trucks then transport their goods through various cities in Turkey via land transportation routes. For import operations, the trucks carrying goods from various factories / local production facilities arrive at the Ro-Ro Dock after clearing checks in the customs area. They enter local Ro-Ro ships docked in the port and are then carried via these ships through sea transportation routes into international ports, mainly in the Black Sea.

Ro-Ro transportation in the Port of Zonguldak began in 01.11.1996 with three ports of Ukraine. It recorded a total of 4728 trucks which had passage into the port in 1997 which rose to 24161 in 2008. This number dropped off to 18000s until 2012, where from then on, rose by 70 percent again until 2022, in which it dropped to 1875, with only Zonguldak-Chornomorsk line being active before ceasing operations entirely because of the war outbreak between Russia and Ukraine. Before ceasing activities (Figure 49), the Ro-Ro dock generated the most capital for the port out of all its docks, by a considerable margin.

Figure 49: Ro-Ro dock, Ro-Ro ship and trucks on standby in the dock, 2022, (top), retrieved from https://www.iha.com.tr/haber-ukrayna-limanlarina-giremeyen-ro-ro-gemileri-zonguldak-limanina-geri-dondu-1033704, RO-RO ship unloading trucks, from Zonguldak Port, 2022

The several maritime routes of the Industrial Port of Zonguldak with ports of Ukraine and Russia (Figure 50) were cut off, causing the export and import to completely die off, since the Ro-Ro dock did not have other, profitable routes laid out. These routes included but were not limited to;

Zonguldak-Odessa

Zonguldak-Skadovsk

Zonguldak-Novorossiky

Zonguldak-Evpatoria

Zonguldak- Ilichevsk (previously Chornomorsk)

Zonguldak-Kavkaz

Zonguldak-Tuapse

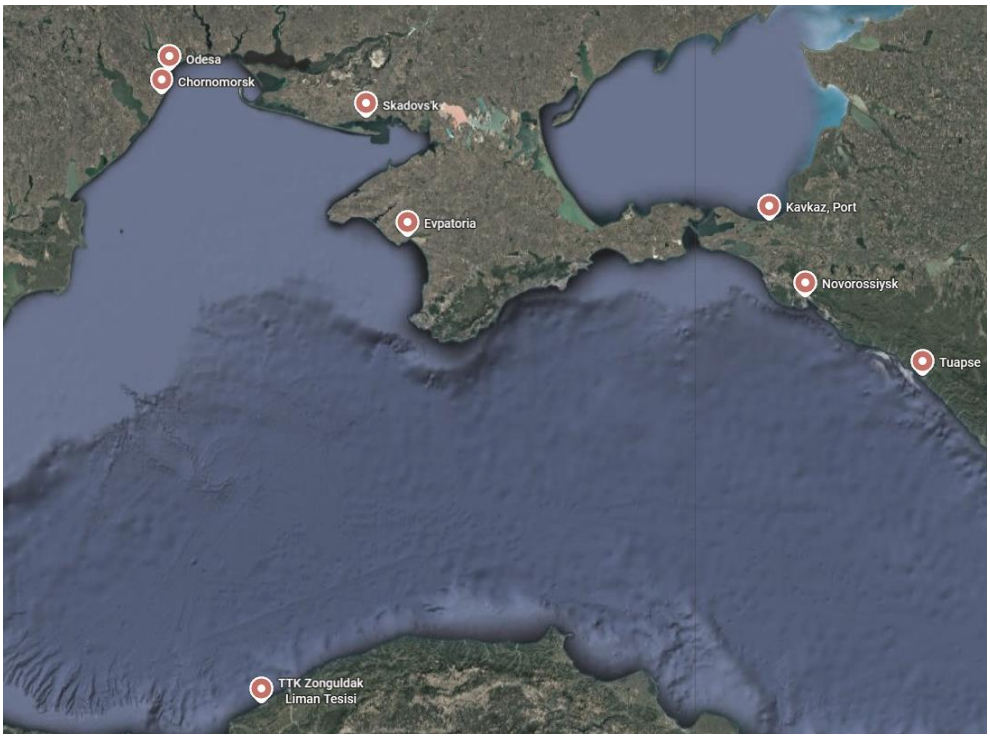


Figure 50: Ports of Ukraine and Russia which have Ro-Ro ship transport activity with Industrial Port of Zonguldak, image modified by author, base image taken from Google Earth Pro

3.3.5. Buildings

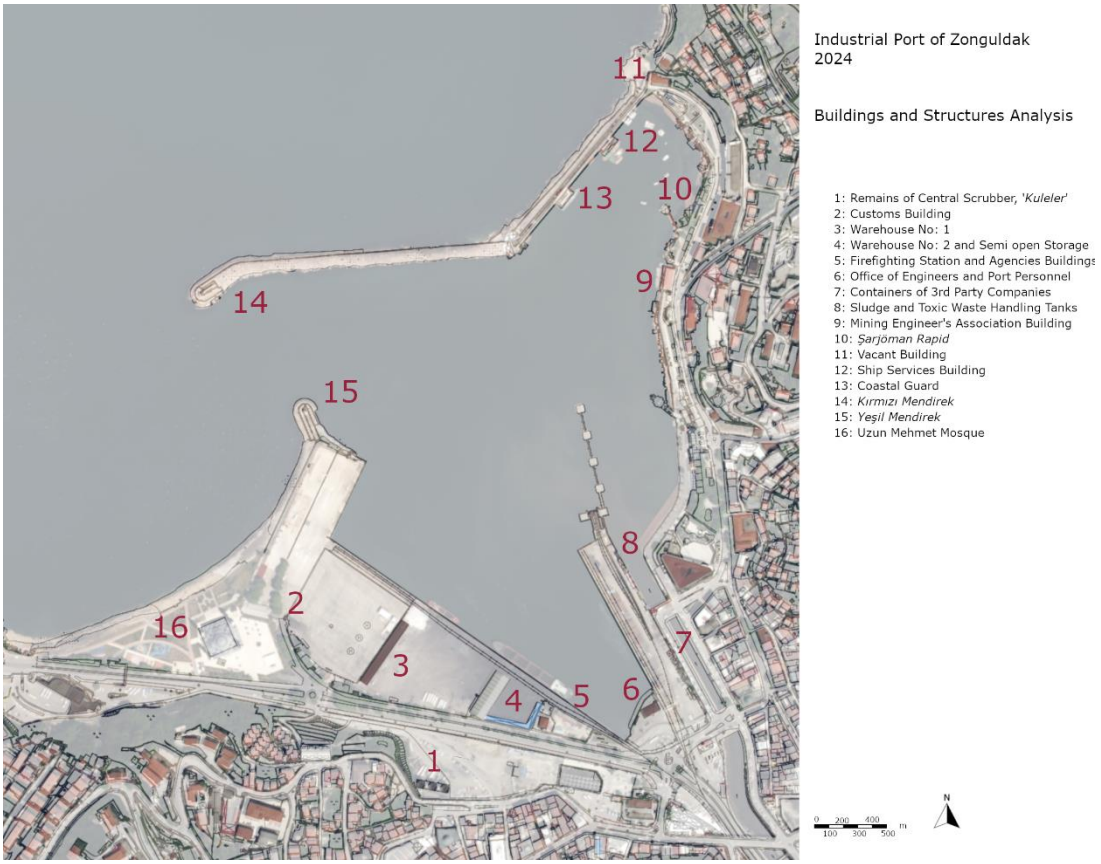


Figure 51: Buildings and Structures Analysis, produced by the author, base image taken from the Directorate General for Mapping and base drawing taken from Zonguldak Municipality

The buildings and structures in the port are divided into 16 (Figure 51). There is a diverse set in terms of usage for these buildings such as religious, commercial, social, governmental, military and cultural usage. These buildings are being referred to as "grouped by 16" due to some areas having cluster of "container - like" buildings. More specifically, number 2, 5, 7 and 8 on the map features clusters of containers. 5 features containers grouped as a one - story building. 4th group consists of an L shaped semi – open area and a warehouse building while 3 is only a single storage building. These groups are explained in detail below.

1: Coal Washery Deposits left as Monuments (*Lavuar Kuleleri*)

These structures (Figure 52), previously used as coal storage units during the era of Zonguldak Central Scrubber when the coal loading dock was in active use. They are the only structures that remain intact from the scrubber and have been registered as cultural heritage. *Kent Düşleri 3- Zonguldak Merkez Lavuar Alanı Değerlendirme Projesi Ulusal Fikir Yarışması* was open to public in 2008 and had a winning project ready for implementation, the plot previously used for the Central Scrubber and its facilities, now occupied only by these monuments and the traces of previous buildings footprints. The project was never implemented and various reasons was stated for the inability of going forward. The ownership of the area belonged to TTK until 2014, and was transferred to the treasury after that. The area is used for truck and car parking, in some occasions assisting the port. *Lavuar Kuleleri* currently is serving no function and are not receiving any active repair.

Figure 52: Previous filtering and storage units of the Zonguldak Central Scrubber, currently referred to as “Lavuar Kuleleri”, photograph taken by the author

2: Customs Buildings and Container Buildings of 3rd party companies using Bulk Cargo Dock

These buildings are used for management of goods and trade in the Ro-Ro dock and hosts the personnel dealing with port activities related to customs (Figure 53). Between the road and the truck parking area, adjacent to the borders of the custom area are a cluster of buildings. They are located near to the water deposits of the area and host the engineers and port personnel of 3rd party companies such as *Kardemir* and *Çağçelik* (Figure 53).

Figure 53: Customs Buildings (top), buildings of 3rd party companies (bottom), photographs taken by the author

3: Warehouse No #1

This warehouse (Figure 54) is used by TTK and serves to protect big bag cargo[110] in the necessity of waiting times in loading and unloading operations in the cargo dock. The building extends parallel to the docks.

Figure 54: Warehouse No #1, exterior (top), interior (bottom), photographs taken by the author

[110] Cargo such as salt and gypsum which can deteriorate in undesirable weather conditions

4: Warehouse and L-Shaped Semi-open Storage Space

This warehouse (Figure 55) is currently being used by *Çağçelik*, a steel-iron factory located in Karabük. The company is using the bulk cargo dock of the port for unloading of both imported coal and locally produced coal for fuel as well as for loading operations to export its production of refined steel and iron. There is an L-Shaped semi open storage space adjacent to this warehouse and coal is stockpiled beneath it, to handle during loading and unloading operations.

Figure 55: Warehouse No #2, exterior (top), L-shaped semi open storage space (bottom), photographs taken by the author

5: Firefighting Station and Agencies

Adjacent to the L-shaped semi open storage area, on the backside of the port walls, facing the road is the building complex (Figure 56) for agencies giving consultancy services for port activities ranging from custom broker and logistics companies to international trade consultancy companies. The firefighting station and its supplementary building is also situated in the area across this building complex.

Figure 56: Firefighting Station and Agencies, retrieved from Google Earth

6: Port Services Container of TTK, Offices of Engineers and Port Personnel

This container building (Figure 57) is used by the personnel of TTK operating in the area. A diverse set of personnel featuring marine engineers, industrial engineers, structural engineers and technicians have offices inside this building. A commemorative locomotive is located in front of the building with summary of its historic significance but is unfortunately not accessible by public, since this section is part of the customs area. The building is in the junction point of the 2 sides of the customs area, in the middle of bulk cargo dock and cargo dock. It also has direct view on all ongoing operations in the port due to its location.

Figure 57: Building of TTK Port Personnel and Engineers, photograph taken by the author

7: Containers of various workers and engineers of 3rd party companies

These are a series of container buildings used by 3rd party companies (Figure 58) with activity in cargo dock. They are located across the railroads and electric powered cranes, adjacent to the border of the cargo dock and the pedestrian walkway over Acılık Stream.

Figure 58: Containers of 3rd party companies in cargo dock, photograph taken by the author

8: Sludge and Toxic Waste Handling Tanks

These tanks (Figure 59) are located across the electric powered cranes and along the line of containers of 3rd party companies operating in cargo dock. They are used by a 3rd party company operating in the cargo dock that recycles waste and sludge. The environmental control regulations of ports have increased significantly over the years, which makes these not so remarkable looking tanks and the waste recycling operations essential. In addition to these tanks, the company has a dedicated ship for assisting in these activities which is regularly docked on the port at the end of cargo dock.

Figure 59: Sludge and Toxic Waste Handling Tanks, photograph taken by the author

9: Mining Engineer’s Association Building

Building of Mining Engineer’s Association (Figure 60). Currently being used as a café and for social meetings. It is located to the south of *Şarjöman Rapid*.

Figure 60: Mining Engineer's Association Building

10: *Şarjöman Rapid*

The structure consists of a stone arch located at the end of a stone pier (Figure 61). It is the oldest structure of the port after the quay wall at the northern side of the port. Before the construction of new port facilities in 1953, it was the main loading system of the port. There was a control building and braces on top of the stone arch, and mechanized systems to handle loading and unloading operations with ships were a part of the structure. Railroads also extended to and wagons would be directly placed underneath. Currently, only the stone arch and the stone pier leading up to it remains, all the systems have been disassembled during the previous iterations of the port. It is registered as cultural heritage and is mainly used as a scenic point for photographs and great views into the port. A small infographic is placed between it and the Mining Engineer's Association Building and it provides general knowledge about the port and previous usage of the structure.

Figure 61: Şarjöman Rapid, overview (top), steel reinforcements in the arch and view from underneath (bottom), photos taken by the author

11: Vacant Building

This building (Figure 62) was used for various functions such as TTK Health Administration Building and as a Management Building of Ministry of Transport in the past. Currently is not in active use.

Figure 62: Vacant Building, photograph taken by the author

12: Ship Services Building

This building (Figure 63) is used by the navigators of TTK and is situated on the platform that hosted a steam powered crane in the 1896 period of the port. The ships used for assisting the vessels entering the port are docked in front of the building. The ship services provided by are mandatory through port regulations. They involve assistance in berthing and mooring of vessels in addition to guiding them for maneuvering.

Figure 63: Ship Services Building, photograph taken by the author

13: *Kırmızı Mendirek*

The older breakwater / mole, located on the northern side of the port (Figure 64). It was constructed as an extension to the oldest quay wall of the port and serves to protect ships from storms. The 'red' lighthouse is located at the end of the mole. The road leading to the lighthouse is accessible but not safe. There is a café at the intersection of the old quay wall from 1896 and the start of the *Kırmızı Mendirek.* The frontside of the quay wall houses the coastal guard and the ship services building. The backside is open to public. In addition to *Şarjöman Rapid*, the quay wall is the oldest structure in the port.

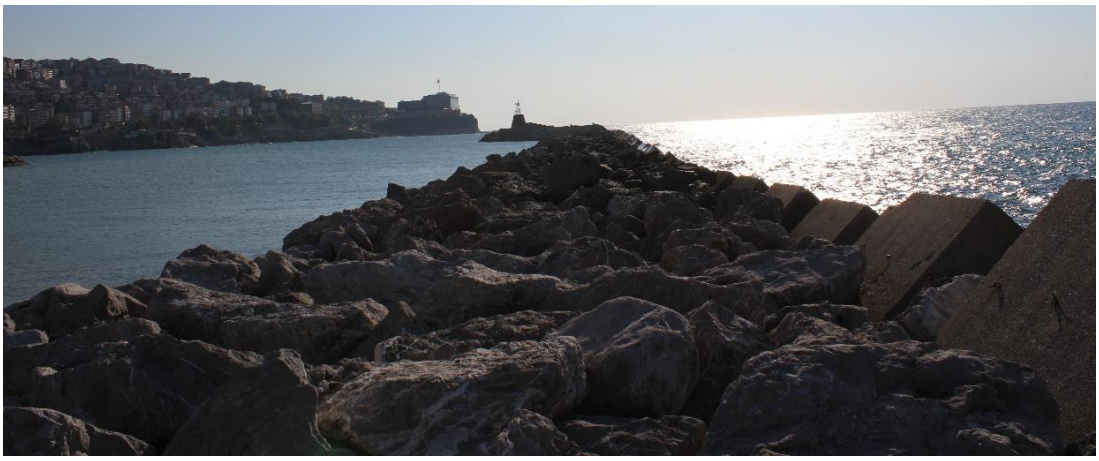


Figure 64: *Kırmızı Mendirek,* photograph taken by the author

14: *Yeşil Mendirek*

The secondary breakwater / mole of the port (Figure 65), which was constructed after *Kırmızı Mendirek* during the second period of the port where the facilities were modernized, in 1953. It serves to offer additional protection for the structures and ships docked in the port against undesirable weather condition. Ensures safe and uninterrupted loading and unloading operations together with *Kırmızı Mendirek*. It is located at the end of the Ro-Ro Dock and is not accessible to the public. There are no clearly defined roads like the one on its counterpart. It is also smaller in length.

Figure 65: *Yeşil Mendirek*, left, *Kırmızı Mendirek*, right, photograph taken by the author

15: Uzun Mehmet Mosque

The mosque (Figure 66) constructed in 2022 as planned in the 2019 recreational area project. It is located adjacent to the customs area, which previously had storage units that was connected to the port.

Figure 66: Uzun Mehmet Mosque, retrieved from https://www.visitzonguldak.com/place/uzun-mehmet-camisi-ve-parki

3.4. Historical Development of Zonguldak

The emergence of Zonguldak as a city in modern terms dates back to the mid-19th century around 1830s. The founding of hard coal, *yanartaş*, in Zonguldak dates back to 1800s (specifically 1822 by Hacı İsmail and more famously known in 1829 by Uzun Mehmet) served as a turning point in its transformation of becoming a port city (Figure 67) with an industrial landscape.[111] Its growth relied on the extraction, refinery, production, distribution and the trade of hard coal.

The name of the province is thought to have been derived from "zongalık" which means reeds or a reed bed and "zonklamak" which is used to describe the trembling that occurs in malaria.[112] The town of Zonguldak then consisted of swampy areas

[111] (Quataert 2006)
[112] (Savaşkan 1993)

which carried the risk of malarial infection, this was before its advantages of close proximity to rich hard coal outweighed the strong winds from both sides and the need for constant dredging because of it being in the ending point for Acılık and Uzulmez rivers dirt dumping point.[113]

The scope of this thesis will focus on the modern history of Zonguldak, however, it is necessary to note that civilization of the area actually dates back to 2.500 BC, when Zonguldak housed civilizations such as Frigians, Greek colonies, Persians, Macedonian Empire, Byzantine Empire, Anatolian Seljukids, Candaroğulları principality, The Ottoman Empire and currently the Republic of Turkey.

For ease of understanding, modern history of Zonguldak will be divided into two, the Ottoman Period and the Republican Period.

[113] (Quataert 2006)

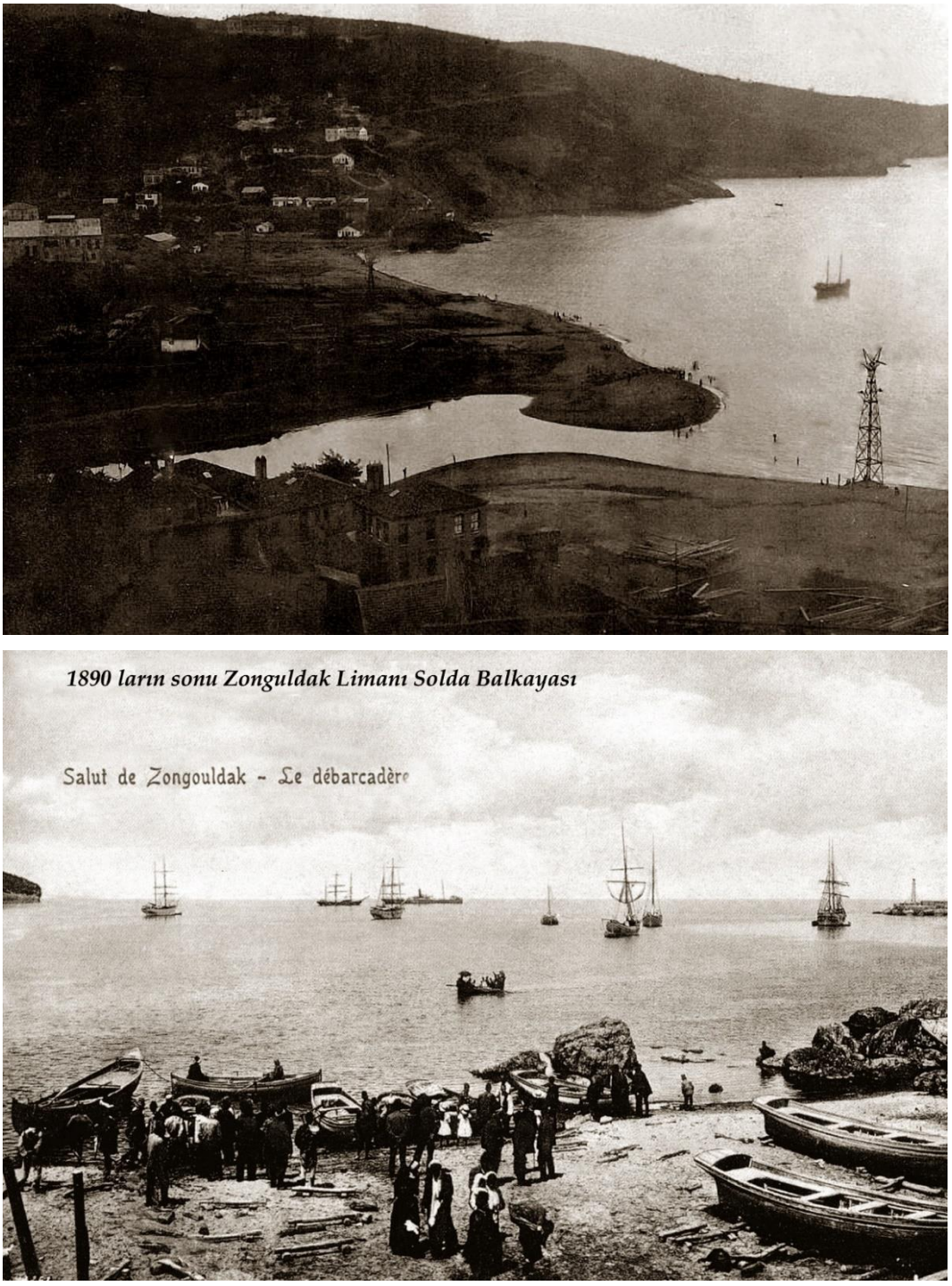


Figure 67: Ottoman Period Port of Zonguldak, Archives of Zonguldak Directorate for Culture and Tourism

The first sites to become available for mining was along the coast of Zonguldak, Kilimli and Kozlu, followed by Üzülmez, Çaydamar, Asma and Karadon. The mining

site by the order of *I. Abdülmecid* in 1848, started production for the Privy Purse (*Hazine-I Hassa*)[114]. The boundaries of the Zonguldak coal basin were set and approved at the same year. This proved a valid effort as new facilities were built up and the coal network grew larger. The management of the site were given to merchants from Galata, a year after, in 1849. English engineer Barclay brothers and 8 mining supervisors entered the site in 1851 as foreign investors, through a special deal with *Evkaf Nezareti*.[115] During the Crimean War, in 1854, the management of operations in the collieries were given to the English and French. The English Coal Company would go on running the collieries through an extension of management rights given to them by *Hazine-i Hassa*, in 1856, until 1859. In 1859, the management of the site would be transferred to a banker named Yorgaki Zafiropoulos, whom would only run it for a year before the management was transferred back to the English Company. They would run the collieries for the last time during 1860-1865.

The frequent changes were highlighting the issues of management and the lack of efficient production at the site. The issue of transportation and the lack of a sufficient, proper port was especially a glaring issue. The need for coal had risen especially during the Crimean War and the demands from Istanbul was high. The English who had ran the collieries since then, was not providing the expected results. Hence, the ownership was transferred to the Ministry of Marine in 1865, which would manage the site for the longest period after taking over, until 1908. In 1867, the head of commission, *Dilaver Paşa* released a set of administrative regulations named *Dilaver Paşa Nizamnamesi* which served to boost the efficiency and increase the coal production by bringing order to the site through regulatory adjustments and military authority.[116]

Economic struggles which arose because of the war with Russia in 1877 among other concerns, caused the necessity of an investor to keep the mines operating and prevent

[114] The ministry in charge of foundations in the Ottoman Empire
[115] The institution which was responsible for the management of all property and institutions under the property of foundations in late Ottoman Period
[116] (Quataert 2006)

the bankruptcy of Zonguldak basin.[117] *Ereğli Şirket-i Osmaniyesi*, Societe d'Heraclee Osmanlı A.Ş, a French company, was established in 1892. The company made significant investments to improve transportation, infrastructure, machinery and technology of the area.[118]. These improvements include the construction of the facilities for the washing of coal to the west of the city, across the Acılık stream, and a wooden pier was constructed (Figure 68). However, the most notable was the construction of Port of Zonguldak (Figure 68) to provide much needed transportation network from sea. The tender for the construction of the port and its railways were given to the French company in 1893 and the construction was completed in 1896. Through the port the foundation for the city of Zonguldak was built. Clusters of buildings started to form between the area of port and mining sites. *Liman Caddesi* (Figure 68) was established adjacent to the port and was covered with railroads which extended from the street to all the loading docks of the port. The initial version of the first major avenue of the city, *Gazipaşa Mahallesi*, (Figure 69) was laid out parallel to *Liman Caddesi*, with railroads also passing through it. The docks of the port had the capacity of 3000 tons / day for handling operations and was 300 meters long.[119]

[117] (Satıcı 2022)
[118] (Quataert 2006)
[119] (Satıcı 2022)

Figure 68: Zonguldak Port, 1896, *Şarjöman Rapid* and loading dock (top), taken from the archives of Zonguldak Directorate for Culture and Tourism, Ottoman Period Zonguldak, scrubber and facilities, view into *Liman Caddesi* (bottom), retrieved from https://www.facebook.com/photo/?fbid=479759952174769&

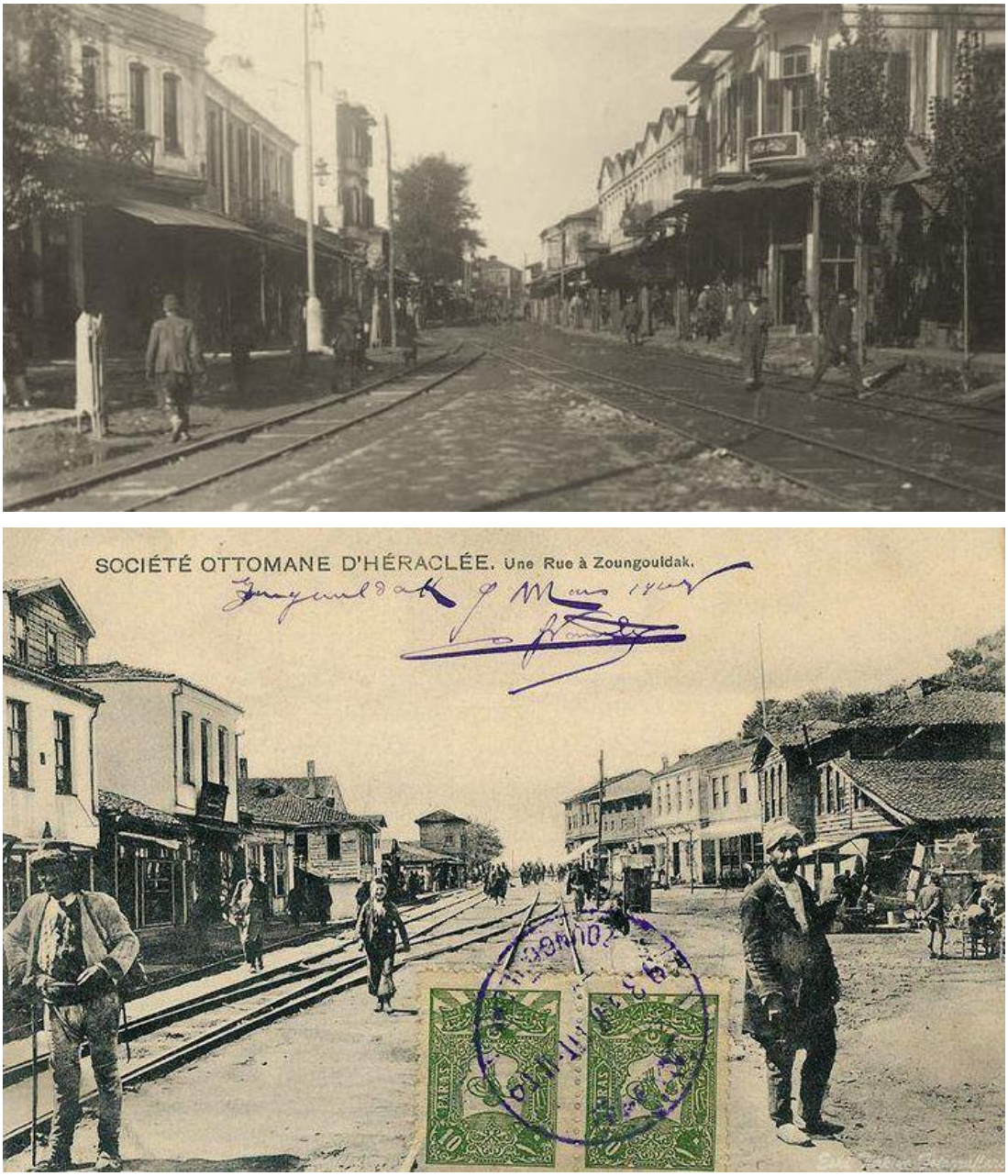


Figure 69: *Gazipaşa Caddesi*, taken from the archives of Zonguldak Directorate for Culture and Tourism

The port had a quay wall and breakwater / mole (Figure 70) to resist storms to a degree and provide safe shelter for ships to carry loading operations. A stone pier was constructed and a stationary crane was placed at the end for cargo handling. The crane was replaced with *Şarjöman Rapid*, a rapid loading system with a conveyor belt carried on top of a stone arch in 1906 for more speed and efficiency.

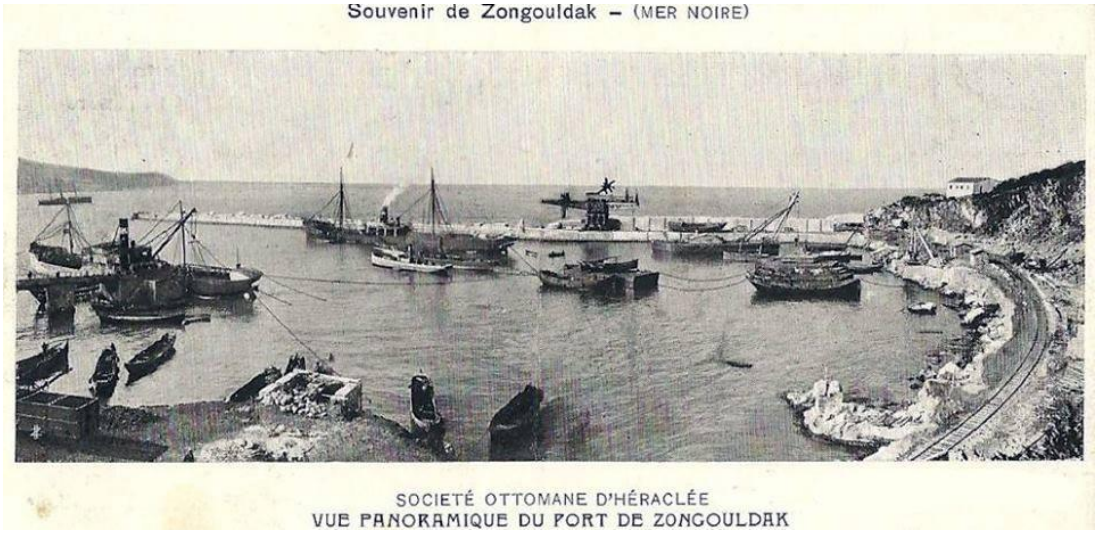


Figure 70: Industrial Port of Zonguldak, northern side, view towards quay wall, Ottoman Period, retrieved from https://www.facebook.com/photo/?fbid=511923252291772&set=a.407295592754539

Railroads connecting the mining sites were also extended, new stations were built such as the Çatalağzı Station and 200m wide railroads extended into the port. New industrial complexes were built such as the No.2 scrubber facility and the briquette and coke factory (Figure 71).[120] Regulations were made to ensure that production and transportation from this work benefitted its investor, *Ereğli Şirket-i Osmaniyesi*. The basin which primarily dealt with trade of timber, boat navigation and fishing, changed drastically through the foundation of coal and the establishment of its port.

[120] (Satıcı 2022)

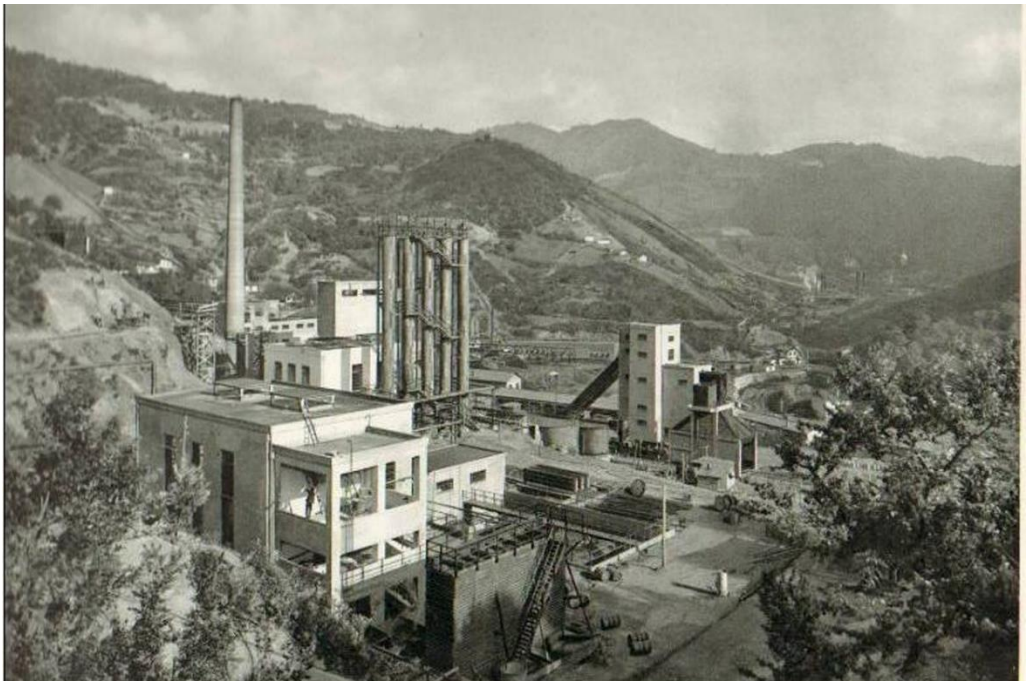


Figure 71: Coke Factory, taken from the archives of Zonguldak Directorate for Culture and Tourism

The ownership of the coalfield changed to Ministry of Commerce in 1908. The population growth sped up significantly, due to the activities of coal mining, causing problems in terms of land occupation. The state tried to regulate this growth of population through the declaration of *Tezkere-i Samiye*, in 1911. This declaration served to signify the importance of coalfield through its stark importance of economic potential and forbid constructions without permission from the state.[121] Zonguldak truly started to form as a city through these developments, in addition to modernization of its infrastructure, railroads and docks, through public and private endorsement.[122] Zonguldak basin was on the rise until the decade of 1910-1920 , but through the stagnation of the Empire and its economy, the region started to struggle. Due to this, more consideration was given to making coal production more efficient. There was an ongoing issue of labor since the opening of the mines and workers from abroad such as Serbia and Montenegro were brought in to compensate. In 1921, to further resolve

[121] (Satıcı 2022)
[122] (Quataert 2006)

this labor issue, a law was enacted. This law stated that the workers in the mines would spend one month in the mine and one month in their villages, continuously. It was believed that this would prevent the organization of workers and delay urbanization.[123]

Coal was at the forefront as the energy source of the era of Industrial Revolution. Discovery of coal in Zonguldak led to foreign investments and interests, such as France and England, as well as a way for the Ottoman Empire to regain ground in terms of its economic situation.

The management of the mines changed frequently after it has been placed into the ownership of *Hazine-i Hassa* in 1848 (Figure 72). Merchants from Galata in 1849, English supervisors and engineers in 1851-1854, English and French Coal Companies in 1854-856, Banker Zafiropulos in 1856-1859, English Coal Company in 1860-1856, Ministry of Marine (1865-1909). Considering the reliance of Zonguldak on the production and transportation of coal, this periodization provides insight into the management issues and the difficulties faced by the working population. There was issue in finding sufficient skilled labor. Good investments on the machinery for transportation of coal were lacking before the construction of the port in 1896. They were simply carried through manual labor, with boats, and the speed of transportation was not catching up with the speed of production. These are the primary reasons for the rapid changes in management, especially between 1848 and 1865.

The French and English were countries which were advanced in terms of industrialization; hence they were relied on for management. The lack of problem solving through multiple managements in the site pushed for a change and the site was under national management for the first time, being under the Ministry of Marine, and found stability. The management of the site only changed two more times before the establishment of the Republic of Turkey. Ministry of Commerce was charged with the management during 1908- 1920. The central management was in Ereğli until this period and moved to Kozlu in 1908, under the naval barracks. [124] Ministry of

[123] (Tekeli 2017)
[124] (Quataert 2006)

Economy took control of the management once the French left the country after the stark resistance of the public in *Kurtuluş Savaşı*.[125] After the Ottoman Period, in 1940, the management of the region was transferred to EKİ (Ereğli Coal Enterprises), to then TKI (Turkish Coal Enterprises) in 1957 before finally ending up under TTK (Turkish Hard Coal Institution) and has not changed hands in terms of management since then.

[125] Turkish War of Independence, between 19th of May 1919, 24th of July 1923

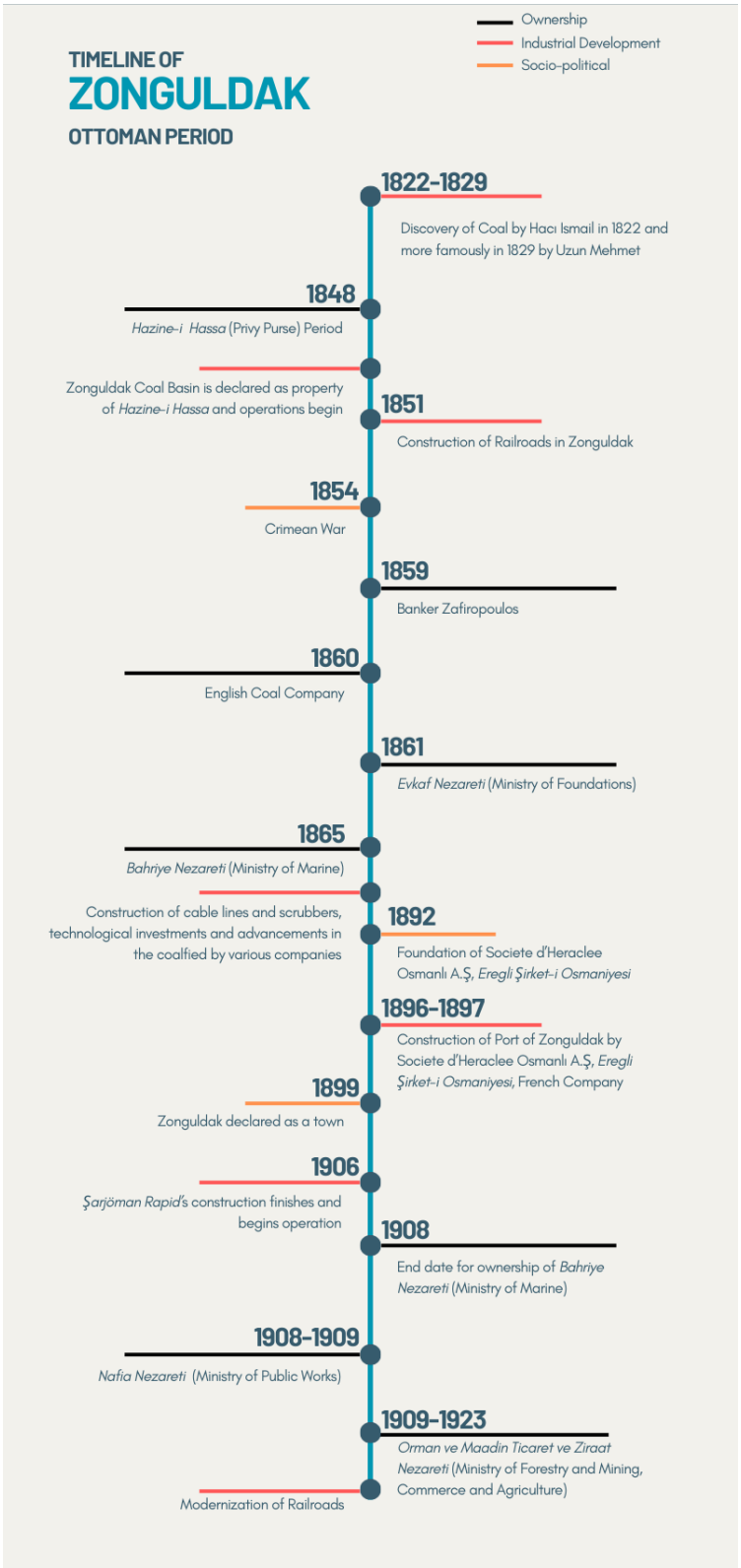


Figure 72: Ottoman Period Timeline of Zonguldak, produced by the author

Zonguldak was the first *vilayet* in the Republican Period and developed rapidly in that era, in terms of industrialization, education, infrastructure, economically and in terms of urbanism. The region of Zonguldak truly becomes a city in this period.

The approach to coal changed during this period, from ship fuel to an essential component in industrialization. The first step was to connect the region's coal mines with the country through the construction of Zonguldak- Ankara railroads in 1930. The state aimed to manage mining through a single institution, to achieve a more systematic workflow. Etibank was established in 1935 to realize this goal. The port in particular was managed by *Ereğli-Şirket-i Osmaniyesi*, the French company, until 1920. All the property of the company in the basin, including the port's operation site was transferred to EKI through Etibank in 1937. KARDEMIR was opened for use in that year as well. It reinforced the industrialization of Zonguldak as one of the first steel and iron factories in the country. EKI was established in 1940 as an extension of Etibank and was nominated as the main state institution in charge of all facilities in Zonguldak basin, including the factories, collieries and the port.[126] The production of coal was complimented with planned routes and integration through railway and sea transportation. Legislations regarding workers' rights was improved and management in the mines were handled in a more systematic way than in the previous era, which yielded better production numbers.

The funding received from the Marshall Aid provided EKI with the funds to apply the First General Management Project of Zonguldak in 1948.[127] *Fener Mahallesi,* which is currently the only designated cultural heritage site in Zonguldak (as an urban and third-degree natural site, designated on 13th of May, 1996), was planned out and constructed through this planning effort. Its tennis club, housing and architectural quality were pioneers of their period. Zonguldak had been growing as an industrial city since the opening of the mines in 1848 and the construction of the port in 1896. The industrial city of Zonguldak, in terms of social, economic, cultural, architectural, and technological developments, had its most notable period under the management

[126] (Altan 2023)
[127] (Zaman, Zonguldak, İnsan Mekan Zaman 2012 as cited in Can 2019)

of EKI. The modernization of the port, its dock and facilities, the construction of housing units for the workers of collieries by Seyfi Arkan, the establishment of *Fener Mahallesi*, and numerous more notable developments were planned and implemented in this period.

Unfortunately, the developments in the political and economic landscape caused the funds of Etibank, which supplied EKI, to run out, leading to the foundation of TKI (*Türkiye Kömür İşletmeleri*) in 1957, which took over the coalfield and its administration. Second Management Project was proposed during this period just after its foundation, in 1958, to fix underlying issues inherited from the management of EKI, and was operated after 1961 with success, causing good marketing values generated through trade of coal.[128] ERDEMIR was established in Ereğli in 1960 and contributed greatly to industrialization alongside KARDEMIR in the region, as another steel and iron factory with great capacity. However, this would noıt prevent the emergence of private companies which were starting to take control over the market from the state. The economic landscape of Turkey was starting to change, leaning over privatization through liberal policies. Partnerships were initiated between private companies and the state. This caused short term problem solution in terms of budget and operations, but resulted in the gradual loss of power of state.

The loss of power of state greatly affected Zonguldak, a city which relied heavily on the economy and power of state. It was built and developed through state run economy from the Republican Period. The state was losing power and money to private companies and investors of non-state bodies. Less money for the state meant less power, investment and growth, which in turn meant poorer conditions for the workers and less funds for the population. Worse conditions and inability to upgrade the facilities to sufficient mechanization standards in addition to infrastructure problems were other major concerns that arose from this situation. The issue of *tasman*,[129] settling of coal in vacant areas previously used for mining was another critical issue.

[128] (Zaman, 2004 as cited in Kılınç 2009)
[129] The voids created through mining underground which leads to pitfalls aboveground that affects the safety of existing buildings and the feasibility of new constructions aboveground

Starting from 1960s, the state tried to plan the development of the regions by proposing long-term plans which sought to control the situation but majority of these efforts failed to deliver in each of their aims.

After 6 years from the Second Management Project, in 1964, the Preliminary Plan of Zonguldak was proposed on a 1/10.000 scale and the plan for present use… was prepared in the scope of these planning efforts (Figure 73). The plan sought to unite the three areas in the region which were not unified as a whole. These areas were Ereğli, Central Zonguldak-Kozlu-Kilimli-Çatalağzı and Karabük-Safranbolu-Bartın.[130] The approaches were thought specifically for the area itself and involved case-specific, regional solutions.

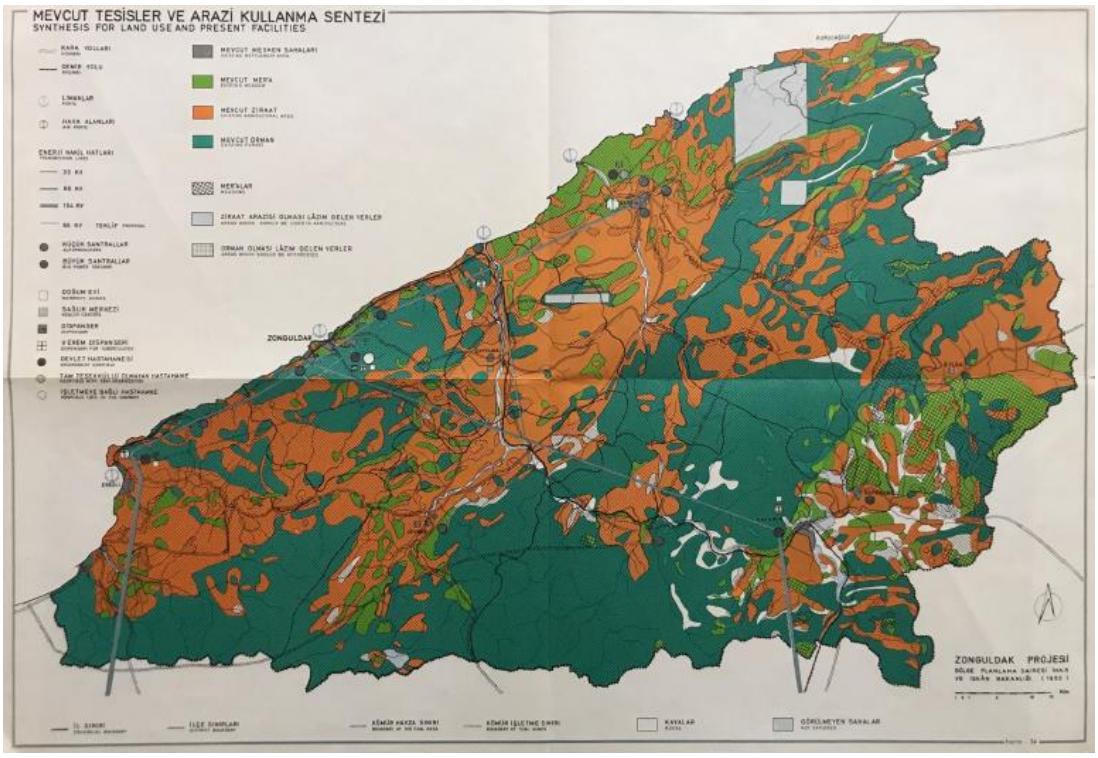


Figure 73: Synthesis for Present use and Facilities, prepared in the Scope of Preliminary Plan of Zonguldak,1964, taken from Can, 2019

Urbanization was encouraged for it was thought to benefit development. Çaycuma was proposed as the new focus of the region to integrate the regions laterally and even

[130] (Tekeli 2017)

the location of the university was proposed for there but these ideas were not realized.[131] Following the Preliminary Plan, a series of competitions were held by *İller Bankası* around the country for development plans of big cities. A competition was opened for Zonguldak in 1971 and a metropolitan planning committee was assembled. Engin Erkin won the competition in 1972. This would be the Zonguldak Metropolitan Area Development Plan (Figure 74). It used the Preliminary Plan as its base and was assigned by the Union of Municipalities of the Zonguldak Region. This was a multiscale plan, which sought to improve infrastructure, economy and the needs of the city. Although the conceptual framework and practical planning practices were laid out in detail with keen insights, this plan also could not see its potential unfold due to again the economic situation and issues of management in the region.

[131] (Tekeli 2017)

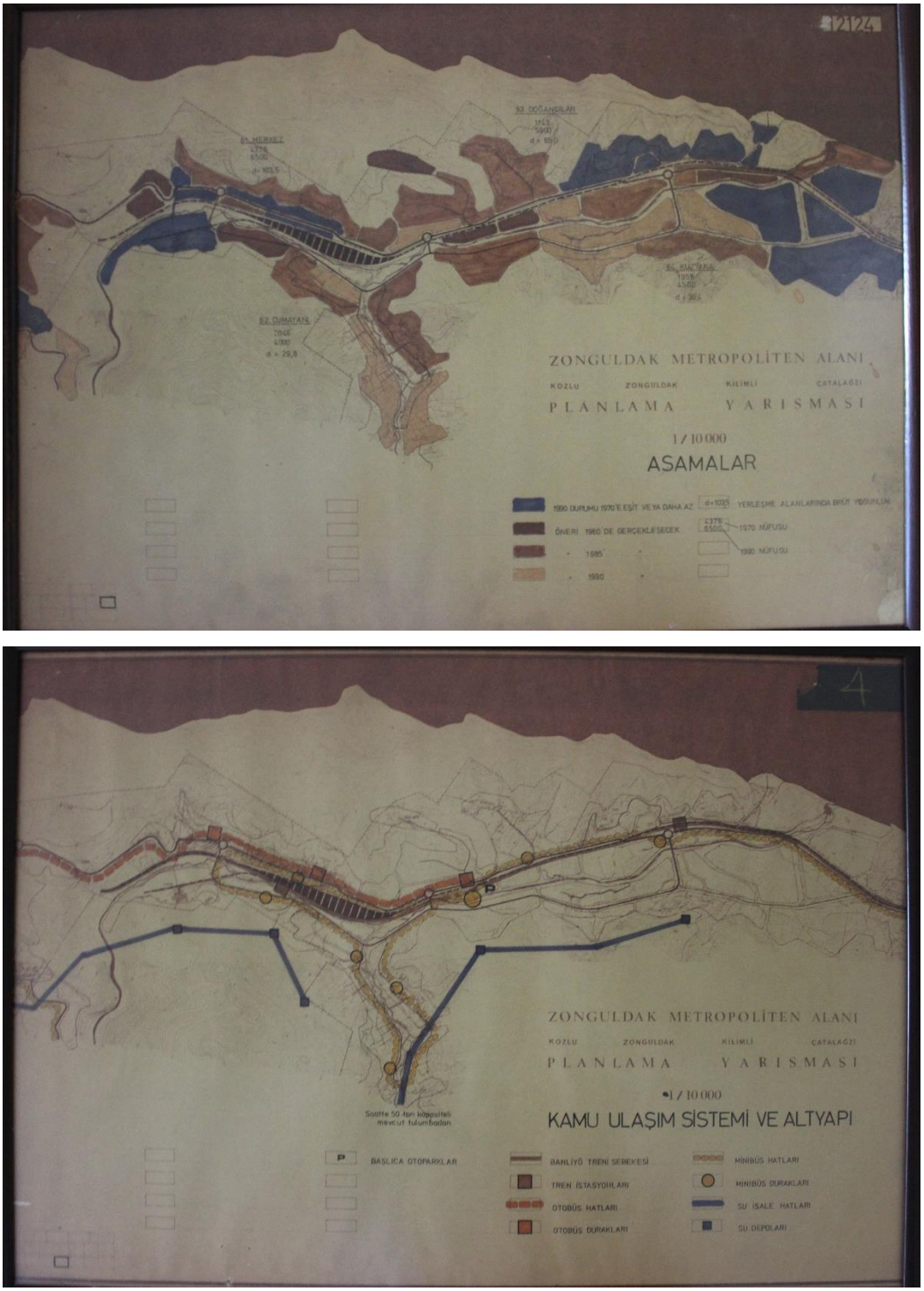


Figure 74: Zonguldak Metropolitan Plan, 1975, Plan proposals and stages divided by years (top), taken by the author, public transportation system and infrastructure (bottom), photographs taken by the author, courtesy of Zonguldak Municipality

TTK was established and took control of the region in 1984. Five enterprises for coal production facilities, Armutçuk, Amasra, Karadon, Kozlu and Üzülmez were established which are still in active use today. KARDEMIR and ERDEMIR was privatized in this period against the criticisms of many, but ultimately served to save the factories from bankruptcy. The presence of KARDEMIR would hold particular importance for it would directly benefit the Port of Zonguldak and its railroads for transportation of coal, steel and iron. However, at the time, these factories drew out workforce from the coalfield and drove the already decreasing employment rates even lower. This, in addition to tightly organized union of workers demanding suitable working conditions and rights, coupled with the thinning of mine veins, were driving the prices of coal higher and making the economic struggles of Zonguldak. Zonguldak- Karabuk- Bartin Development Project was completed in 1997 as a planning effort to find solutions to the problems of the region. The region was imagined as a focus area of commerce and industry, akin to Ruhr and Whales. Filyos Valley was at the center point of the project, as a free commerce zone of international trade within the Black Sea.[132] The plan sought out to strengthen and realize a strong regional economy through these ideas but failed to achieve its goals, just like its predecessors.[133] The period passed by through struggles of keeping afloat the mining activities and the declining economy of the region through practical solutions, but ultimately failed to compensate for mass retirements, workers strike, and population decrease. Although further efforts were made, namely through a five-year restructuring program to increase production values, they proved to no avail.

In 2007 the Master Plan of Zonguldak was drawn by Modul Planlama in scales of 1/1000, 1/2000 and 1/5000 focusing on the city of Zonguldak rather than the region. The region-based approach was conducted which covered Bartin and Karabuk as well as the entire region of Zonguldak while enacting the Advanced Planning Area Environmental Plan in 1/100.000 scale. The plan tried to find solutions to unregistered

[132] (Tekeli 2017)
[133] (Gündoğan 2005)

housing, ownership disputes and issues regarding the topography. These problems have been ongoing since the start of Zonguldak as an industrial port city and coal basin. The valuable natural assets of Zonguldak covered the entirety of the region, and its declaration as property of the sultan in Ottoman Period to now the treasury of the government, made it difficult to plan and organize the city. It became inherently harder due to the arduous slopes owing to the terrain. Hence, the planning efforts in 2007, like its predecessors, also failed in majority as these ownership disputes would not be resolved.

The development of the region would continue to be a point of discussion and BAKKA[134], Western Black Sea Development Agency would be established in 2009 to continue the planning efforts, encompassing Zonguldak, Bartın and Karabük as its scope, akin to 1997 plan. The first plan prepared by this agency would involve a 3-year plan between 2010- 2013 (Figure 75). The aim of this plan was to create more employment opportunities and increasing public welfare through entrepreneurship efforts in the industrial sectors serving the region. However, the plan did not offer substantial efforts for the Industrial Port of Zonguldak. The plan had Filyos in the center similar to 1997 plan and proposed a hinterland encompassing Zonguldak, Filyos Port is at the center of this plan, and the idea is to develop the area around Filyos. Bartın, Karabük, Ankara, Kırıkkale, Kastamonu, Çankırı, Bolu, Eskişehir and Kayseri. Filyos port is proposed in addition to ports in Alaplı, Çatalağzı and Bartın.[135] The dependency of the economy of the area on the steel-iron and coal industries was trying to be reduced. Alternative source of income from various industries were being planned in the area.

[134] *Batı Karadeniz Kalkınma Ajansı*, Western Black Sea Region Development Agency
[135] (Tekeli 2017)

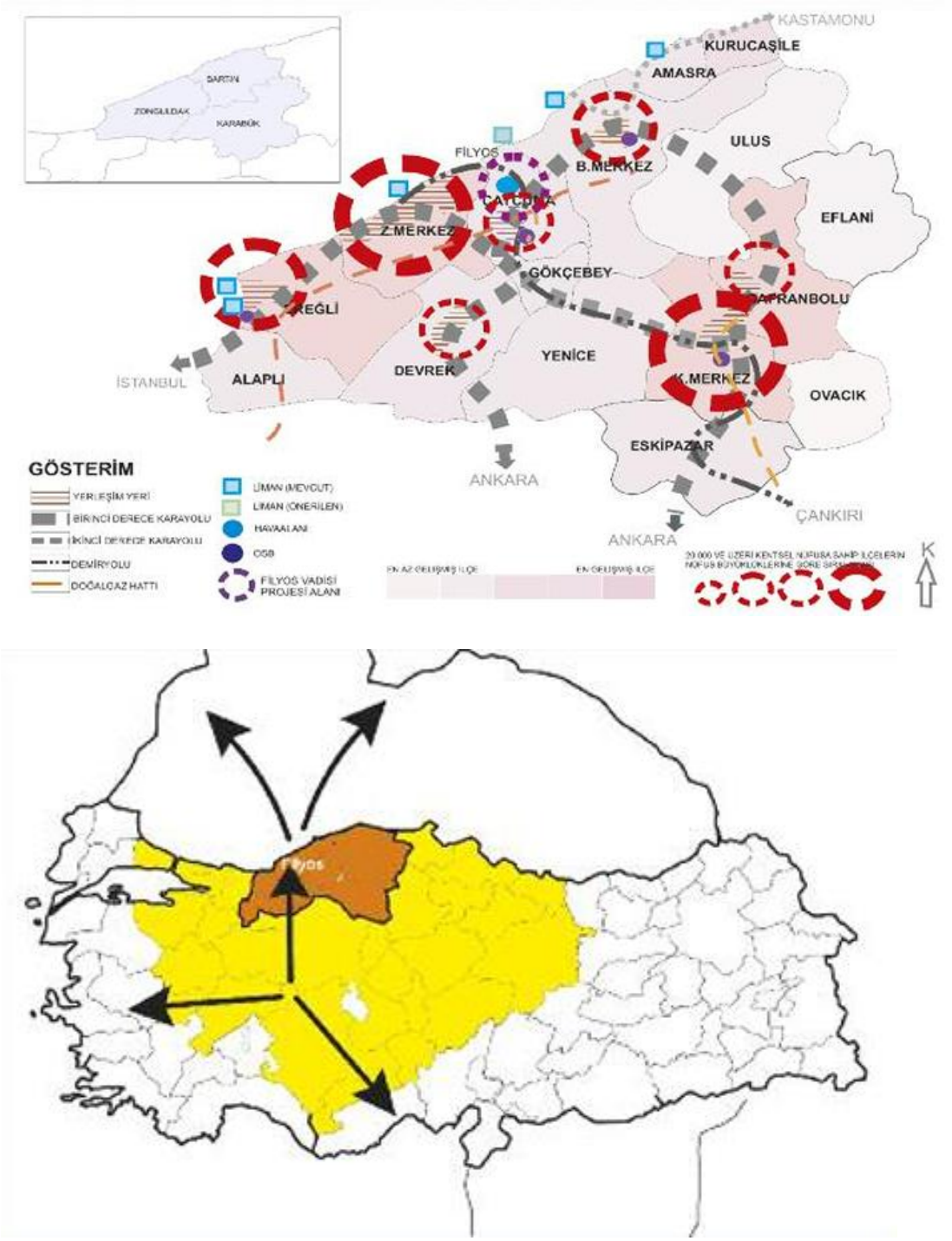


Figure 75: 2013 BAKKA Region Development Plan, (top) taken from BAKKA, 2013 Development Plan, Planned Influence Area for the Filyos Valley Project, (bottom) taken from BAKKA, 2013 Development Plan

A 10-year plan covering 2014-2023 was prepared just after the finalization of this plan. Filyos would continue to be the center in this project as well and the shift in moving away from steel-iron and coal industries would continue. The project (Figure 76) within a 350km radius covers both Ankara and İstanbul in addition to Zonguldak, with a population of 30 million and an economy of 80 billion dollars. It is being configured as Turkey's first' Mega Industrial Park', essentially meaning a much larger industrial zone with combined with areas that serve multitude of functions such as; service areas, parking areas, forestry, wetlands, beaches situated on both sides of Filyos Stream in addition to the industrial zone and the port.

The focus is on manufacturing of electrical equipment, machinery and specialized equipment, motor vehicles, trailers and semi-trailers and of other transport equipment. Other possible sectors are listed as pharmacy equipment, optics and electronic products, and spacecraft and aircraft machinery. There is not a focus on steel / iron industries nor their existing factories on this list, developments or a mention of coal industrial production is also absent.

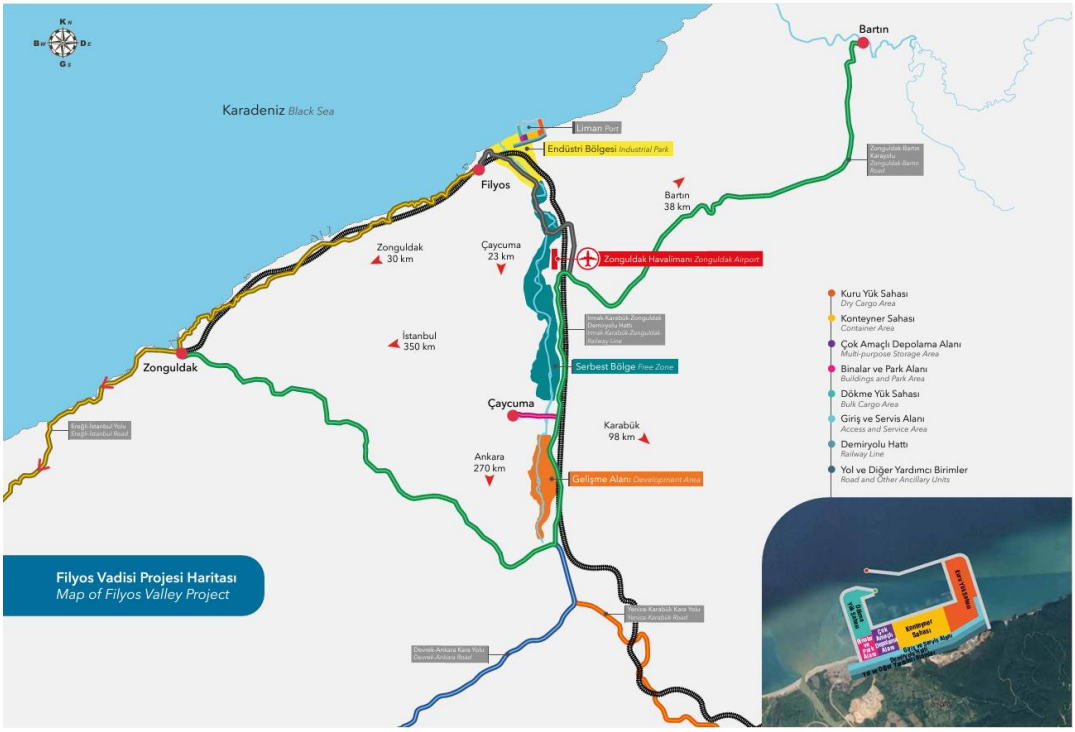


Figure 76: Filyos Valley Project, taken from the official booklet prepared by Bakka, 2019

The project is concentric on Filyos Port and its surroundings, like the previous projects before it and is still not fully realized. The port has a deep enough draft to accommodate container handling in addition to other transportation methods such as handling bulk cargo and dry cargo. Port of Zonguldak does not have an active place in this project, despite Filyos's close proximity to Zonguldak. Instead, the project supports Çaycuma, a district of Zonguldak, as a 'Free Zone Extension Area', which is described as an area outside of the customs area of the Industrial Zone. These areas are planned to develop local economy to encourage and improve exports. However, some opinions on local municipalities such as Çaycuma Municipality, highlight the lack of participatory planning in this project, stating that there is a mismatch between the aim of the projects and the expectations of the local population.[136]

Considering the investment amount, the total area it covers and the sphere of influence the project would have, if it were to be fully realized it would greatly affect the Industrial Port of Zonguldak, possibly not in a way that would benefit the port. The biggest issues of the Industrial Port of Zonguldak are a lack of investment, shallow draft, and a lack of dedicated container terminal. Filyos Port, currently active, has none of these issues and is growing. Although it is not a direct replacement of the Industrial Port of Zonguldak, hence does not point to a possible relocation of the Port of Zonguldak as is the case for many industrial ports located in city centers, Filyos may continue to draw investment and ship traffic away from Zonguldak.

[136] (Köktürk 2024)

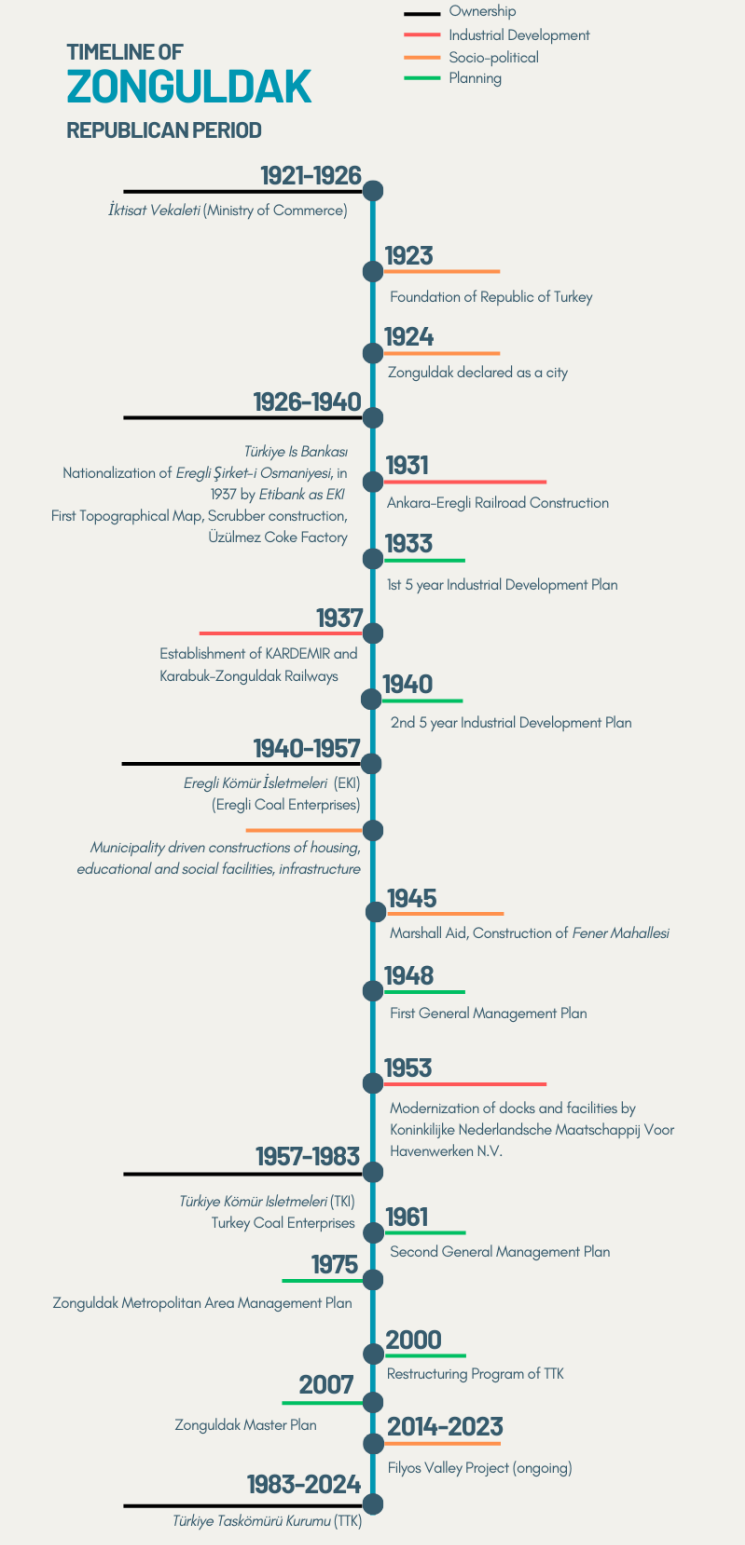


Figure 77: Republican Period Timeline of Zonguldak, produced by the author

3.5. Transformation of Industrial Port of Zonguldak throughout History

The history of the Industrial Port of Zonguldak starts with industrial production of hard coal. Before then, there was no settlement in the place where today's city center of Zonguldak is situated. In 17th and 18th centuries but only storage buildings for lumber and a small pier belonging to Ereğli. The exact location of this pier was the end of the Üzülmez Stream and was used until the end of the 19th century. (Figure 78) Lumber was being sent to the Halic Shipyard to be used for shipbuilding. Piers like this which were used for the transport of lumber was situated along the coast of the Black Sea. Some of these piers in addition to Zonguldak were in Karasu, Ereğli, Filyos, Bartin, Amasra and Cide.[137] In this section, the inception of the Industrial Port of Zonguldak will be examined. Important milestones and dates, which resulted in major changes in the port will be discussed and laid out. The aim will be directed at understanding the transformation process of the port in a wholistic way.

Figure 78: Zonguldak, before construction of the port in 1896, taken from the archives Zonguldak Directorate for Culture and Tourism

[137] (Apaydın, Zonguldak Şehrinin Kömüre Bağlı Tarihi ve Talihi Üzerine Bir İnceleme 2020)

The history and development of the port can be divided into 5 periods. This division is according to the events that led to major changes in the port. First period is from its construction till the first modernization of docks and facilities, between 1896-1953. It signifies the emergence of the industrial port as a rapid coal loading dock using the northern side of the port. Railroads extended from inside the city till the loading facilities of the port. Mechanical and steam-powered cranes were used to handle general cargo and coal. A breakwater was constructed on the northern side of the port to shelter it from storms and allow ships to dock and commence loading/ unloading operations in a safe manner. A stone pier was constructed on the opposite side of the breakwater with a stationary crane. This was replaced in 1906 with *Şarjöman Rapid*, a rapid coal transportation system from ship to wagon, and wagon to ship. Another pier was constructed to the west of the stone pier in concrete, which handled cargo with a stationary crane, coupled with passenger travel and small cargo with boats.

The south-western part of the port had industrial facilities such as a coal washery building / scrubber for the washing of coal and its separation into different sizes for transportation.[138] This scrubber was used during this period and was demolished in favor of the Zonguldak Central Scrubber, which was opened in 1956 with a much larger capacity and developed technology. This is the only period of the port which featured a single breakwater / mole. The port was under the French management by *Ereğli Şirket-i Osmaniyesi* until 1920, which was then transferred to the Ministry of Economy and ended up in the management of EKI after 1940.

Second period is from the first modernization of the port till the transformation of pole dock into ro-ro dock, between 1953-1996. The northern breakwater was extended (*kırmızı mendirek*) and a secondary breakwater was added to its west (*kırmızı mendirek*), providing even more shelter for the harbor of the port. The port activities were relocated from the northern side to the south-western side. Customs area of the port was clearly defined and was erected through landfill on sea. It was divided into

[138] Not to be confused with Zonguldak Central Scrubber, the scrubber mentioned here is the one built by the French company *Ereğli Şirket-i Osmaniyesi*

two from center. The landfill on the western side were planned for a coal loading dock and a pole dock while the northern side was reserved for a cargo dock.

Conveyor belt systems with telescopic and mobile cranes were established on the coal loading dock[139], which would directly load and unload into the ships from the newly built Zonguldak Central Scrubber[140] which could prepare coal for the necessary requirements for transportation. Sufficient open air storage spaces and warehouses were also implemented. The pole dock was planned for the shipment and transportation of mining poles directly from ships into wagons to site, to greatly reduce labor. The cargo dock was planned for the handling of general cargo, with two electric-powered cranes and 3 warehouses. Railroads extended into all the docks, as was the case in first period.

The port was managed by EKI from 1940 till 1957. Due to the financial struggles of Etibank and therefore its lack of funds, EKI could no longer manage the port. Following this, EKI was incorporated into TKI and lost its status as the management authority of the port. Hence, between 1957-1975, TKI (Turkish Coal Administrations) managed the port for a period of 18 years. In 1983, EKI regained its status as an anonymous company of the state. It was re-established and re-branded as TTK (Turkey Hard Coal Institution). TTK took control of the management of the port through its establishment in 1983 and still holds it till this day.

The third period is from the transformation of pole dock[141] into ro-ro dock[142] in the port till the construction of train ferry dock[143]. It was stated that pole dock was not efficient enough to be kept operating and was then re-purposed into a ro-ro dock. The cranes of the pole dock were disassembled followed by the adjustment made to the

[139] A dock which handles loading and unloading of coal through various machinery and systems
[140] Scrubbers are facilities which deal with the processes of coal to make them suitable for transportation and use, activities include washing, filtering and drying of coal
[141] A dock specifically constructed with 2 cranes to handle the loading and unloading of mining poles directly into wagons through railroads that extend from the port to the dock
[142] A dock which is constructed for unloading and loading trucks with freight directly from specific ships called ro-ro ships, ro-ro comes from roll-on, roll-off, which means the movement of a vehicle directly circulating from ship to port, and port to ship
[143] A dock with hydraulic ramp and railroads specifically constructed to allow direct unloading of locomotives and wagons carried through specific ships

edges of the landfill for 3 ramps which would allow the docking of 3 ro-ro ships simultaneously. Ro-ro docks require little to no infrastructure and were important for ports to integrate during the start of the 21st century. This transformation would help the port's economic situation and significance.

Train Ferry Dock was added as an extension to the cargo dock in 2004.The length of the extension was 200 meters. It was constructed through landfill and integration of special equipment such as the hydraulic ramp and dolphins. This dock allowed a special ship called 'Erdeniz' to do back and forth voyages between Ereğli and Zonguldak, as the same type of dock was constructed in the Port of Ereğli as well. The ship would carry wagons loaded with freight and a locomotive to move the wagons. The aim was to create a railroad-sea-railroad network, to increase efficiency through multimodal transportation[144].

Fourth period is from the construction of train ferry dock till 2019. In 2005, the coal dock was divided into two, to provide needed truck parking area for ro-ro dock while further shrinking the area of coal loading dock, that was losing favor. This was followed by the demolishment of the central scrubber in 2006. The cease for operations of the train ferry dock, coupled with the demolishment of the scrubber signified the downward trend the port was taking. The ro-ro dock, together with its expansion, had become the most important part of the port in terms of economic growth.

The industrial port of Zonguldak had emerged as a port characterized by the transport of coal. The coal loading dock built in 1953, coupled with the construction of the central scrubber in 1956, was the pinnacle of this character. The dock was constructed for the purpose of directly loading coal into ships from the scrubber while the scrubber would prepare most of the coal mined from the region into a state ready for transportation. The model of an industrial port fueled by local industrial production starts to fade after this period.

[144] Transport made with at least two different types of mode such as land and sea, or sea and air

The fifth period extends from 2019 till the current situation, 2025. 2019 marked the two projects which affected the active port area and its use. The first was a coastal renewal project took place in the northern part of the port. Wooden decks were added at the edges of the landfill. Cafes and restaurants were placed one after another and the adjacent spaces were filled with greenery. The whole northern coast was open to public with the exception of the inner part of the northern breakwater, which featured the ship services building and the area of coastal guard.

The second project was the construction of Uzun Mehmet Mosque and the rearrangement of the port area around it as a recreational area. This project took a good chunk of port area which was utilized for storage but had the potential to serve as a future extension of the port. In the current situation, this recreational area is available to public but is adjacent to the customs area of the port, in particular, to the ro-ro dock and its customs buildings.

Both projects were planned in 2019 and realized in 2021. They served to further shrink the activities of the port and reduce its area of effect. In addition, the ro-ro dock ceased operations in 2022, due to the start of Russian- Ukrainian War and has only recently reinitiated operations. This effected the port greatly, since it had been relying on ro-ro transportation, especially since 2005 as its financial backbone. Because of these developments, the fifth period, which brings us to the current situation, is alarming in terms of the future and continuity of the activities of the port. The periods of the industrial port of Zonguldak according to major events which affected its transformation process will be discussed in detailed in the upcoming sub-chapters. For reference, the five periods are;

- **First Period 1896-1953**
- **Second Period 1953-1996**
- **Third Period 1996-2004**
- **Fourth Period 2004-2019**
- **Fifth Period 2019-2024**

3.5.1. First Period of the Industrial Port of Zonguldak

After the discovery of hard coal by Uzun Mehmet in 1829, Zonguldak started transform into an industrial city fueled by the regionally extracted hard coal. The establishment and development of its port followed parallel to the efficiency and power of this production. It is most crucial to highlight that city developed not only because of the mines but also because of its port. The first railroads the city received was from the mines to the port. The first buildings in the city were either adjacent to the mines, the port or in between the two. The city grew depending on both its production and its transportation. Without the port and its infrastructure, the city would not have gone through the same transformation processes. It would not be a stretch to state that the city of Zonguldak emerged as an industrial port city as much as a mining city.

During the period when the ownership of the coal mines was under the Ministry of Marine, the production of coal was increasing and combined with the fact that the state had allowed 40 percent of the coal to be exported to attract foreign investors to Zonguldak coal basin.[145] The need for proper bulk transfer arose with increasing investments, development of the collieries and increased production. This, coupled with the ever-present bad weather conditions in the region caused concerns with the current state of transportation systems. The loading of coal into the ships were getting increasingly arduous while not matching the speed of production and there was also not a single port where the ships would anchor and wait through risky weather situations such as storms.[146]

The construction of a port in Kozlu (Figure 79) to find a solution to these problems were thought of by Sultan II. Abdulhamit. Though the tender of the port to be constructed in Kozlu was completed and its construction had started, due to various circumstances such as draft, wind load, direction of the waves and transportation routes, the construction was stopped and was relocated to be built in Zonguldak

[145] (Öztürk 2018)
[146] (Karadeniz ve Çelikoğlu 2011)

instead by the declaration of the sultan on 25th December, 1893.[147] This declaration constituted of 18 articles and featured the construction of a port in Zonguldak where the mines of Ereğli was located, the management of said port, the transportation of coal the depots of the ships and the construction of loading stations. However, during the end of 19th century, the Ottoman Empire did not have the sufficient financial or technical resources to invest in and construct a port which would be used for the export of coal. The economy of the empire had collapsed at this point and was under *Düyun-u Umumiye İdaresi*[148].

Figure 79: Locations of Kozlu and Zonguldak, map from current situation, taken from Google Earth Pro

A port was desperately needed and it was thought that since national resources were not enough, external aid had to be sought out such as the French or English as foreign

[147] (Öztürk 2018)
[148] The institution which was charged with the supervision of external debts of the Ottoman Empire, during the reign of II.Abdulhamit, between 1881-1928.

investors for financial support as well as technical expertise.[149] The issue was that, for the case of Zonguldak coal basin, since it was the private property of the sultan, foreign investment was forbidden. However, in the Ottoman Period, it was permitted for Ottoman citizens to transfer legal rights such as management rights or rights to properties to other people or legal entities even if the recipients are not Ottoman citizens.

The management of the port was under the entity who held the port prerogative, which a prerogative given to a state authority or a legal person that allowed them to manage the port area. This was in the hands of Marine Engineer Yanko, also called as Architect Yanko[150]. This port prerogative had a validity of 42 years. Around the time Yanko received the prerogative, foreign French investors that plan to invest in the coal basin established a company named *Ereğli Şirket-i Osmaniyesi* (Societee D' Heraclee A.Ş.) in 1892. Yanko transferred his rights[151] to *Ereğli,Şirket-i Osmaniyesi* in the year the company was established, in 1892. The tender of the construction of the port in Zonguldak was then given to the French company in 1893 and the construction was completed in 1896. The port was planned and constructed as an industrial port with machinery and facilities dedicated to the loading and unloading of coal.

The construction of the port was led by Marine Engineer Yanko and Minister of Forestry, Agriculture and Mining Melhame Paşa.[152] A breakwater (Figure 80) on the north 2 meters above the sea level, 300 meters long with steam cranes used for loading and unloading (Figure 80), a pier, (Figure 81) railroads along the coast connecting to the breakwater and the pier and 2 tunnels at the end of the port were constructed. Boats would continue their activity alongside the new facilities, situated at the northeastern side of the port (Figure 82). The total area of the port was 50.000 m^2.[153] The wealth

[149] (Öztürk 2018)
[150] He was referred to as '*Bahriye Mimarı*', which translates roughly to Naval Architect or Marine Architect
[151] According to sources, this was given to Yanko for him to transfer his rights to the French Company so that they could run the port, while others simply stated that he was acting in place of the company or that he helped establish the company with his acquaintances
[152] (Yıldırım 2015)
[153] (Yıldırım 2015)

and property ownerships of the company was officially recognized in 1912. The official boundaries of the port were also laid out during this year. The management of the port stayed under *Ereğli Şirket-i Osmaniyesi* until a contract was signed with the government through the necessities stated by the law numbered 3146. The law transferred the management of the properties of the state that belonged to the port, railroads and collieries to the French company. It covered legal, beneficial, property, site, plumbing and attainment rights.[154]

[154] The information regarding law number 3146 was gathered through the 216th issue of National Assembly of Turkey, 1962

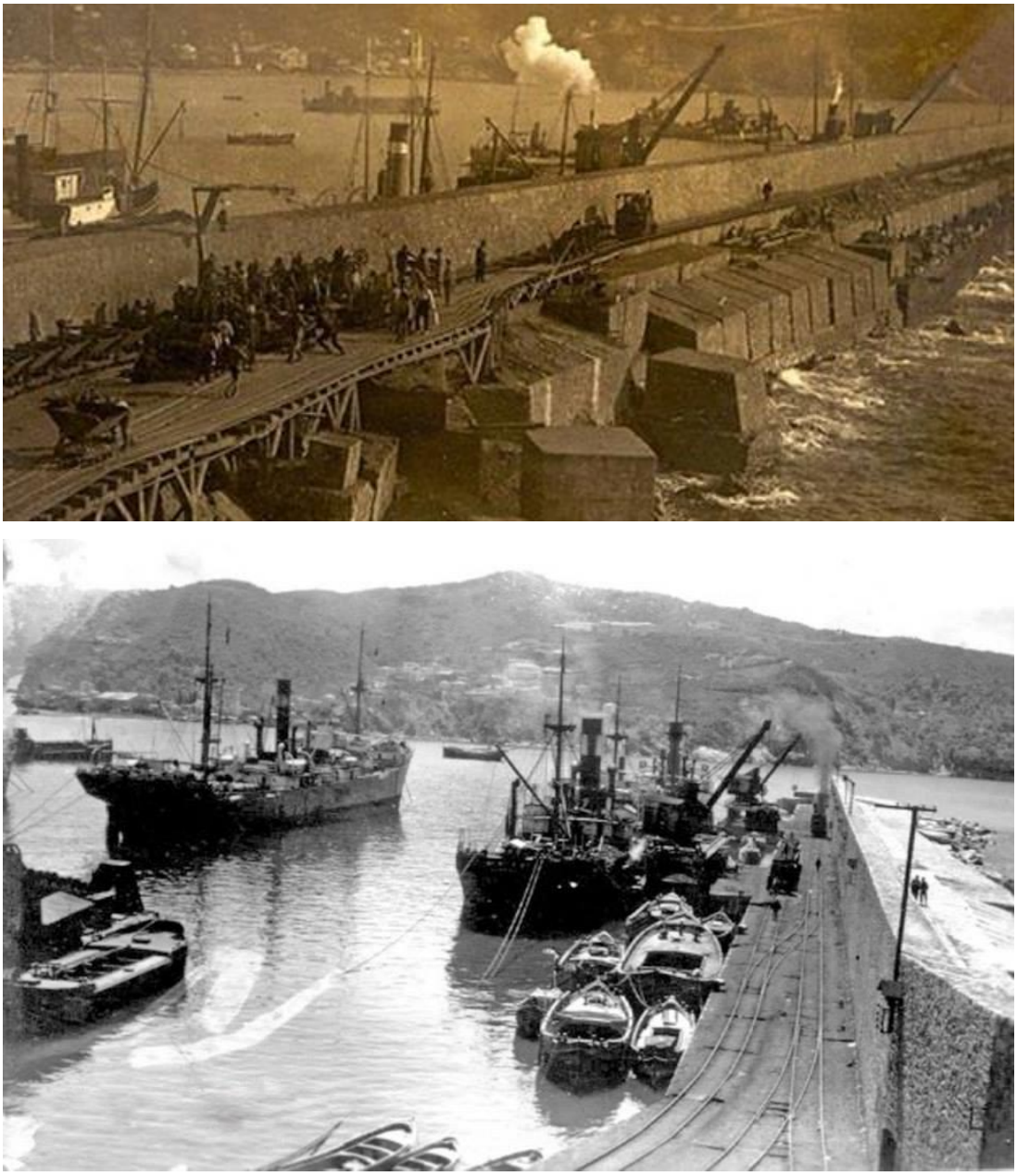


Figure 80: Backside of breakwater of the port, railroads and Steam cranes, (top), Frontside of breakwater of the port, railroads and steam cranes (bottom), Ottoman Period, both images retrieved from https://www.facebook.com/photo/?fbid=380438485440250&set=a.380438238773

Figure 81: Port of Zonguldak, Breakwater, Loading Cranes and Dock, 1896-1906, (top) retrieved from https://www.facebook.com/photo/?fbid=845115928972501&set=a.407295592754539, Port of Zonguldak, Old Pier and overview, 1986-1906 (bottom), retrieved from https://www.facebook.com/photo/?fbid=547436315407132&set=a.380438238773608

Figure 82: Northeastern side of the port, retrieved from https://www.facebook.com/media/set/?set=a.407295592754539&type=3

The draft of the port was 7 meters deep and the biggest ships that could dock in the port was 4.000 tons of maximum capacity. It was taking 17 to 18 days for a ship to load 60 to 70 thousand tons of load which in turn reflected on the annual loading capacity which was not exceeding 1.200.000 tons.[155] The ships were also required to wait over 30 days outside the port before proceeding with loading and unloading operations. This was very concerning as the port did not have sufficient protection against bad weather conditions and storms yet as it was only protected by a single mole. This caused it to receive serious damages through a series of reoccurring storms, most notably the one in 1931 (Figure 83) as it was the biggest storm that caused the most damage.[156] The port was repaired after each storm and kept operating in its current scheme.

[155] (Zaman, Zonguldak Limanı 2010)
[156] (Yıldırım 2015)

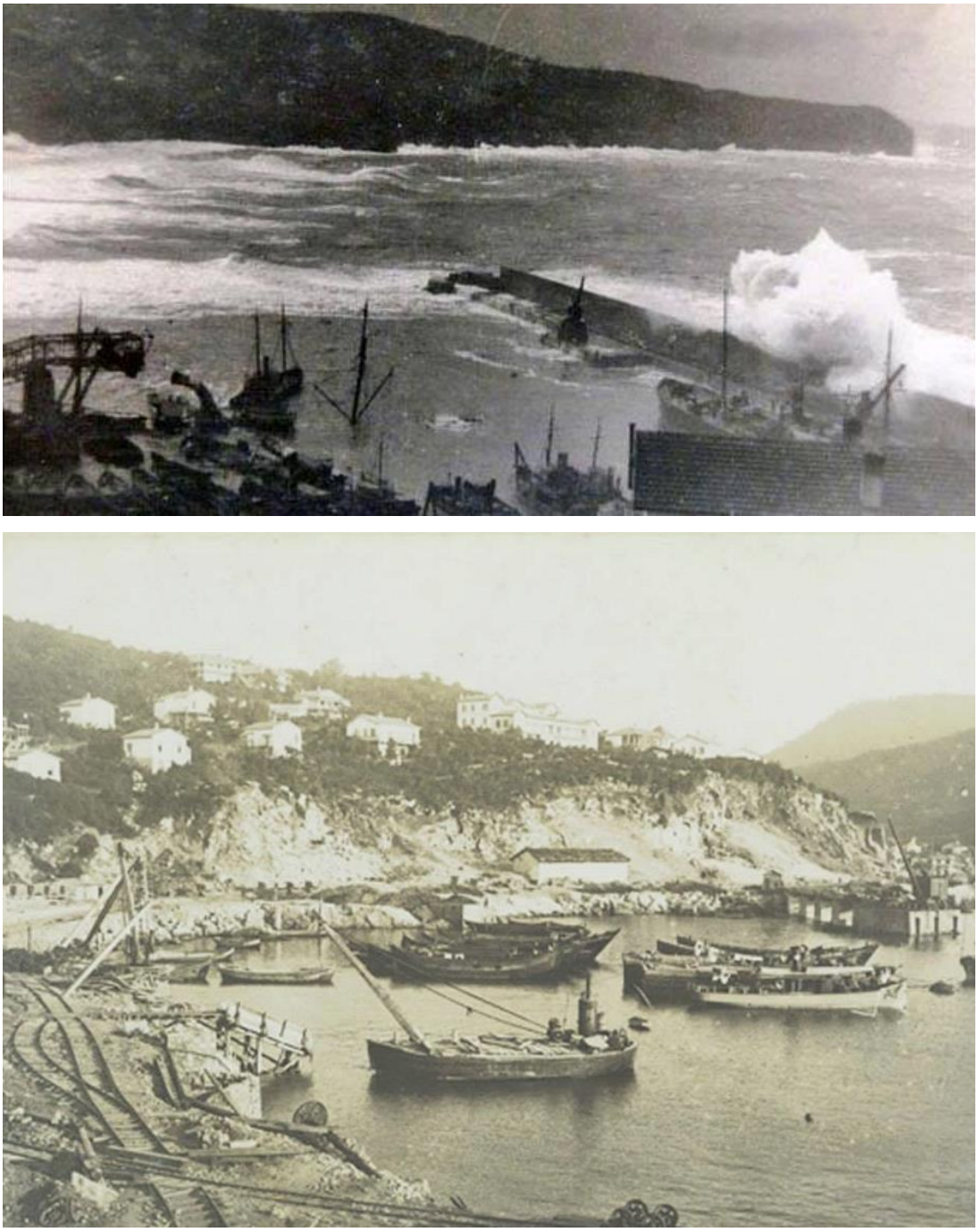


Figure 83: Port during the storm in 1931, (top) retrieved from https://www.facebook.com/photo/?fbid=1025469647603794&set=a.1025469214270504, Northeast part of the port, Ottoman Period, after damages, (bottom) retrieved from https://www.facebook.com/photo/?fbid=38

The port constituted of a single pier and a single mole. The ships would arrive and dock in front of the mole in the inner part of the port. The loading and unloading operations would take place through mechanical cranes. A stationary crane was situated at the end of the stone pier and was used for cargo handling (Figure 84). 2 stationary cranes were situated on platforms connected to the mole. They were used for loading and unloading operations. The railroads extended to the start of the pier and till the end of the mole, including both the backside and the frontside of the mole. The coal was loaded into ships through the cranes in the pier and the mole from the wagons which carried the coal into the port from the mines. Through growing production, to meet the needs of the production, the iconic *Şarjöman Rapid* was built in 1906. It was a rapid charging station used to load coal (Figure 85).

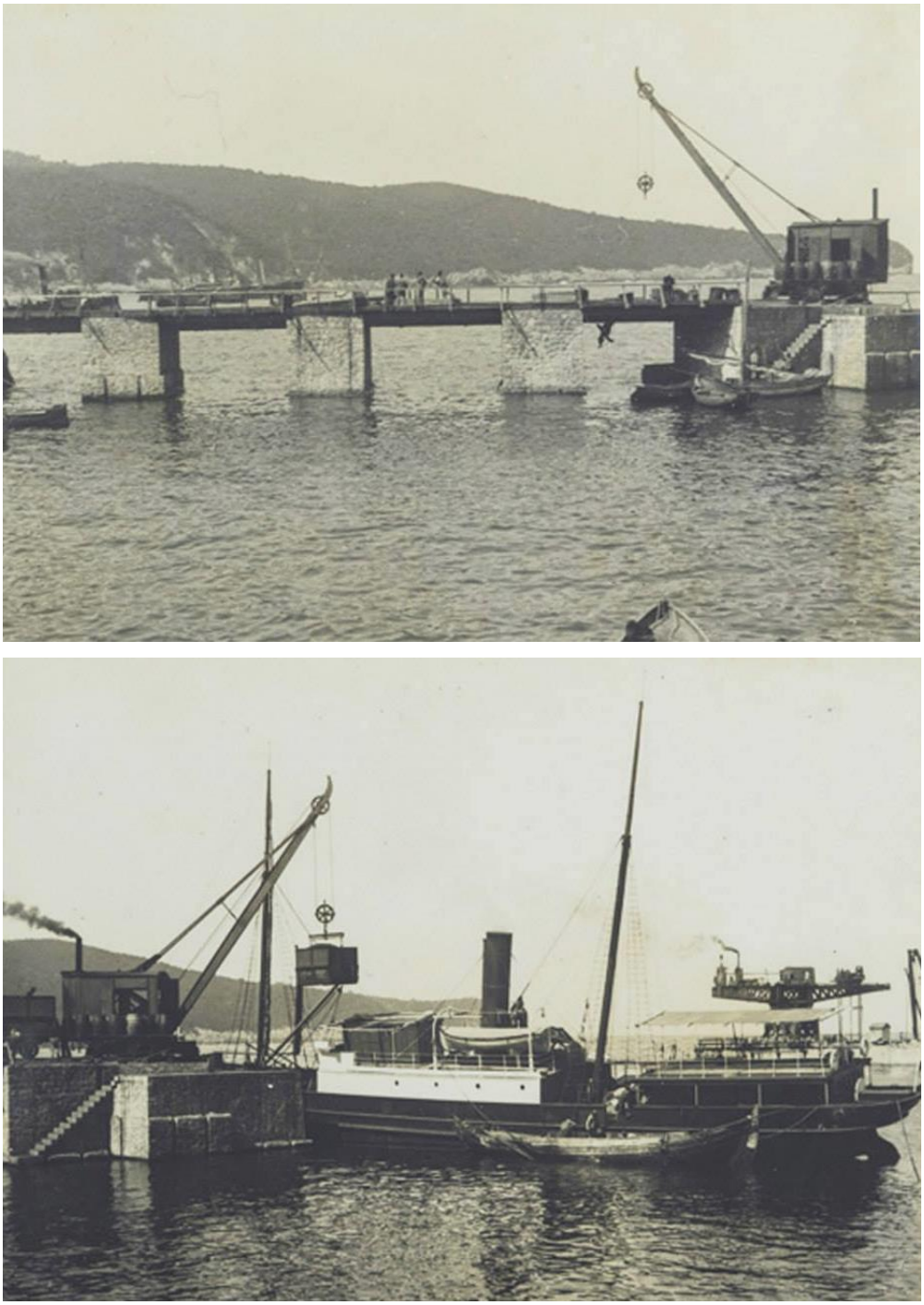
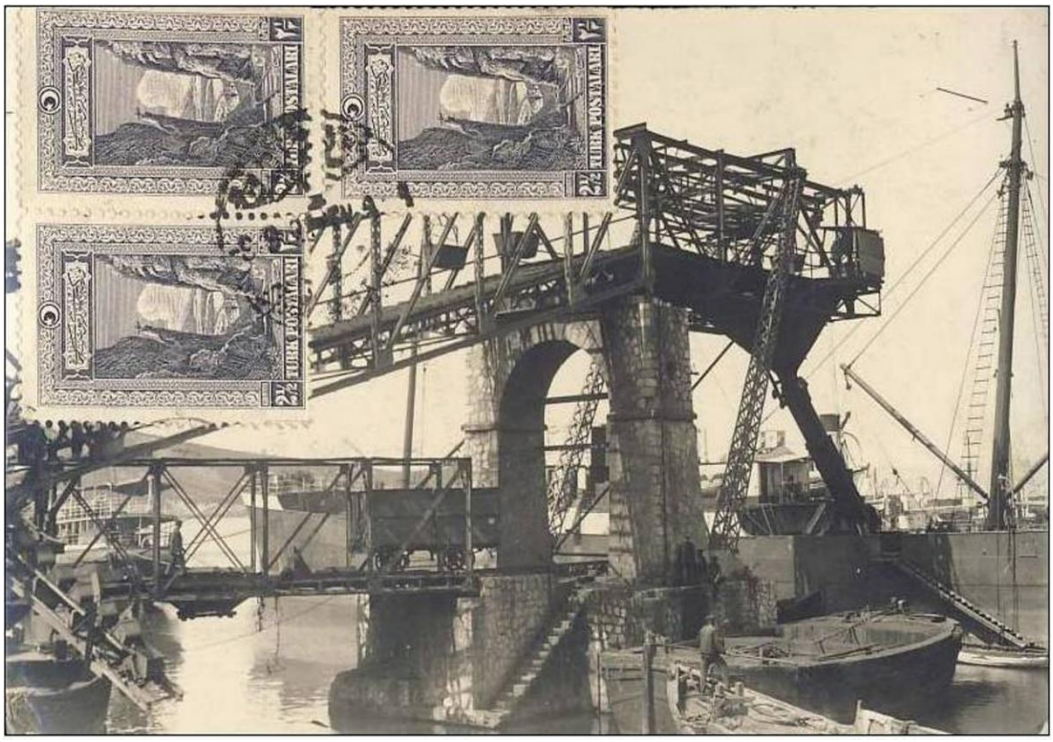
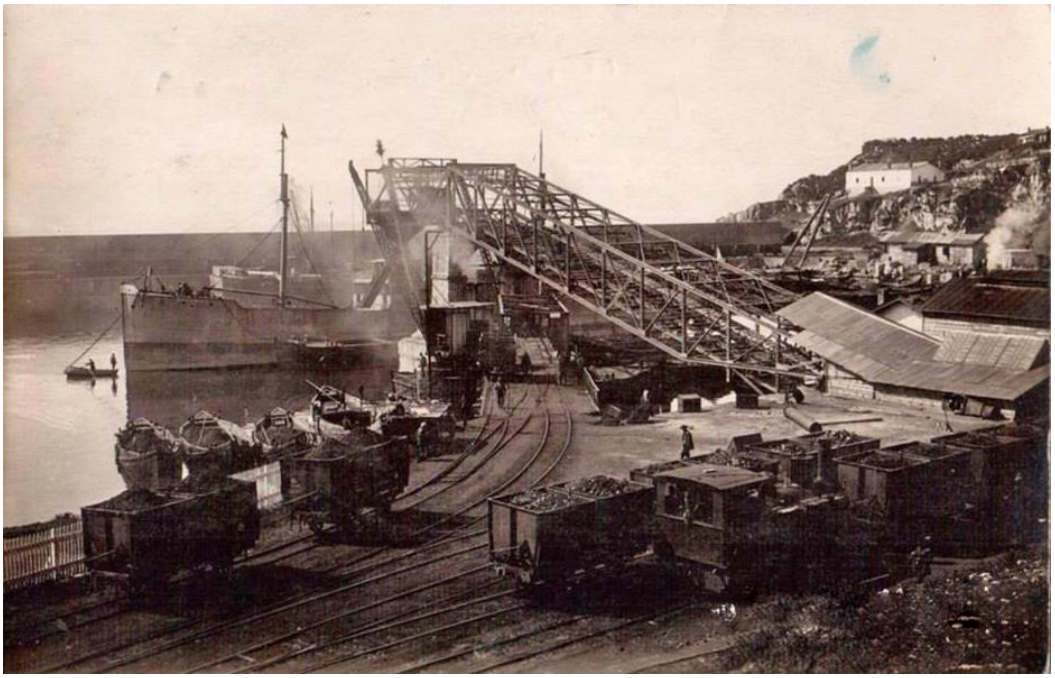


Figure 84: Stone Pier and Stationary Loading Crane, 1896-1906, location in port (top), from side view (middle), during operation (bottom), all images retrieved from https://www.facebook.com/photo/?fbid=547436568740440&set=a.380438238773608





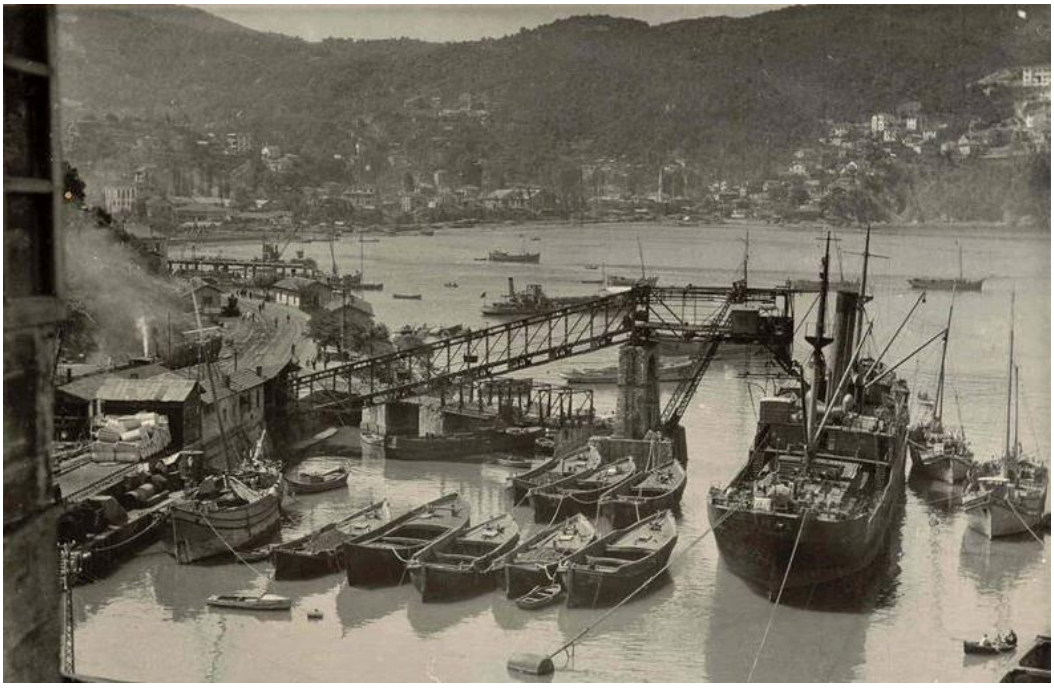


Figure 85: Şarjöman Rapid (top), its connection with railroads, (middle), during loading operation, (bottom), all images retrieved from https://www.facebook.com/photo/?fbid=653137191503710&set=a.394140690736696

At this point, the railroads of Zonguldak extended only from the Ereğli Coal Mines to the port. No railway connections existed between Zonguldak and major cities such as İstanbul, İzmir and Ankara. The coal was transported to Istanbul through the Black Sea and to İzmir through the sea using the connection of Black Sea- Marmara Sea- Aegean Sea (Figure 86).[157] For international transports to countries such as France and the UK, the loaded ships sailed the Black Sea and navigated through the Bosphorus Strait into the Mediterranean (Figure 86). In addition to direct routes, there were also transits. Some ships would stop at transit ports in the Aegean or Mediterranean Sea, and their load would be transferred onto bigger ships. This proved advantageous as smaller ships were more efficient in navigating the Black Sea at the time and it was not possible for large ships to load from the port of Zonguldak due its limitations.

[157] (Kahveci 2015)

Figure 86: Maritime Transportation Routes of Europe, 1872 (top), courtesy of The University Library of Chicago, retrieved from https://www.lib.uchicago.edu/e/collections/maps/eurotransport/, Maritime Transportation Routes of the Ottoman Empire, especially connections to port in the Black Sea, such as Port Odesa, Varna, Sevastopol and Evpatoria 1883, (bottom) courtesy of The University Library of Chicago, retrieved from https://www.lib.uchicago.edu/e/collections/maps/eurotransport/

The period of 1896 to 1954 is the first period of the Industrial Port of Zonguldak. It begins with its construction and continues its operations without any major transformation, with only repairs and minor additions. The city was built around industrial production of coal and was shaped around the railroads going through the city from the mines into the port. The entire city was akin to a buffer zone of an industrial port city. The lodgings of the personnel responsible for operations of the ports and the mines were located just behind the port, between itself and the mines. Wagons were carried by trains in a street adjacent to the port called *Liman Caddesi* (Figure 87). Along *Liman Caddesi*, in addition to *Şarjöman Rapid* and Workers Management Building, a concrete pier of the port was used for supplementary cargo handling with a stationary crane and its western bay was used for passenger transfer with small scale boats (Figure 88).

Figure 87: *Liman Caddesi*, northern side (top), southern side and overview (bottom), taken from the archives of Zonguldak Directorate for Culture and Tourism

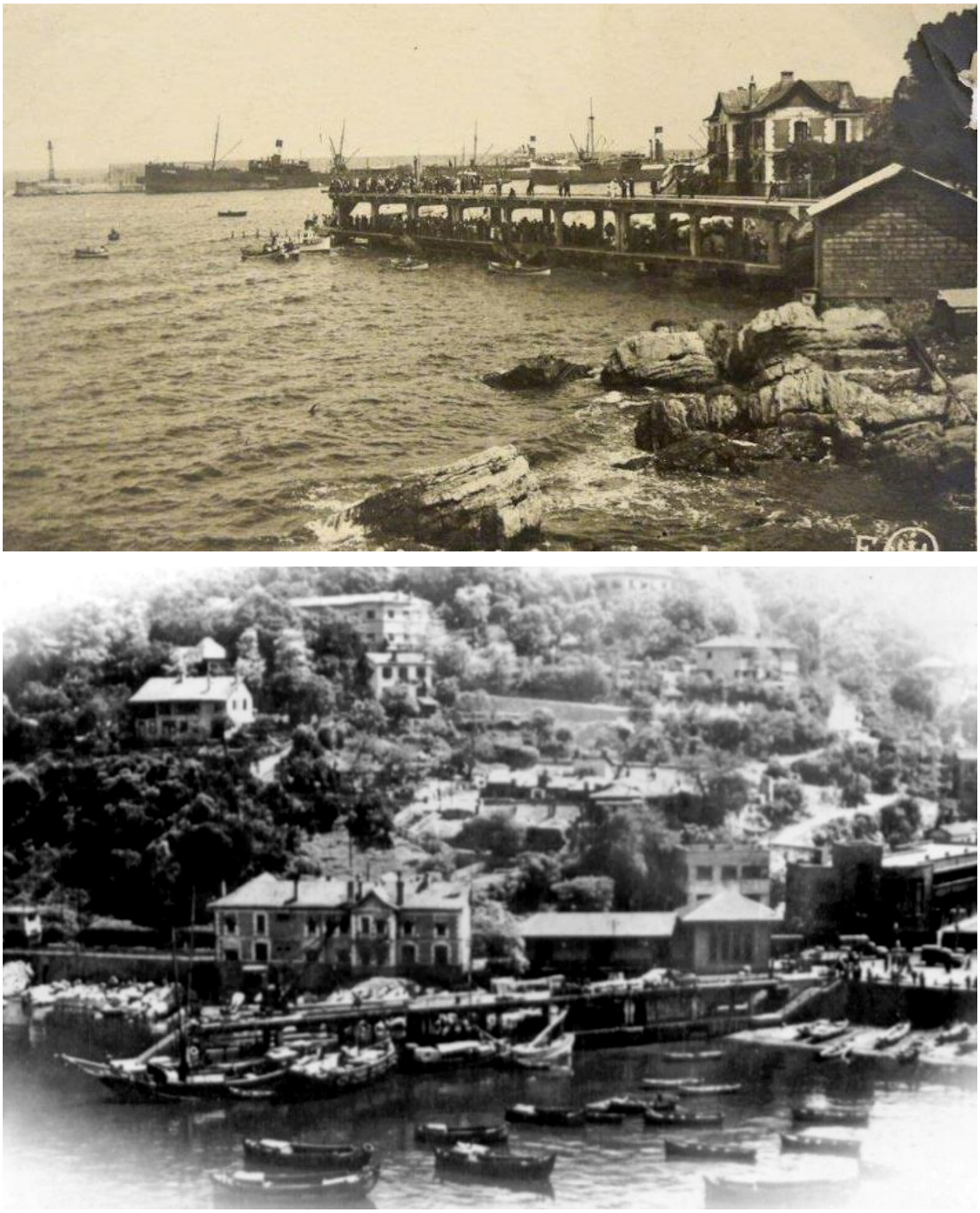


Figure 88: Concrete pier of Zonguldak Port, Workers Management Building on the western side of the pier, 1930, (top), retrieved from https://www.facebook.com/photo/?fbid=667693230048106&set=a.384019231748842, Concrete pier from front view (bottom), taken from the archives of Zonguldak Directorate for Culture and Tourism

The trade was international focused during 1896 to 1923, due to the influence of foreign investors controlling the coal basin and the port in this period. Hard coal was valued greatly internationally for industrial use and was mainly exported to France and the UK, in addition to Italy, Austria, Hungary, Russia, Bulgaria, Greece and Egypt. The industrial port (Figure 89) allowed the expansion and growth of the area, through turning production into capital.

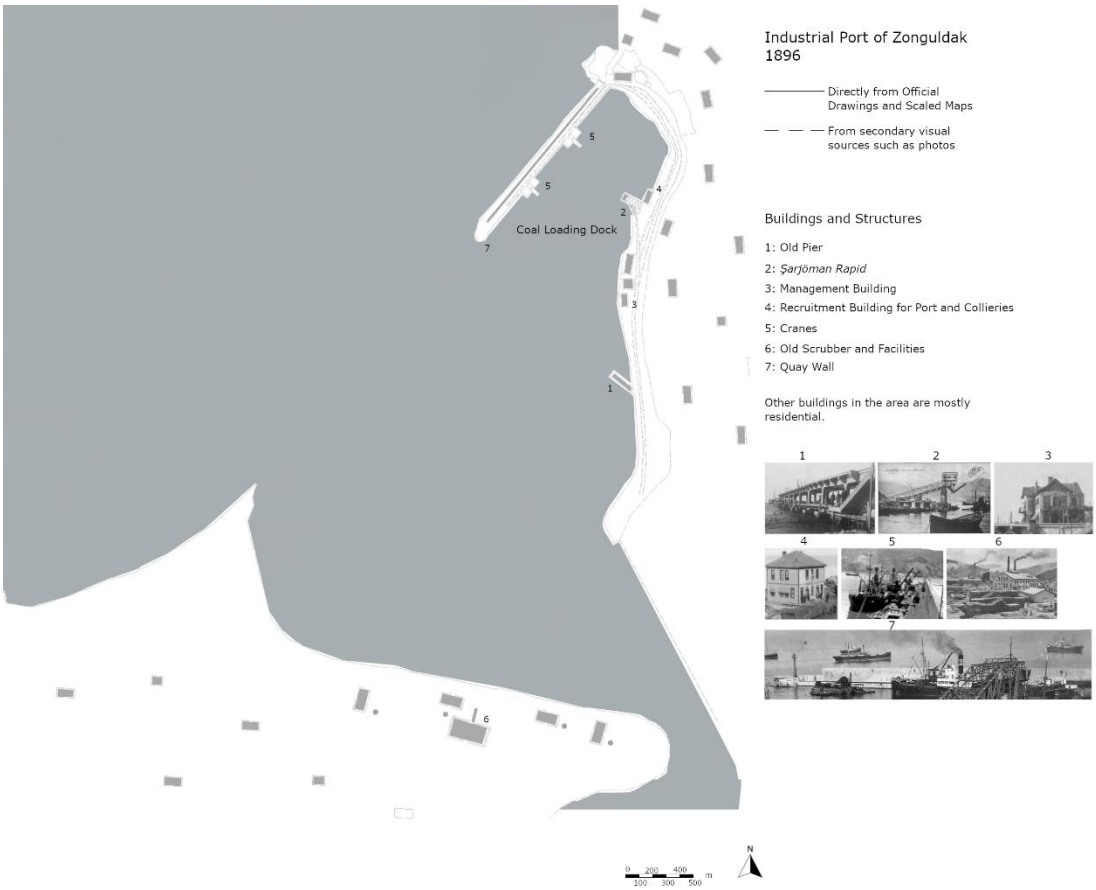


Figure 89: Industrial Port of Zonguldak, First Period, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

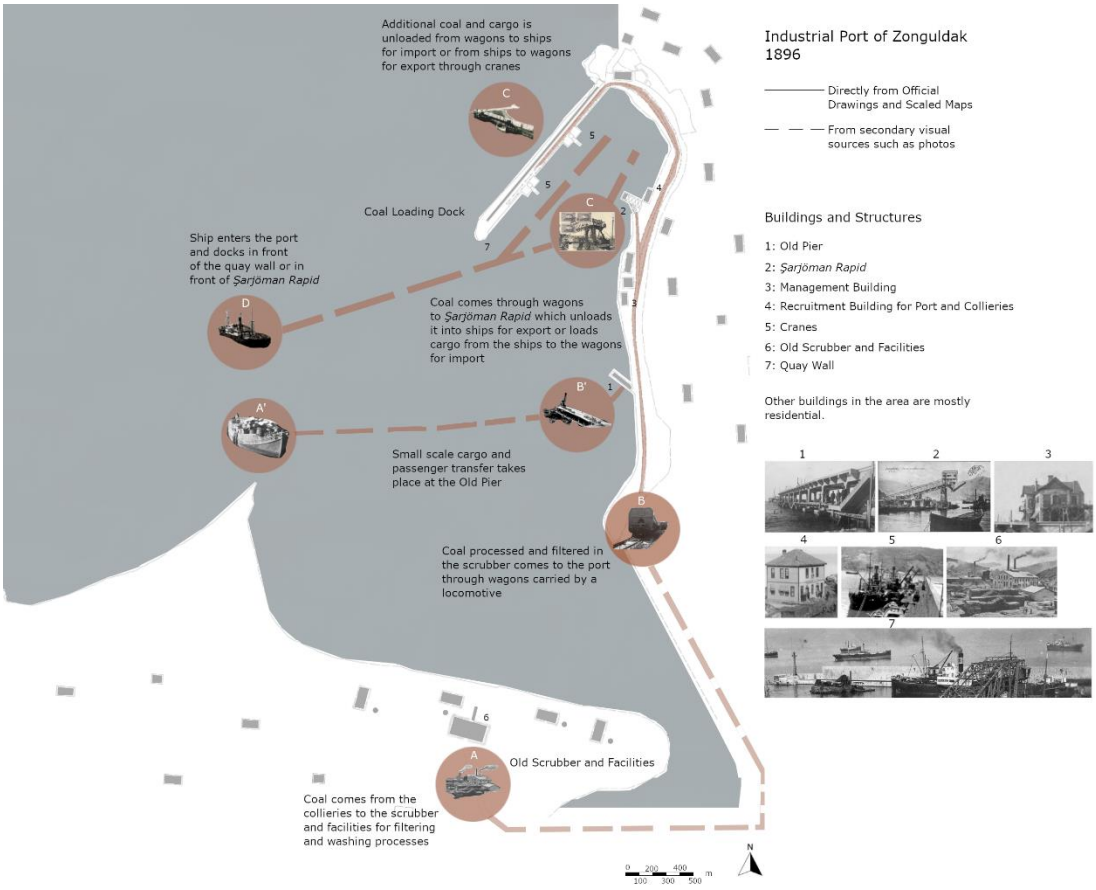


Figure 90: Port Activity Diagram of Industrial Port of Zonguldak, first period, 1896, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

The port activity diagram of the first period is illustrated above (Figure 90). The coal from the old scrubber and facilities are brought into the port through wagons driven by locomotives with railroads that extend to the cranes at the quay wall and *Şarjöman Rapid* which was a coal loading system on a stone arch and pier built in 1906. The cranes and *şarjöman* handled loading and unloading the coal to the ships.

In 1923, with the foundation of the Republic of Turkey, the ownership of both the coal basin and the port changed. In 28.11.1936 an agreement was signed between the government and the *Ereğli-Şirket-i Osmaniyesi*. This resulted in the buyout of the French company by the government. The assets of the company and the prerogative

of the port was then transferred to EKİ (*Ereğli Kömür İşletmeleri*).[158] TCDD (Republic of Turkey State Railroads) was established as a state-owned anonymous company in 1927, taking control over all the railroads constructed in the Ottoman period since the 1860s. However, it was not until 1938 that Zonguldak had its own connection with railroads to the existing network.[159] Despite this, the connection between the mines, port and the intercity railways was still missing, and the transport of coal was still exclusively by sea.

The port needed more protection against the waters and the weather of the Black Sea. The ships needed a scheme where they could dock and wait safely for access into the port. The numbers and efficiency of coal production was increasing rapidly. The current facilities of the port were not able to keep up with the increased production. Hence, there was a need for better facilities which would handle loading and unloading operations faster and with more capacity. All these reasons brought out the first major transformation of the port after its construction which would start in 1954.

3.5.2. Second Period of Industrial Port of Zonguldak

12 years after the takeover of the mines and the port by EKI, the U.S launched a program which would assist European countries that were affected by World War II. This program was launched in 1948, called the Marshall Aid, also known as ERP (European Recovery Program) named after George C. Marshall, who delivered the initiation of the program in 1947 at Harvard. The Republic of Turkey was a member of the OEEC (Organization for European Economic Cooperation) at the time and this allowed it to be on the list of countries which were on the receiving end of the aid. Through this aid, EKI was able to put into motion the EKI Amendment Program, which was a set of principles and organizational schemes developed to achieve a wholistic development of Zonguldak. Among the aims of the program was to increase efficiency and scale of the production of the mines coupled with the modernization of

[158] (Zaman, Zonguldak Limanı 2010)
[159] (Zaman, Zonguldak Limanı 2010)

the port and its facilities. The program was set into motion in 1948 with 10.3 million dollars economic assistance gathered from the Marshall Aid.[160]

The construction of the new facilities and layout of the port would be included in the EKI Amendment Program, but it should be stated that the plans for it began 2 years earlier, in 1946. A planning commission was assembled in Ankara which approved a series of constructions which involved the transportation routes and loading facilities called the 'Rapid Coal Loading Port'. The construction was approved in accordance with its concept project and was open to both local and foreign investors. Tenders from 32 companies were examined and it was then narrowed down further to 2 local and 6 foreign companies for the project of the port and its facilities. Then, the feasibility report of the port project in terms of protection from the sea, construction costs and the timeframe of the construction and management costs was done by Frederic Snare, an American consultant company. The offers from the companies were examined meticulously and was compared with the feasibility report. Through much deliberation, the contract for the construction of the port and its facilities (Figure 91) such as loading docks, piers, moles and storage spaces was signed with The Netherlands Royal Port Construction Company (Koninkilijke Nederlandsche Maatschappij Voor Havenwerken N.V.) in 25.06.1949. 161 This contract would also include the expansion of the port and its railroad connections.

[160] (Zaman, Zonguldak Limanı 2010)
[161] (www.taskomuru.gov.tr 2024)

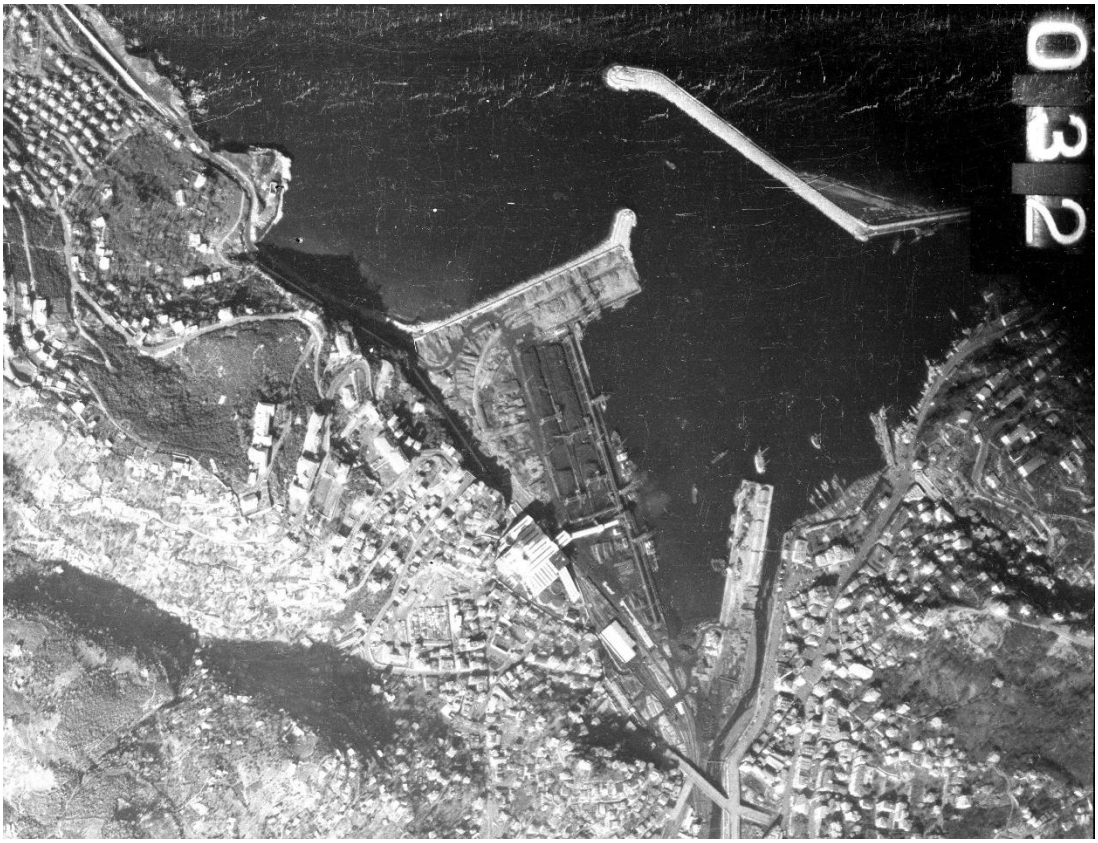


Figure 91: Industrial Port of Zonguldak and its facilities, 1959, taken from the General Directorate for Mapping

There were plans for the construction of new coal scrubbers in Çaydamar, Üzülmez, Kozlu just before the tender for the new constructions for the port of Zonguldak was started. A commission was assembled to designate suitable places for these scrubbers. In May 12, 1947, the commission reported that it would be more suitable to have a single central scrubber with 3 units instead of 3 individual scrubbers scattered out in the region.[162] It was stated that a central scrubber would be less straining on the budget while being more efficient. The idea was to construct a new central scrubber in place of the old scrubber left by the French company situated in the port area. It was proposed to construct the central scrubber in parallel with all the other constructions in the port and to finish both at the same time. The aim was to provide the need of hard coal of the country entirely from the coal basin of Zonguldak. The port and the

[162] (Yıldırım 2015)

central scrubber, coupled with the scrubber in Çatalağzı, were planned to make this happen with the help of the railroad connections. Trains would take the wagons from the port to the central railway station of Zonguldak. From there, the wagons could be transported to all cities which were connected on the broad network of TCDD (Figure 92).

Figure 92: Railway Map, 1928 (top), courtesy of Chamber of Civil Engineers Istanbul Branch, Railway Map, 1933 (bottom), retrieved from https://www.iberlibro.com/maps/TURKEY-RAILWAYS-MAP-ART-DECO-DESIGN/30520088095/bd

The existing area of the port was covered with an old scrubber, couple of buildings, platforms, railroads and a pile of mining poles. These were demolished and the area was cleaned out. Then, additions were made to the port area through infills 3 meters above the sea level.[163]A blockfield was constructed to accommodate the cranes that were to be used for the construction of the facilities and the infill. For protection of the construction equipment against storms, a temporary mole was constructed and a service port was opened from the coastline to the inner port. Concrete blocks of 50-60 tons were cast in the construction site, carried and placed in place through cranes.[164] Dredging operations took place which increased the draft of the inner port from 7 meters to 10 meters and the area around the existing mole to 12 meters deep.[165] The existing mole was elongated from 300 meters to 470 meters and its height rises to +6.50 meters from +4.90 through start to end. A lighthouse was built at the end of the mole 33 meters above sea level.[166] The mole and the lighthouse are referred to as '*kırmızı mendirek*' (red breakwater / mole) and '*kırmızı fener*' (red lighthouse) and currently represent the older of the two moles and lighthouses. A new mole was constructed on the west of the port. This was 400 meters long and would top at +7 meters with a lighthouse building at +15 meters in its endpoint. The new mole and its lighthouse are referred to as '*yeşil mendirek*' (green breakwater / mole) and '*yeşil fener*' (green lighthouse).

The project prepared by EKI Facility Management for the utilization of the 39.000^{m2} open area of the port divided into three as Coal Dock, Pole Dock and Cargo Dock (Figure 93) was finalized in 1950. This layout together with the modernization of the port and facilities were completed in 1953 (Figure 93).

[163] (Zaman, Zonguldak Limanı 2010)
[164] (Yıldırım 2015)
[165] (Zaman, Zonguldak Limanı 2010)
[166] (Yıldırım 2015)

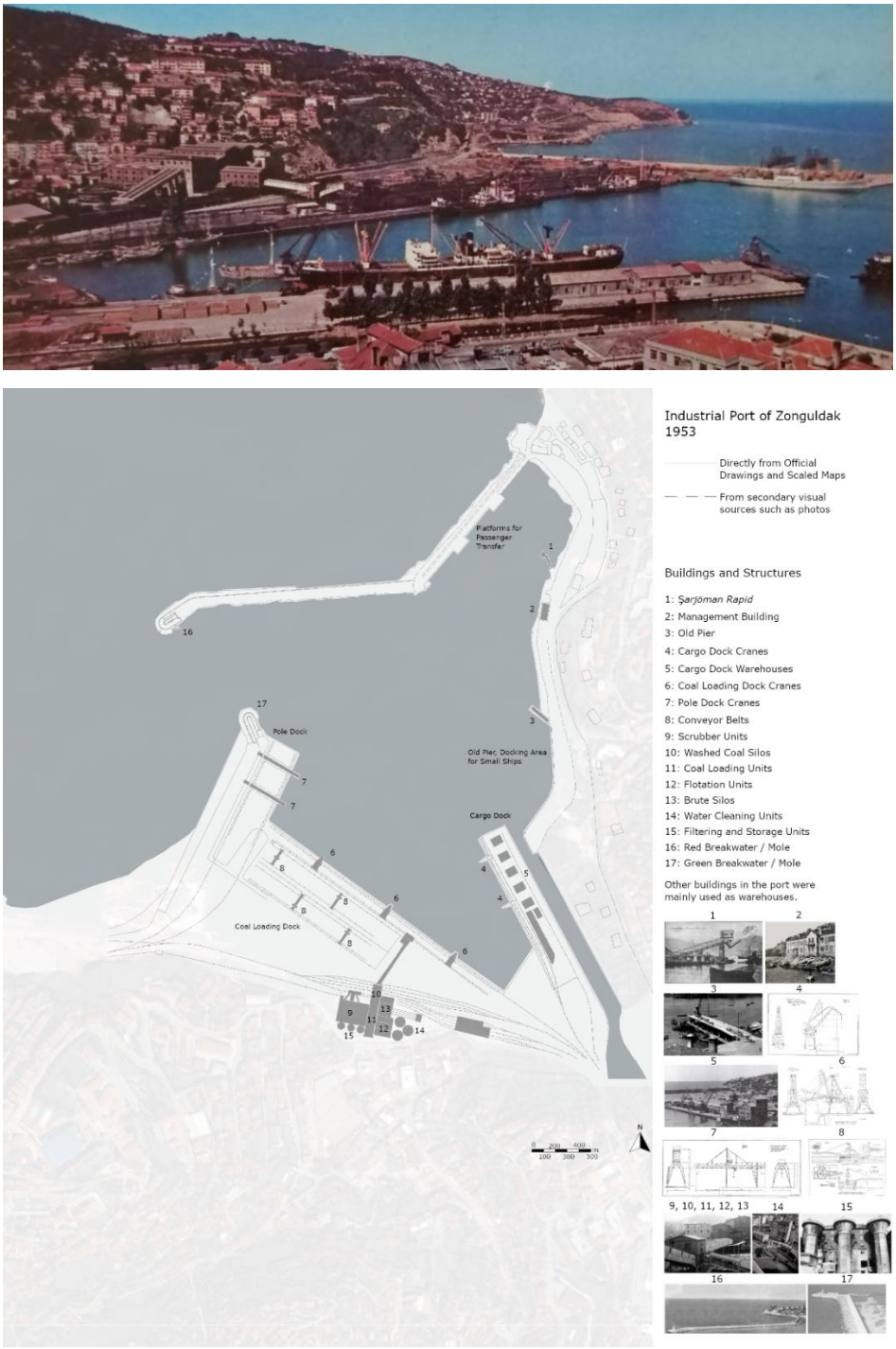


Figure 93: Industrial Port of Zonguldak, 1953, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping (top), overview of Industrial Port of Zonguldak in active use, retrieved from https://www.garajantik.com/1970-zonguldak-liman-ve-sehirden-gorunus-kartpostal-renkli-ofset-baski.html (bottom)

The coal loading dock was built with the aim of directly loading the coal from the central scrubber into the ships. The dock was constructed 510 meters long with 3 loading cranes capable of handling 450-550 tons of load per hour.[167] A storage area was built on the back of the 15.000 m^2 open space of the dock which was capable of holding down 50.000 tons of coal.[168]

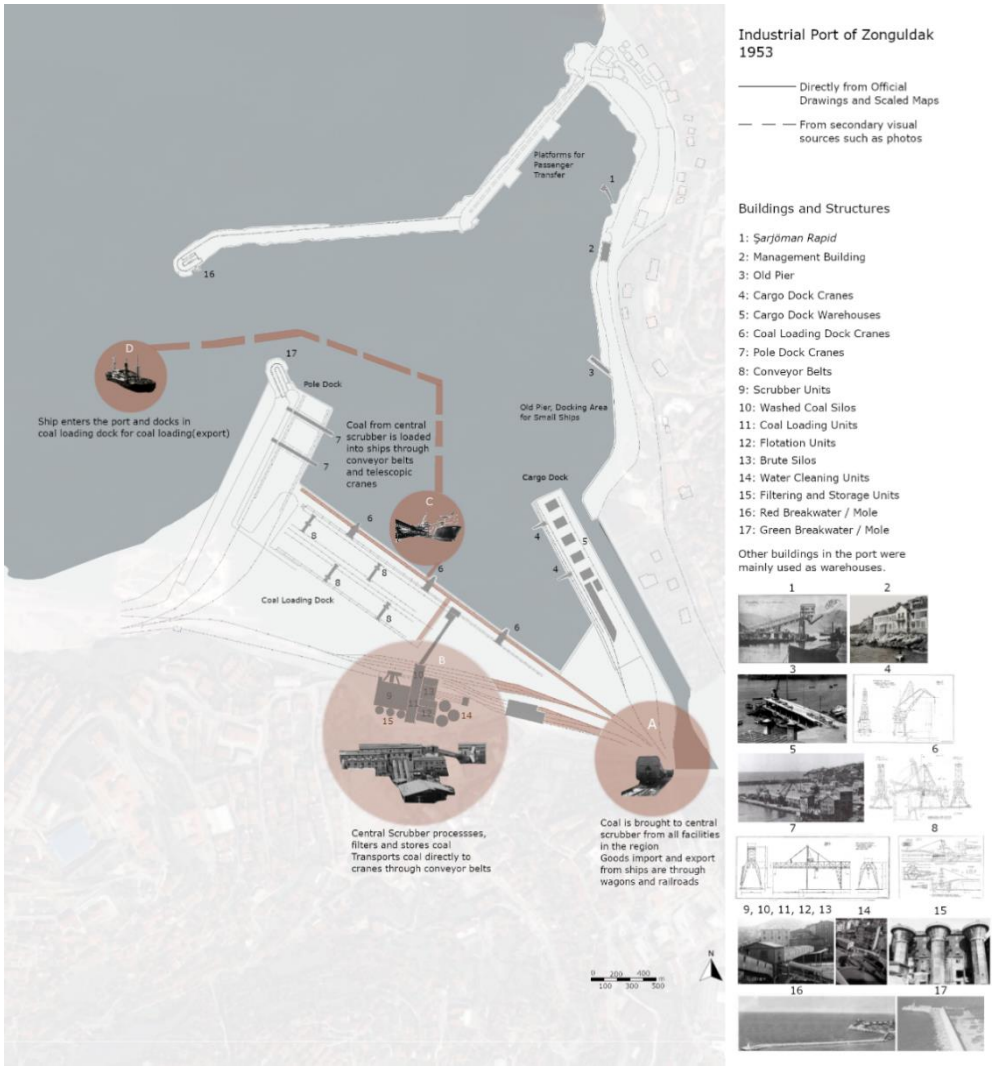


Figure 94: Port Activity Diagram of Coal Loading Dock, second period, 1953, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

[167] (Sleeman 1953)
[168] (Zaman, Zonguldak Limanı 2010)

Coal loading dock handled operations for providing nearly the entirety of needed coal for the country and the export of coal (Figure 94). The coal that is extracted from the mines comes from the region through railroads with wagons into the central scrubber to be processed, filtered and stored. It is then transferred via conveyor belts to telescopic cranes to be loaded to ships.

The installations for the storage and loading of coal (Figure 95) were drawn by EKI Planning Dpt. and the machinery was ordered from Mühlen Industrie A.G. Co on 20th of October 1950. The equipment weighed 1800 tons and was fully installed by 1954. The coal from the south of the port from the central scrubber and the coal from the Üzülmez Coke Factory would be acquired through 3 conveyor belts (Figure 96) from silos of the central scrubber to the distribution towers to the control tower. Then, the coal would be sent to the storage pile or transferred to 3 other conveyor belts (No: 101, 102 and 103) and loaded into 2 ships simultaneously. If needed to store for longer, the coal would be transferred to the storage areas S1 and S2, (Figure 97) designed for different sizes of coal, through a conveyor bridge directed to the storage crane. This crane (Figure 98) was used to transport and load the coal into storage areas and would move on rails 9 meters apart and 270 meters long.[169]These cranes were built on concrete foundations and were 30 meters apart from each other. They consisted of an elevator, a bridge mounted conveyor belt and a moveable control tower. The elevator was controlled from the bridge cabin and by moving vertically it could reach any point of the storage pile for loading. [170]

[169] (Dörtbudak 1953)
[170] (Dörtbudak 1953)

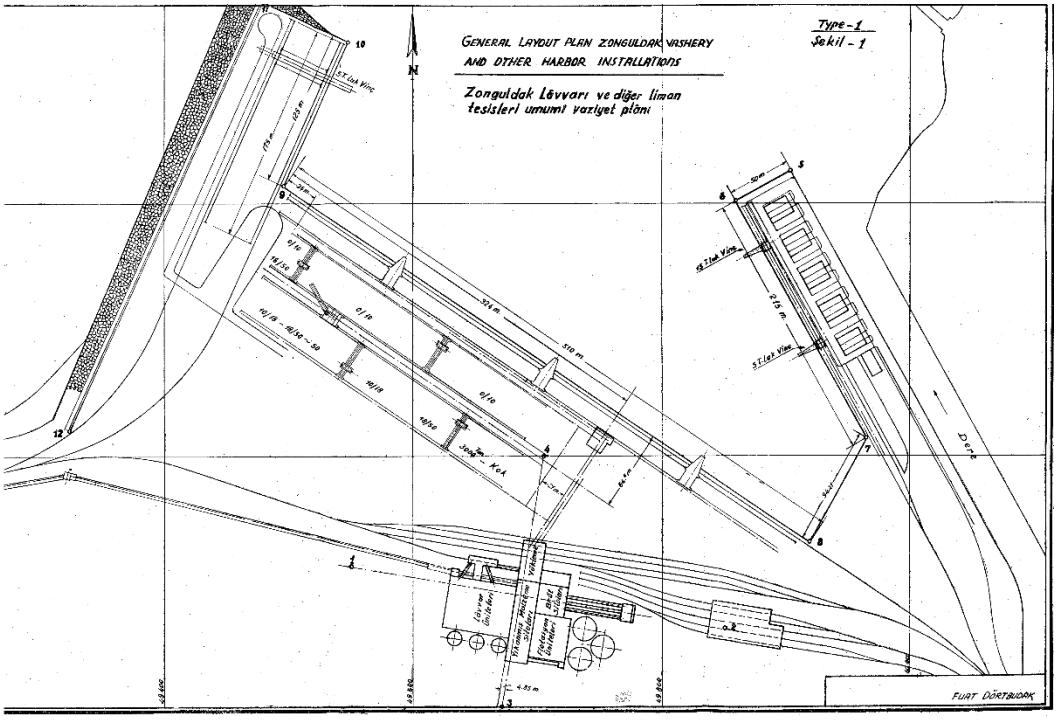


Figure 95: Installations of Zonguldak Industrial Port and its Facilities, taken from Dörtbudak, 1953

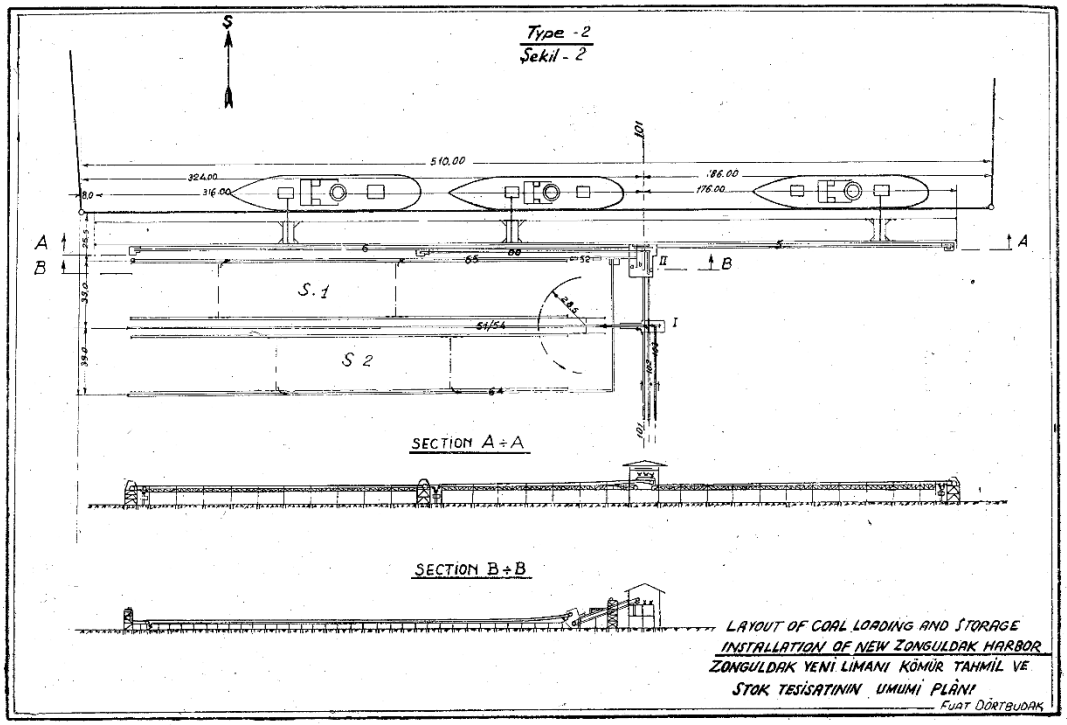


Figure 96: Conveyors 101, 102 and 103 together with S1 and S2 storage areas, taken from Dörtbudak, 1953

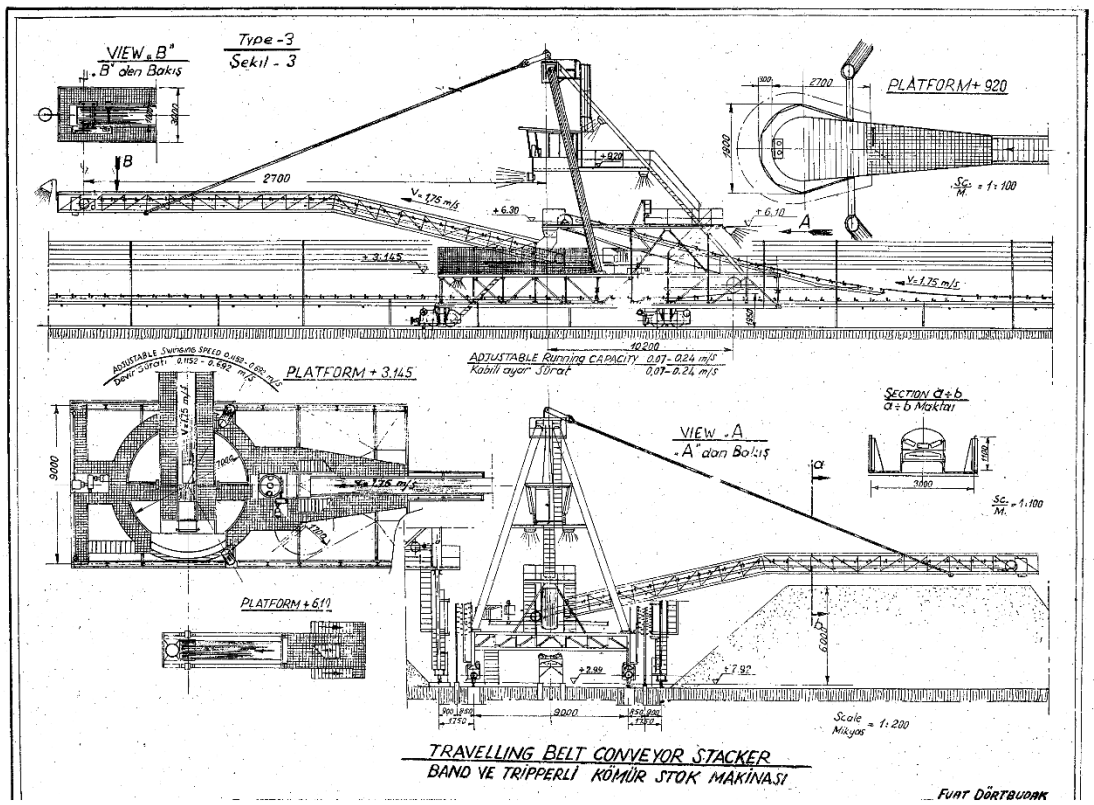


Figure 97: Travelling Belt Conveyor Stacker and its Crane, taken from Dörtbudak, 1953

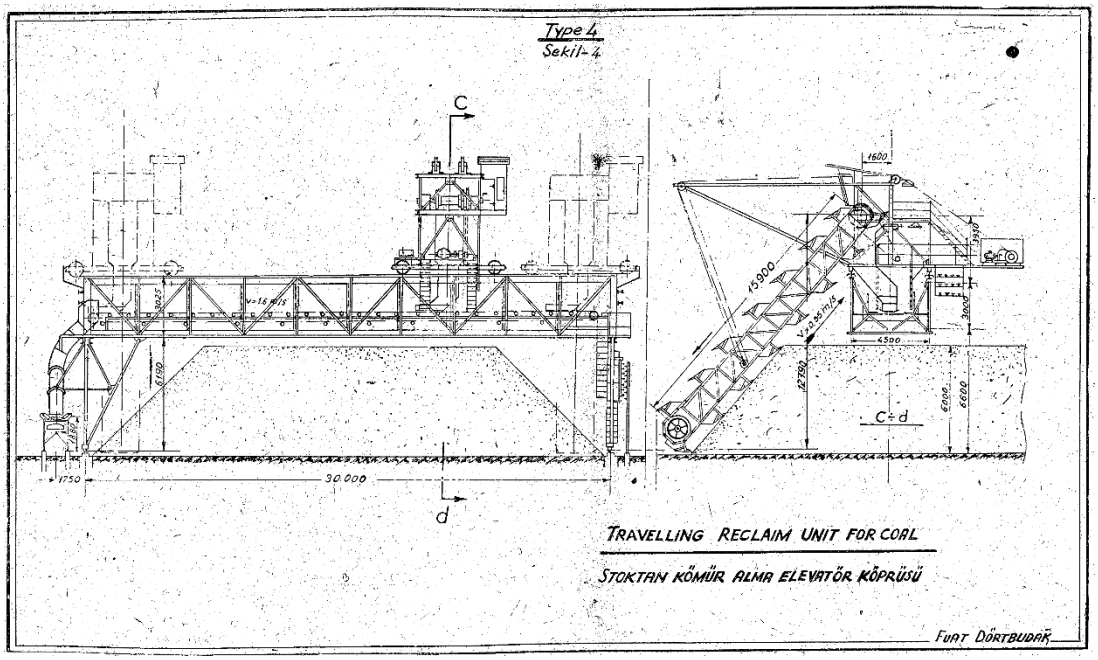


Figure 98: Travelling Reclaim Unit for Coal, taken from Dörtbudak, 1953

The coal carried on the conveyors coming from the scrubbers or the storage pile is transferred onto conveyors mounted on the vessel-loading cranes (Figure 99). These cranes also operated on rails. The maximum height was 24 meters with conveyor capacity of 450-500 tons per hour, for a total of 1000 tons. They consisted of two conveyor bridges, one fixed and the other telescopic. The movements of the telescopic bridge were controlled from an instrument cabin near the trestle and an additional observation cabin would report on the loading situation of the ship and advice the instrument cabin. The observation cabin was constructed with a linkage parallelogram frame to always remain vertical, ensuring accurate instructions. The foundation of the cranes are 12 meters apart and they are 492 meters in overall length. The speed of the storage cranes and the vessel loading cranes were designed to match each other to ensure continuous production. Labor requirements were reduced to half, production was increased threefold and the storage issues were resolved through the new facilities of the coal loading dock (Figure 100) and the central scrubber.[171]

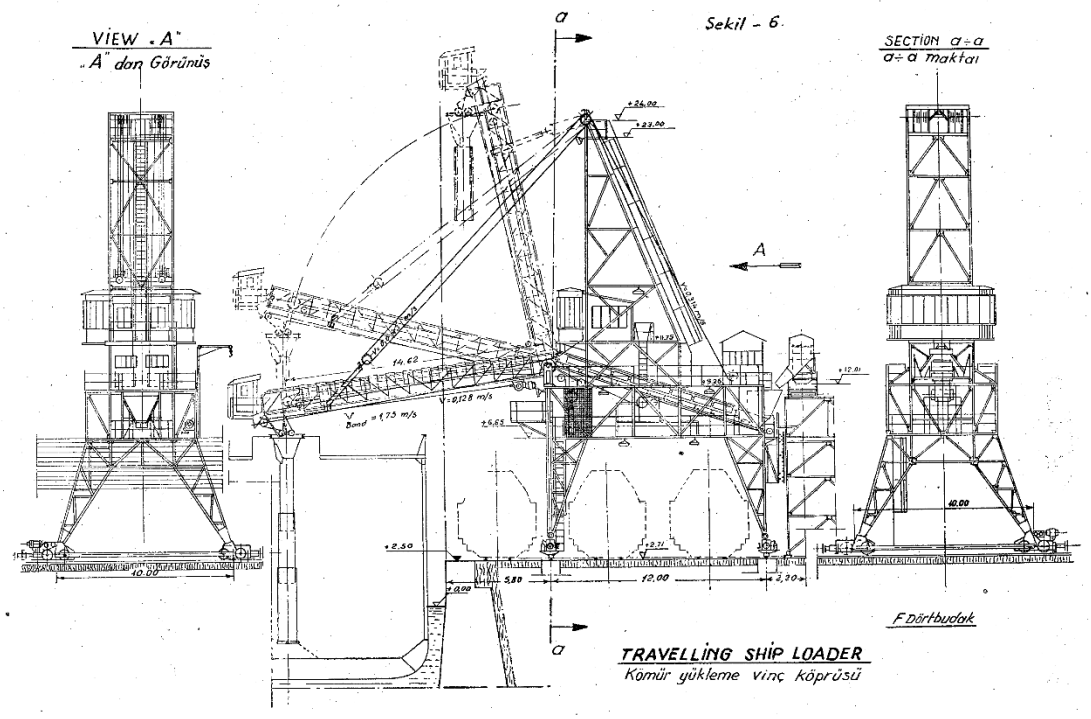


Figure 99: Vessel-Loading Cranes, taken from Dörtbudak, 1953

[171] (Dörtbudak 1953)

Figure 100: Coal Loading Dock, retrieved from https://www.facebook.com/photo/?fbid=309349739215792&set=a.309349685882464

The pole dock was built for ease of transportation of mining poles arriving to the port by maritime routes. Before this dock was built, the poles used for securing safe space in mining operations, mining poles, were being transported with boats. They were unloaded and then transferred to local depots. This was a very inefficient way of distributing the poles and the new solution of the dock would speed the process significantly. Following the construction of this dock, the tedious process of handling these poles with boats would disappear and they would directly be loaded into wagons from the ships with a crane capable of handling 166 tons per hour.[172] This was a gantry crane (Figure 101) commissioned to Jucho Co. A storage area 175 meters long and 40

[172] (Zaman, Zonguldak Limanı 2010)

meters wide was allocated to it.[173] The mining poles handled by these cranes would be loaded into the wagons and would be distributed with ease through railroads to the collieries.

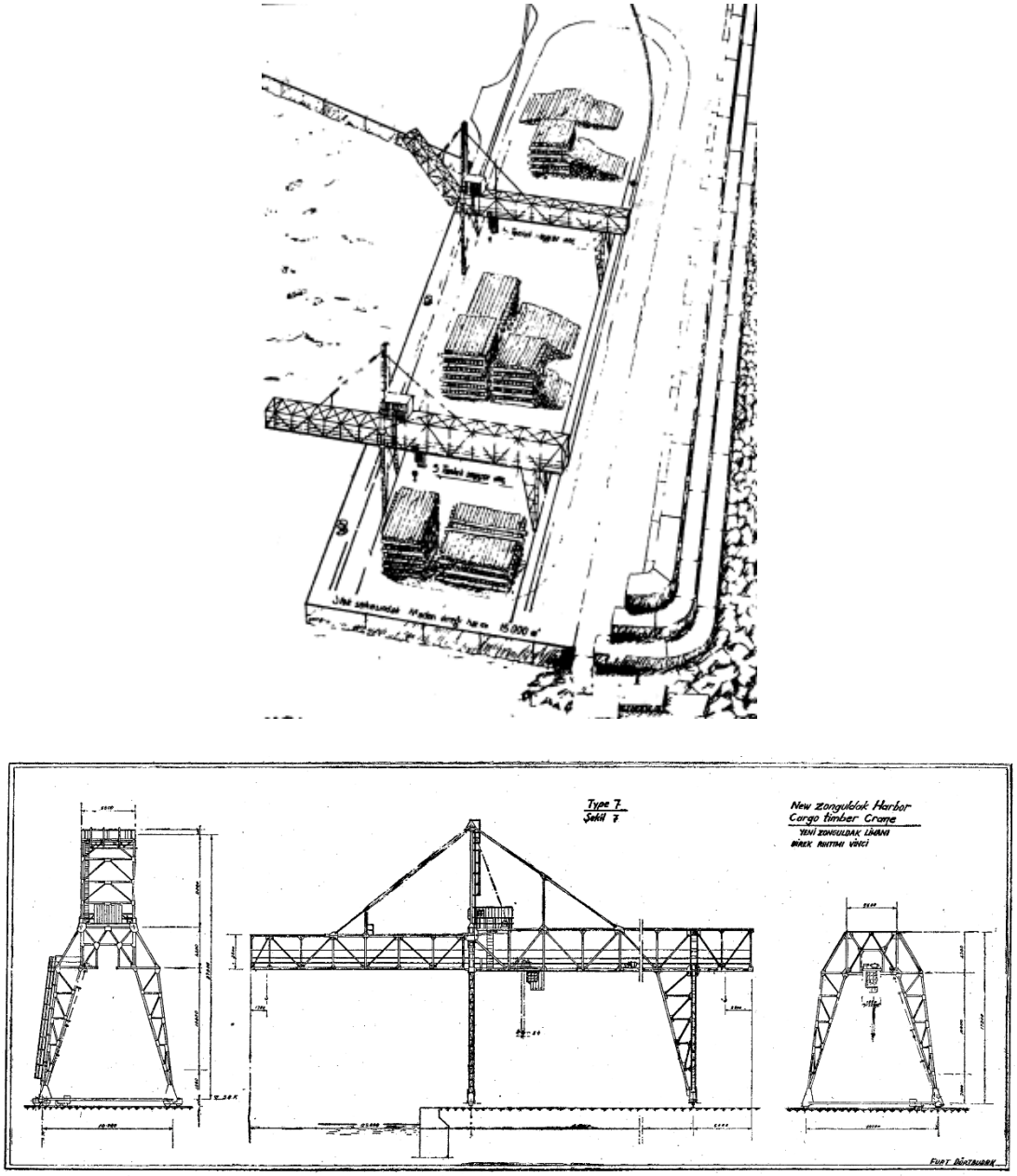


Figure 101: Pole Dock and its cranes, (top) taken from Türkiye Mühendislik Haberleri, September 1957, Gantry Crane (bottom), taken from Dörtbudak, 1953

[173] (Dörtbudak 1953)

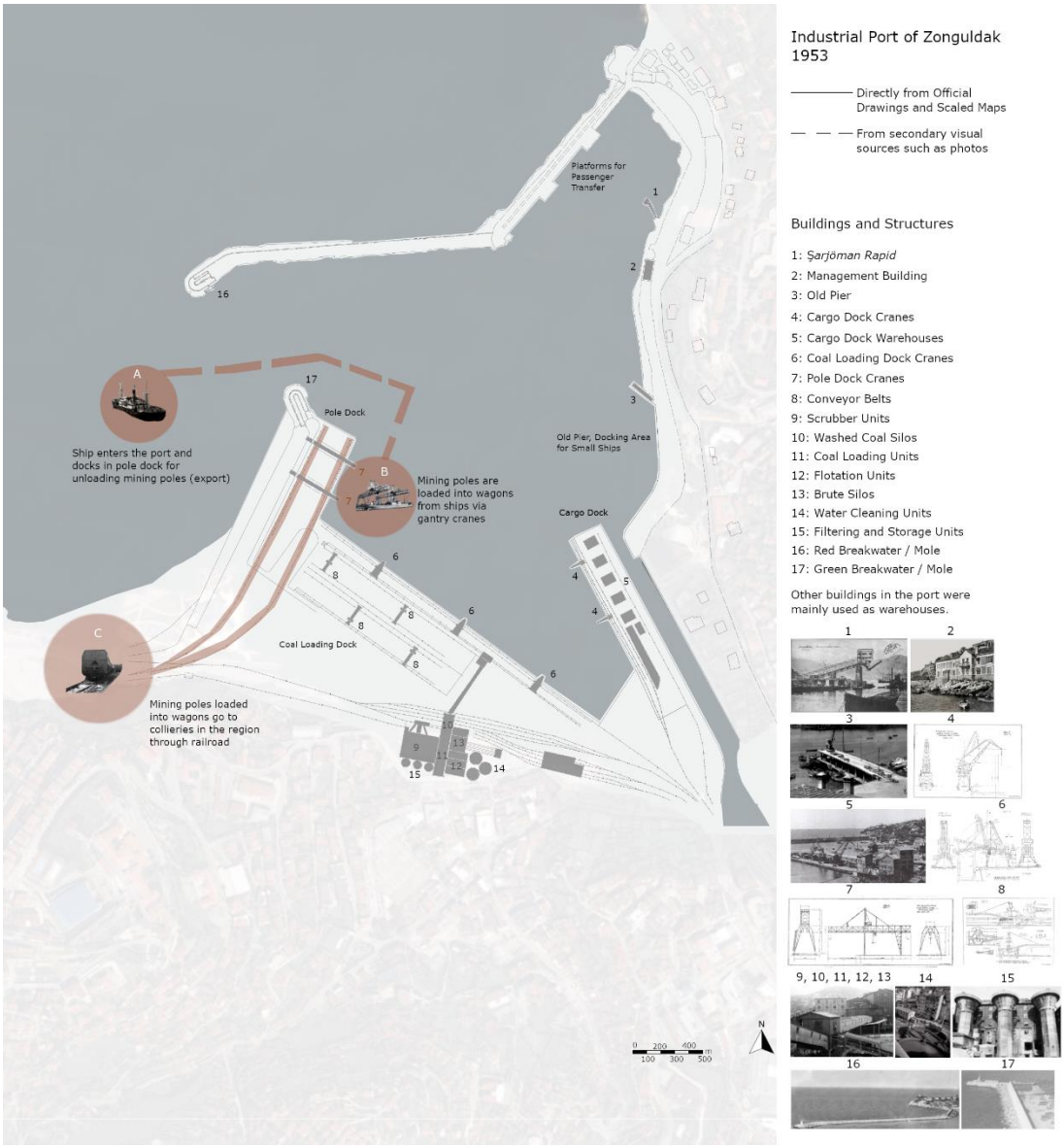


Figure 102: Port Activity Diagram of Pole Dock, second period, 1953, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

Mining poles were brought by ships to pole dock to be directly loaded into wagons with gantry cranes which were then driven out by locomotives to the collieries in the region (Figure 102). The wagons exiting the port would go to the Central Train Station to change locomotives and to join lines with the broader railroad network.

The cargo dock (Figure 103) was built for loading, unloading and transport operations with trade ships carrying various goods. These operations would be handled by 2 electric powered railway cranes (Figure 104) commissioned to Jucho. Co. The dock was 215 meters long and a 6 meters long railroad extended to the end of it.[174] The cranes would move horizontally along these railways to handle cargo from incoming ships. Warehouses were constructed at the backside of this dock. Through the cranes and the warehouses, goods would be transferred with ease.

Figure 103: Cargo Dock, taken from the archives of Zonguldak Directorate for Culture and Tourism

[174] (Yıldırım 2015)

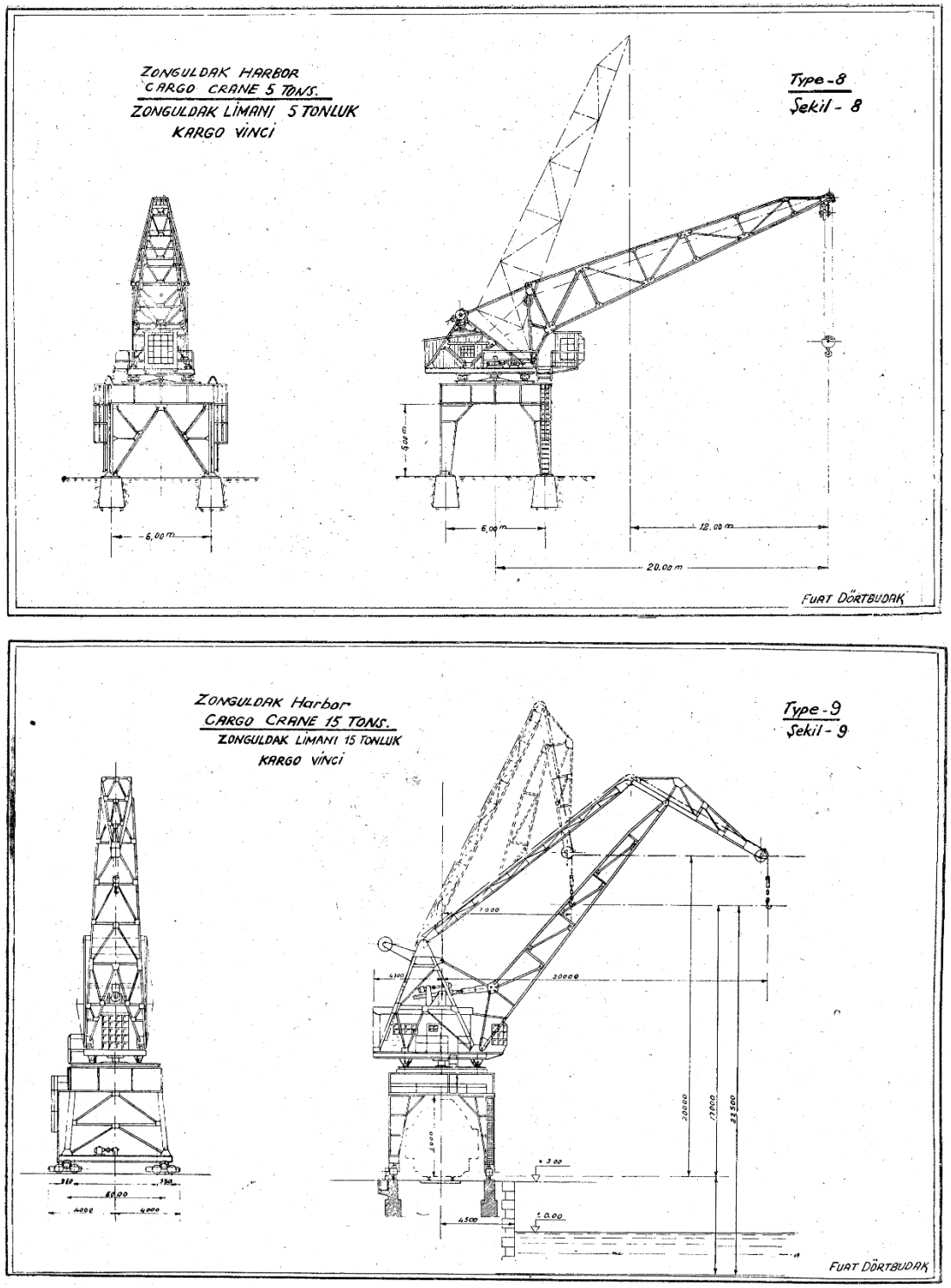


Figure 104: Electric powered railway cranes, 5 tons capacity (top), 15 tons capacity (bottom), taken from Dörtbudak, 1953

Figure 105: Port Activity Diagram of Cargo Dock, second period, 1953, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

Cargo dock handled operations for the export and import of general cargo (Figure 105). For export, the goods come through wagons via railroads into the dock and are loaded into ships with electric powered cranes. For import, the ships bringing goods of general cargo come from international ports and dock at the cargo dock after clearing procedures. The goods are unloaded into wagons through the electric-powered cranes which are then driven out the port via a locomotive to the central train

station. They change locomotives here and are transported to various cities in the country through the broad railroad network of TCDD.

Through the construction of Coal Loading Dock, Cargo Dock, Pole Dock and their installations, labor costs were significantly reduced, production efficiency increased and major problems in were solved for the port and the mining sites. The construction of all these facilities took 48 months total.

The Zonguldak Central Scrubber and its operations are the final facility needed to understand the system of the port. (Figure 106) The extracted coal from Kozlu, Çaydamar, Asma and Dilaver mines would be loaded to wagons with capacity of 50 tons to be transported to the port. The coal would be taken inside the central scrubber through conveyor belts and would be separated into two, big and small sized coal, with screening. Big coals would be sifted by hand while the small ones would go the 0.100 mm silos. The small sized coal would go through a bant from the silos into washing vaults called 'Baum' after being weighed. [175] Washing operations would take place here and the coal would be classified into three categories through a series of controlled shaking operations. These categories would be washed coal, mixed coal (a mix of stone and coal) and schist, coal that cannot be used as fuel. The schist would be thrown into sea through conveyor belts, the mixed coal would undergo a second washing process and reach a state where it could be used as low-quality fuel. The washed coal would be screened again and the coals bigger than 6mm would be transferred to silos to dry and rest. The ones between 0.5 – 6mm would be also be dried but after a second washing operation. The washed coal smaller than 0.5mm would undergo a series of operations such as precipitation, flotation, collection and vacuum filtering and would be mixed with the group of 0.5- 6 mm sized washed coals.[176] After resting in the silos, the coal ready for consumption would be transferred to the conveyor belts in the coal loading dock and would be loaded into the ships

[175] (Zonguldak Limanı Tahmil ve Tahliye Tesisleri 1957)
[176] (Zonguldak Limanı Tahmil ve Tahliye Tesisleri 1957)

docked to the port with the help of the cranes. The ships would then transport the coal to the cities of industrial production such as Istanbul.

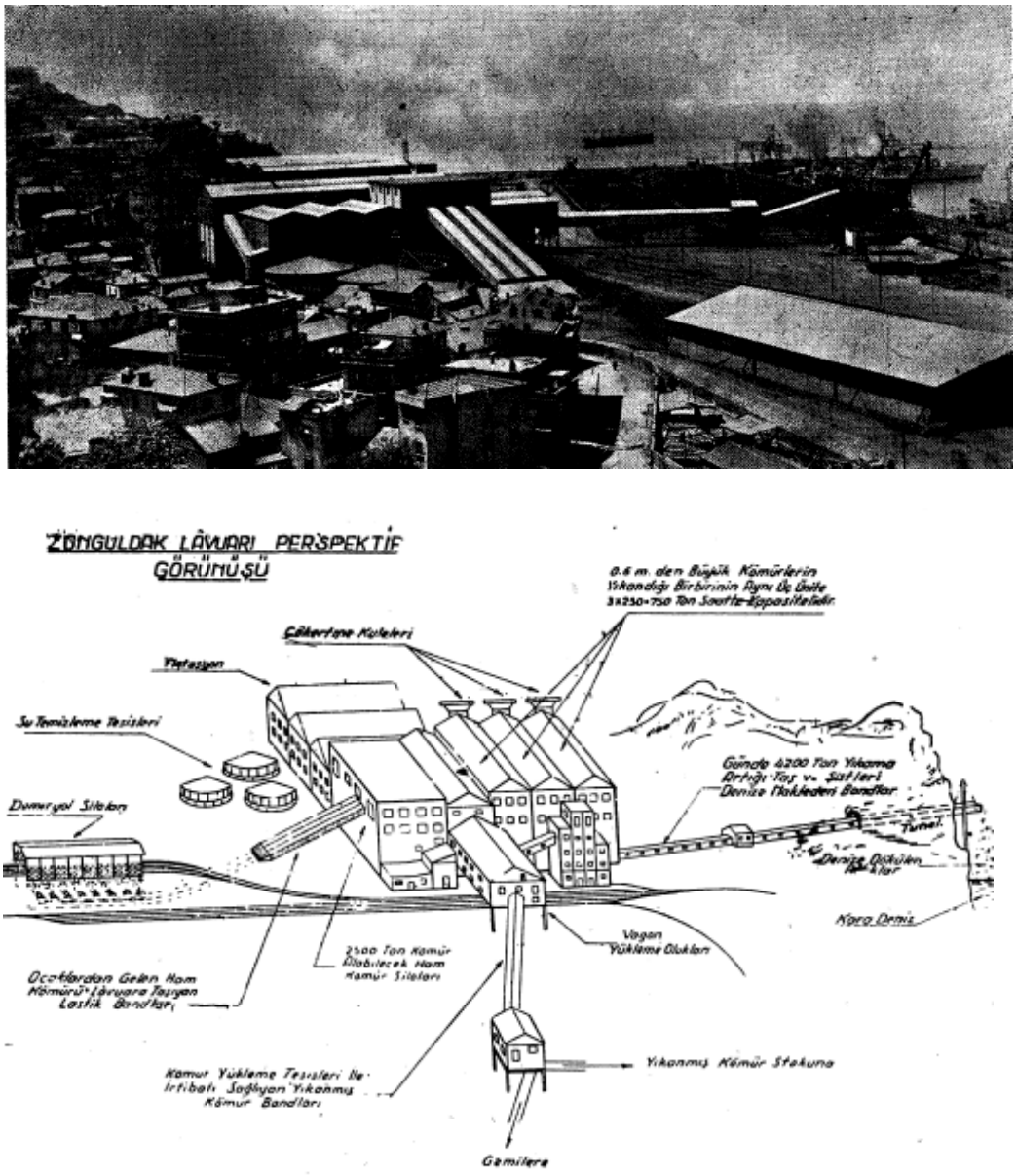


Figure 106: Zonguldak Central Scrubber, overview, (top), schematic drawing (bottom), taken from Türkiye Mühendislik Haberleri, 1957 issue

The constructions in the port would be completed in 1953 and would be fully operated in 1954. Çatalağzı Scrubber would be completed in 1956 and Zonguldak Central Scrubber (Figure 107) in 1957. In addition to these, with the completion of İnönü

Fevkani Bridge, (Figure 108) uninterrupted traffic flow of vehicle and railroads was established. The mines, the port and the city were connected as a single entity to drive the production and transportation of hard coal. The Republic of Turkey would acquire its much-needed supply of hard coal nearly entirely from Zonguldak thanks to these developments.

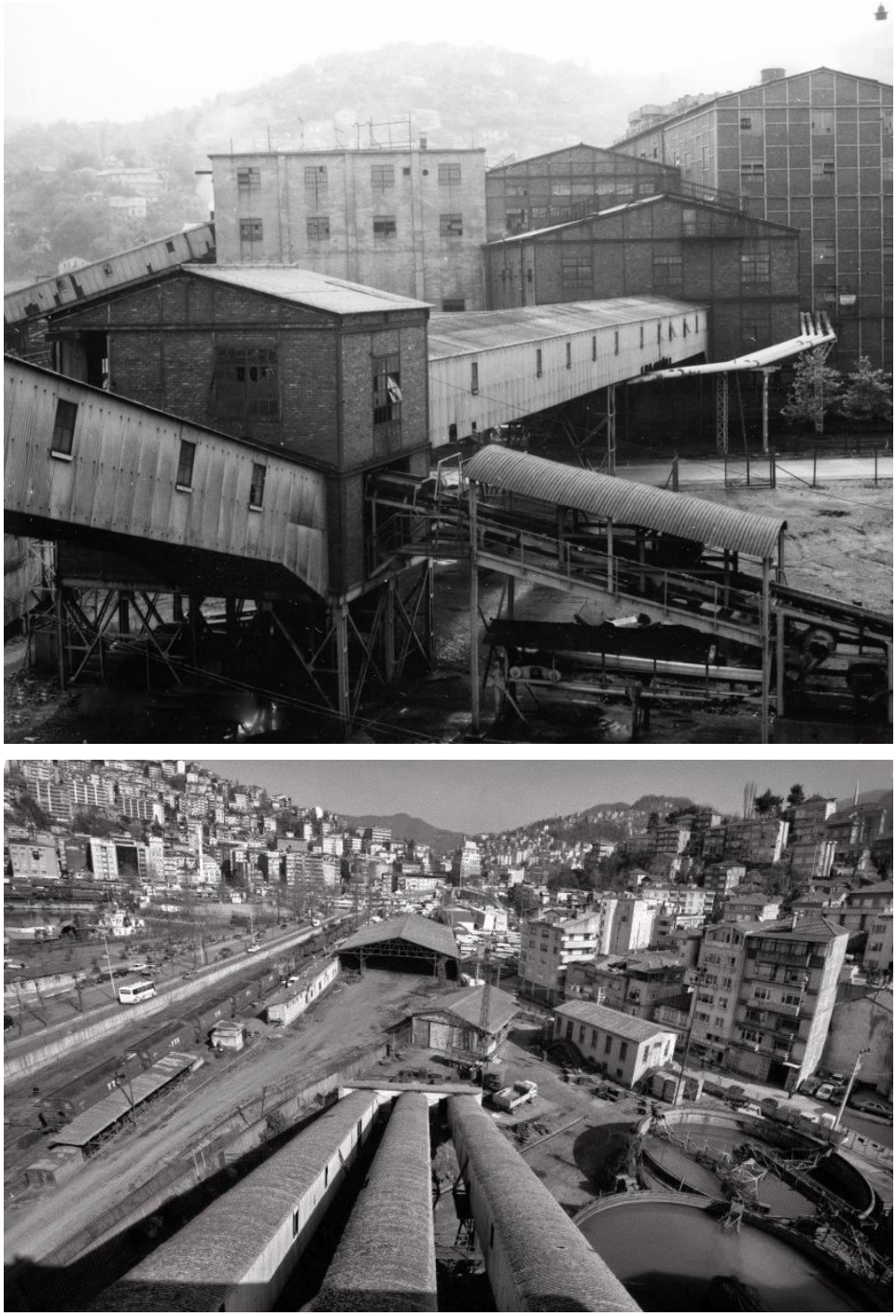


Figure 107: Zonguldak Centrral Scrubber, retrieved from https://www.facebook.com/photo/?fbid=613907512093345&set=a.309349685882464

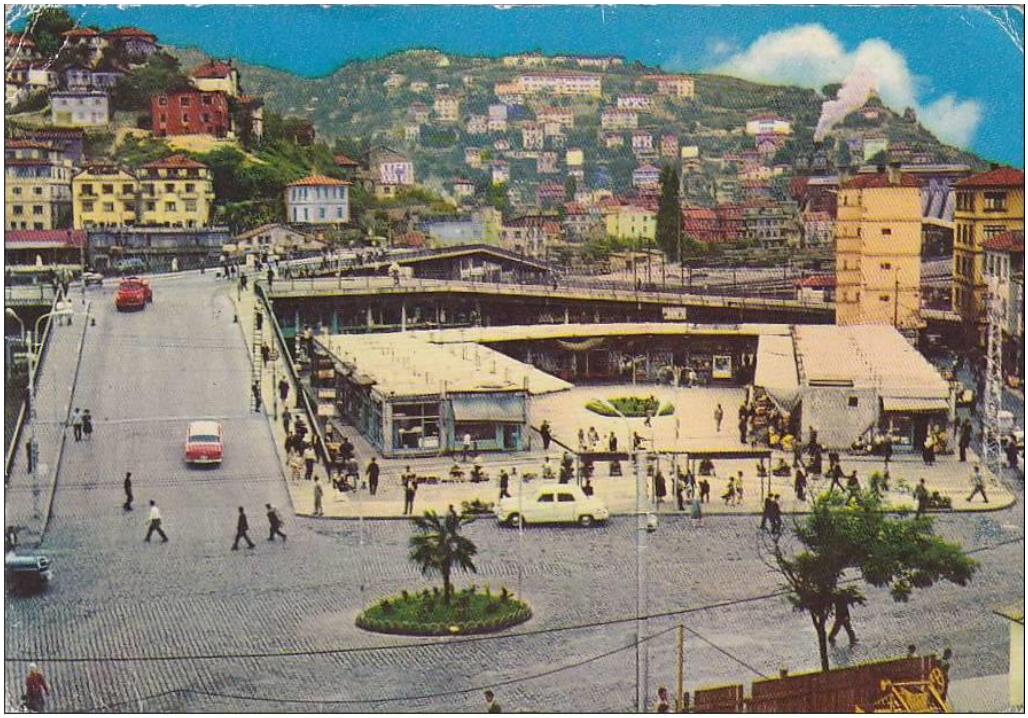


Figure 108: İnönü Fevkani Bridge, (bottom) taken from the archives of Zonguldak Directorate for Culture and Tourism

The Industrial Port of Zonguldak throughout its second period strengthened its character as an industrial port. The port became the centerpiece of the city through its modernized transportation facilities, docks coupled with the integrated production and storage facilities, most notably, the Zonguldak Central Scrubber. The coal loading dock, cargo dock and pole dock operated at satisfactory capacities. The central scrubber collected from nearly the entirety of the region and tried to provide the need of coal for most of the country. Especially the coal loading dock was critical as it handled the loading and unloading of coal that was provided from the central scrubber. Additionally, port activities continued in the northern side of the port through the old pier and its docking area for small ships coupled with the platforms for passenger transfer in front of the quay wall from the first period. The port area in its entirety was utilized in the second period (Figure 109).

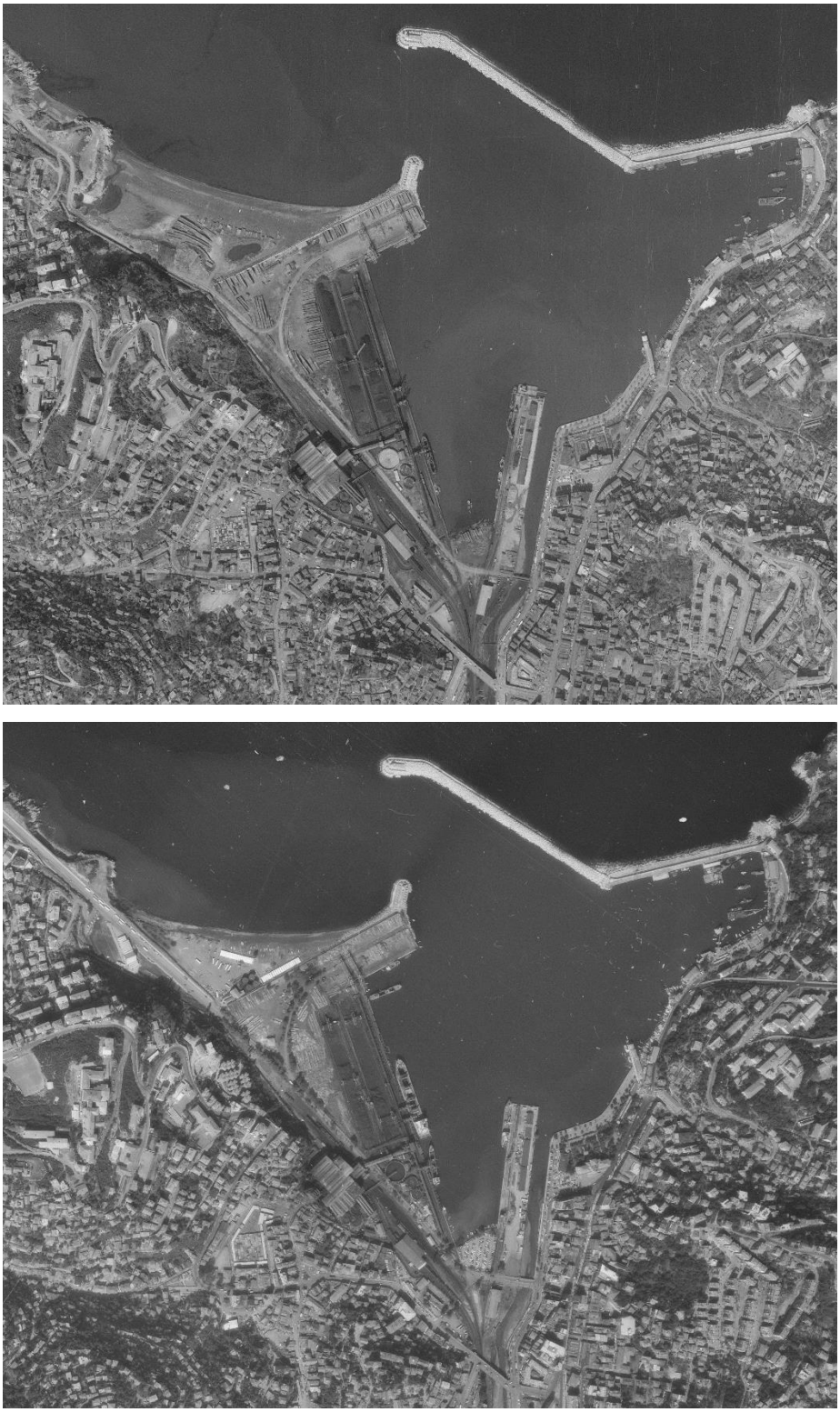


Figure 109: Aerial Photographs of Industrial Port of Zonguldak, 1975 (top), 1984 (bottom), taken from the General Directorate for Mapping

Figure 110: Port Activity Diagram of Passenger Terminal and Old Pier, second period, 1953, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

The platforms for the passenger transfer in front of the quay wall on the northern side of the port serve as the passenger terminal of the port (Figure 110). The two cranes which handled coal loading operations were dismantled and the surface of the platform was made available to achieve this. The Old Pier, which was used for the transfer of

small-scale cargo operations, was also dedicated to passenger transfer in this period. The ships would come to the port and dock either at the old pier or in front of the platforms to accept incoming passengers to the ship or allow the drop-off of arriving passengers.

3.5.3. Third Period of the Industrial Port of Zonguldak

From 1954 to 1996, transportation by land became the main focus of the country and received more support from the state. The pole dock that solved the critical problem of timber pole supply to mines slowly lost its relevance as the supply began to be delivered by land even more efficiently. The dock would cease its functions and its cranes be disassembled. In 1996, the area of the pole dock would be designed as a customs area to be used for passage and control area for trucks which would arrive with Ro-Ro ships.[177] Following this, the pole dock would be transformed into the Ro-Ro dock (Figure 111).

Figure 111: Ro-Ro Dock, retrieved from https://www.taskomuru.gov.tr/ttk/liman-hizmetleri/

[177] (Öztürk 2018)

The name Ro-Ro comes from roll-on/ roll-off system where the aim is to carry rolling stock cargoes that are simply rolled on and off the ships. The vehicles area carried inside the Ro-Ro ships. Most ships feature a built-in ramp toward the stern with some having them at the side or at the bow. The vehicles then carry themselves through the ramps, without the aid of any equipment (Figure 112). To contrast, the system that cranes and other equipment in ports use is called Lo-Lo, meaning load-on-load off, coming from their activities of loading and offloading goods, industrial produce or containers. [178]

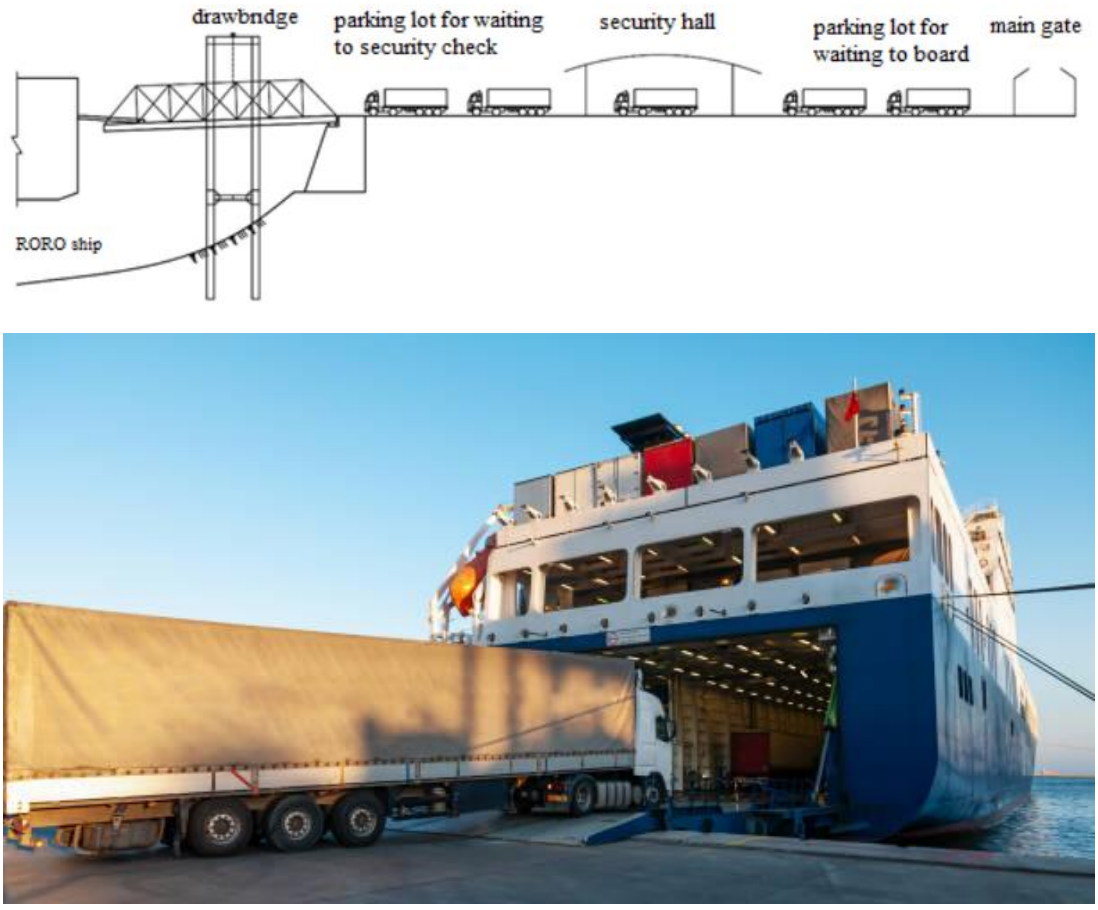


Figure 112: Schematic Drawing of Ro-Ro terminal (top), taken from Tang, 2015, Ro-Ro-ship, (bottom) retrieved from https://www.istockphoto.com/tr/foto%C4%9Fraflar/ro-ro-cargo-ship

[178] (Odchimar and Hanaoka 2015)

The first forms of Ro-Ro transportation were visible as early as the 1920s. However, it was only adapted to civil use after World War II, in the 1950s for transportation of short distances by sea and across straits. It developed into the form of transportation we are familiar with in the 1960s with the design of Ro-Ro vessels capable of handling mainly trucks, in addition to freight containers and cards. These vessels were designed for commercial use and it is after the 1960s that Ro-Ro transportation started to be utilized in the world for maritime transportation.

The concept of containerization also came into perspective in the 1950s, followed by early developments of Container Ports in the 1960s. By the time the decision to transform the pole dock was made in Zonguldak, both a Ro-Ro dock and a container dock should have been in the options. However, there are apparent reasons for the decision to go with a Ro-Ro dock instead of a container dock. Ro-Ro transportation is more environmentally friendly due to lesser emissions and its flexibility in switching between different transportation modes.[179] The efficiency of it also depends on the quality of land transportation routes, which were the main focus of the government since the Republican Period. Another critical point is the need for infrastructure. By the time the early development of container docks emerged, the docks of the Industrial Port of Zonguldak had already been built, including their infrastructure. Compared to this, Ro-Ro docks do not require an investment for handling systems and specialized equipment, such as gantry cranes[180], container yards[181] and automation systems[182].

[179] (Demirel ve Demir 2024)
[180] A type of overhead crane that is used to load and unload containers
[181] A physical facility where ships load and unload, issue and receive back containers
[182] Automated systems used in container ports to manage the movement of containers

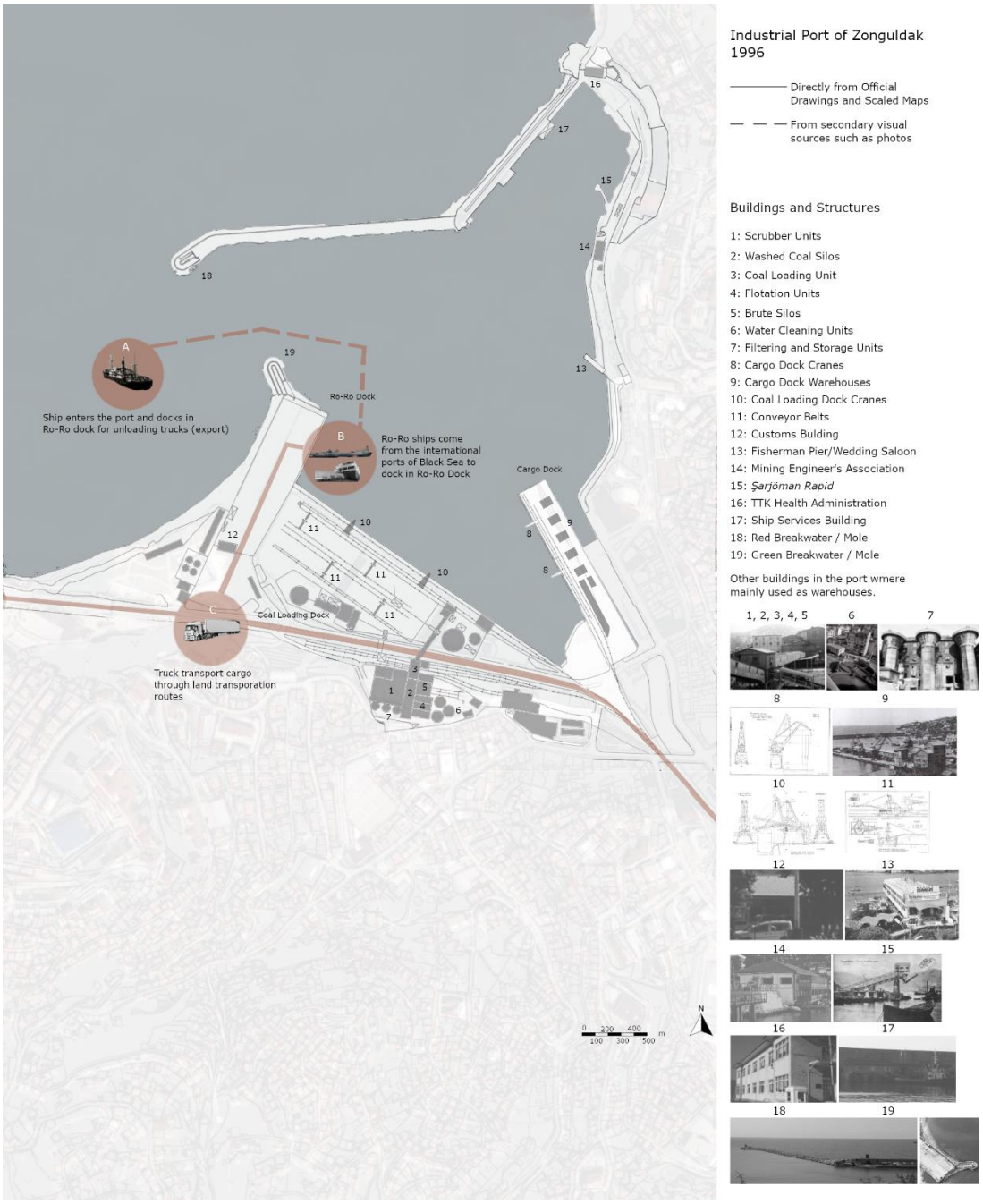


Figure 113: Port Activity Diagram of Ro-Ro Dock, third period, 1996, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

Ro-Ro Dock handled operations of export and import regarding Ro-Ro ships (Figure 113). For export, the trucks from the various regions in the country would arrive at the Ro-Ro Dock after passing through the checks of the customs area. The trucks would

then enter the Ro-Ro ships through the ramps of the dock or the built-in ramps of the ships. The ships would transport the trucks via sea transportation routes to international ports, mainly in the Black Sea. For import, the Ro-Ro ships would anchor at Ro-Ro dock after informing the port in advance and passing through the procedures. The trucks would then be driven out to the port from inside the ships via the ramps and exit the port after passing the customs checks to deliver their goods to various cities in the country through land transportation routes.

I would argue that, due to all the reasons stated, mainly due to infrastructure investment and the opportunity to take advantage of the well-developed land routes of Turkey, the pole dock was transformed into a Ro-Ro dock instead of a container dock. This would hurt the ports assets in terms of globalization and show its effects in the later lifecycle of the port. However, it is undeniable that the Ro-Ro dock also served as a turning point for the port as it became its cornerstone in terms of generated economic capital especially when the production of coal started to decline, and globalization started to spread.

This layout would be the transition period between the 1953 period and 2004 period (Figure 114). The central scrubber was starting to lose its prominence and instead of doubling down on the layout of 1953 where the central scrubber and loading of coal was the main systems generating the capital and identity of the port, there was a move towards alternative technologies and activities. It is a slow transformation which would change the port part by part, through addition and subtractions. However, the changes from this period onward would not reach the effects or integrity that was present in the 1896 or 1953 layout when compared to the technology of their respective periods.

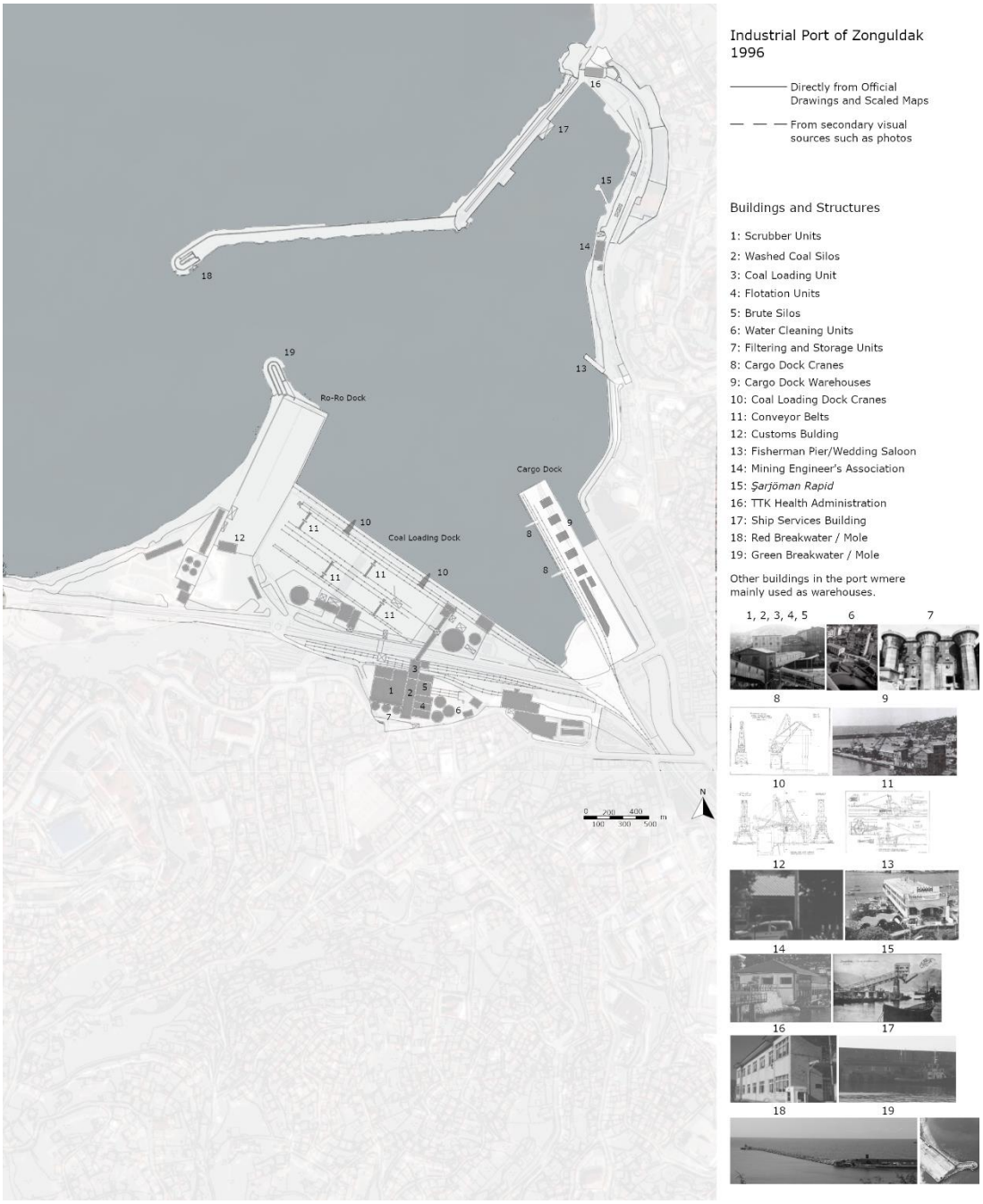


Figure 114: Industrial Port of Zonguldak, 1996, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

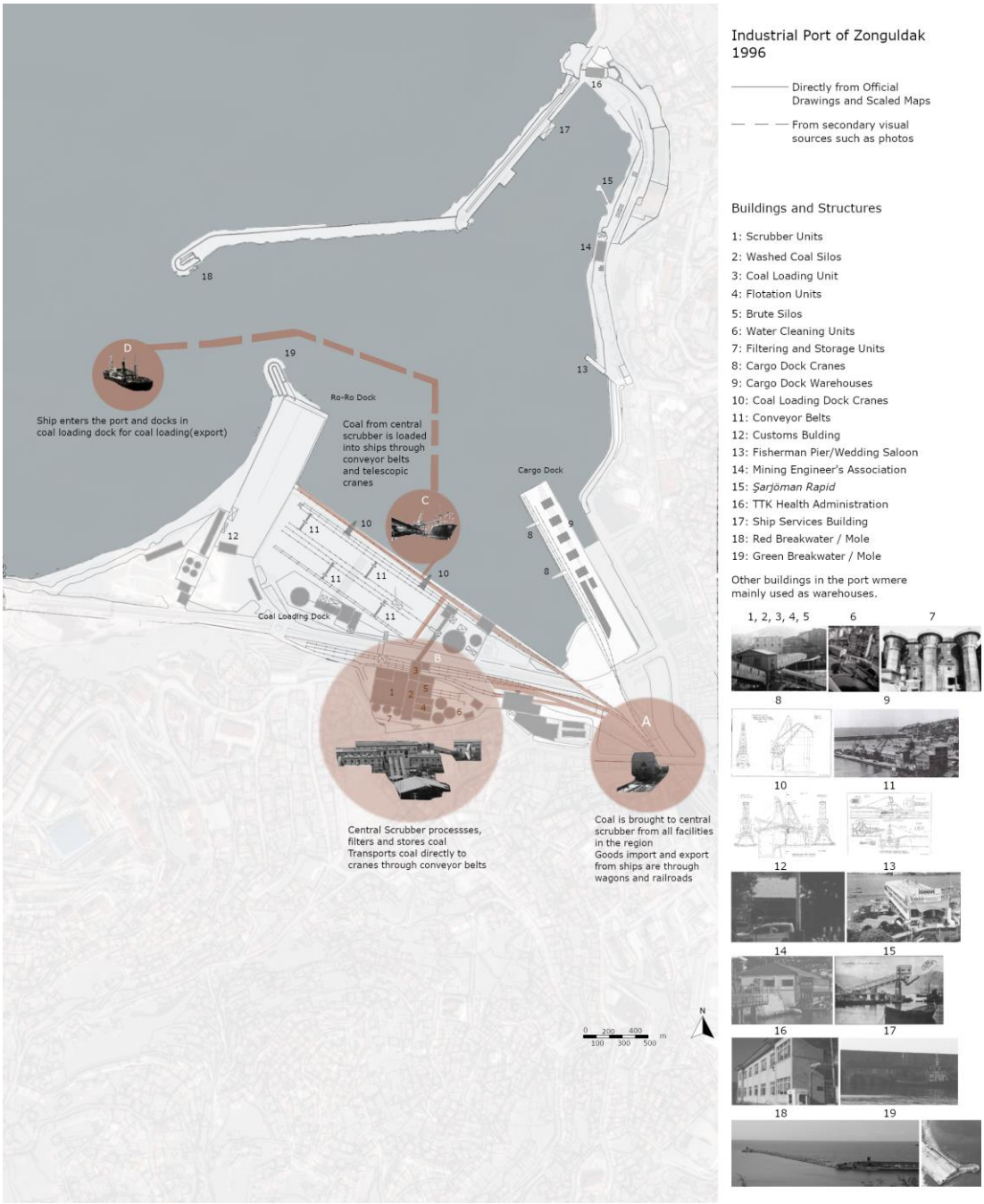


Figure 115: Port Activity Diagram of Bulk Cargo Dock, third period, 1996, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

The coal loading dock continued operations the same as in the second period (Figure 115). Coal from the region was processed, stored and accessed through the central scrubber and delivered directly to the ships via conveyor belts and telescopic cranes.

However, especially after the 1980s, the efficiency of the dock started to decrease. Changes were made to the layout of the port. Additional structures, buildings and warehouses were added to increase production. Export and local coal supply from the port decreased.

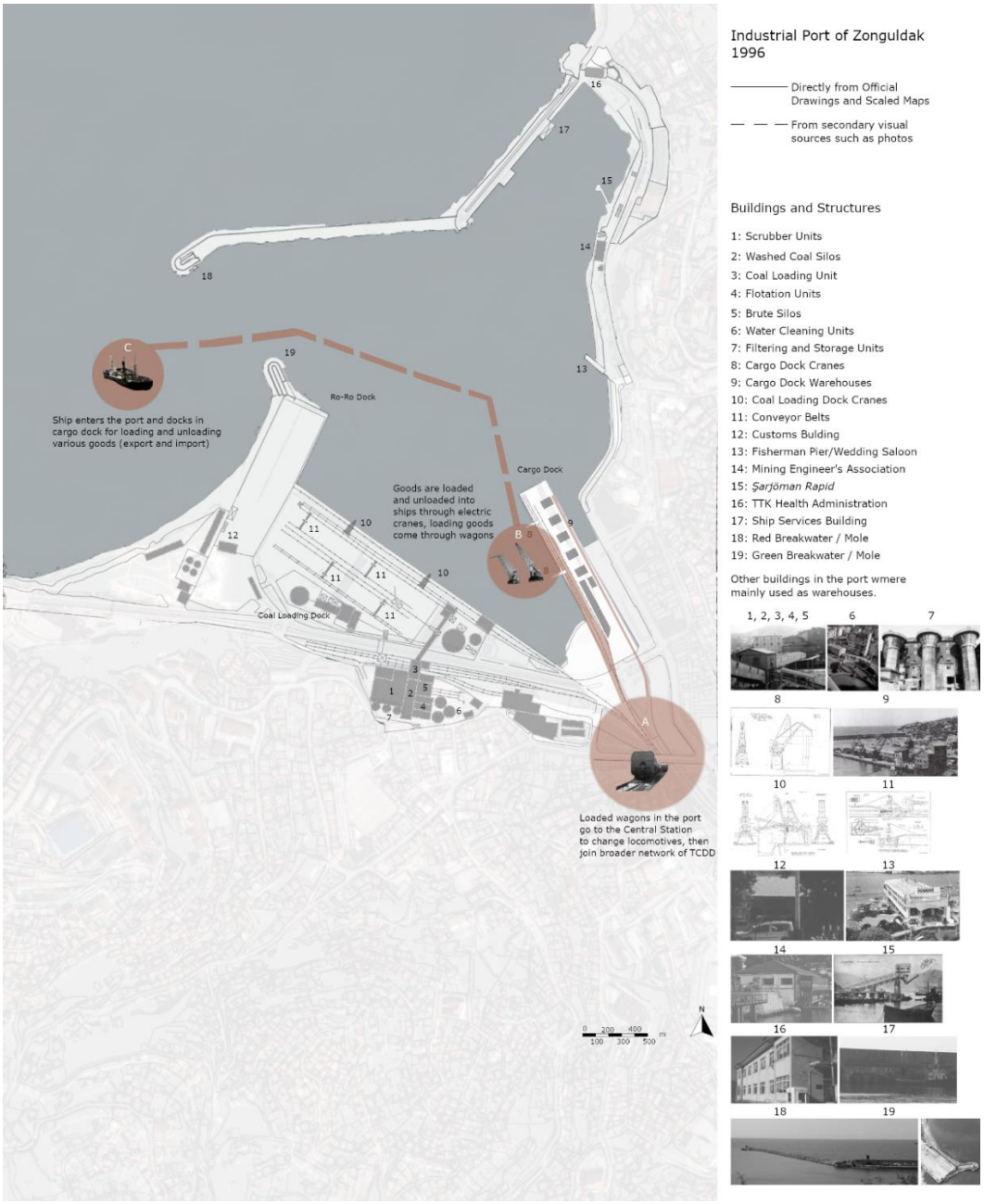


Figure 116: Port Activity Diagram of Cargo Dock, third period, 1996, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

Cargo Dock continued operations nearly the same as in the second period (Figure 116). Electric powered cranes handled loading operations from wagons to ships and unloading operations from ships to wagons. Cargo was transported through railroads from the port to their destinations. Import and export operations of general cargo continued as usual.

3.5.4. Fourth Period of Industrial Port of Zonguldak

In 2004, the train ferry dock was constructed as an extension of the cargo dock by 200 meters through breasting dolphins[183] and a hydraulic ramp[184]. This new extension was built with the aim of more efficient transportation from the steel and iron factories of Ereğli, most notably ERDEMIR, to cities in Anatolia.[185] At the time, Ereğli was not connected to the broader railroad network of TCDD. Through the establishment of the train ferry line between the port of Ereğli and the port of Zonguldak, Ereğli was connected to the rest of the country's railroad system by sea. 16.786.000 USD was invested for the project.[186] The project and engineering of these structures were done by ISC Consulting Engineers A/S, a Danish company. Implementations were done by a Turkish company named *Dolfen Mühendislik Danışmanlık Ltd.Şti*. Active use started as early as 19th of November 2004.

The dock is capable of handling as much as 55 wagons at once with a loading capacity of 3 thousand tons. The annual capacity of the train ferry line was expected as high as 4.5 million tons. The ship that was designed for the train ferry line between the port of Ereğli and the port of Zonguldak was named Erdeniz. The ship (Figure 117) was 198.500 meters long, 22.350 wide and needed 5 meters of draft when it was fully loaded. The wagons were designed to fit in 5 lines inside the ships and had special equipment for keeping them in place. They would directly be unloaded to the existing

[183] Isolated marine structure used for berthing of ships by taking up loads and restricting longitudinal movement of the berthing vessel
[184] A mechanical ramp situated at the end of train ferry terminals to load or unload vehicles, such as trucks or railroad cars
[185] (Öztürk 2018)
[186] (Uysaltürk ve Makaracı 2005)

3 railway lines on the platform. [187] The part where the train ferry would be constructed was raised to +3 meters from sea level to make it suitable for docking and berthing of ships. The rest of the cargo dock stayed at +2 meters above sea level. The facilities were constructed to be at a 15-degree angle with the cargo dock to avoid decreasing the field for ship maneuvering in the port.

[187] (Uysaltürk ve Makaracı 2005)

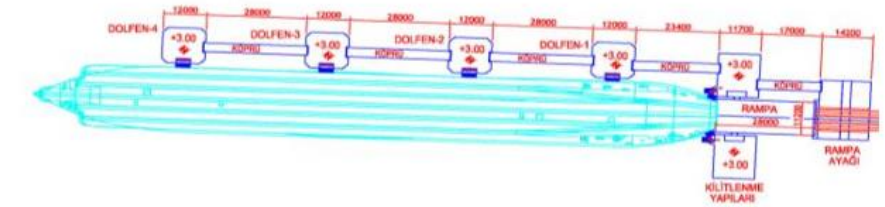


Figure 117: Ship docked to locking mechanisms and dolphins (top), train ferry dock in active use, overview (middle), railway car emerging from inside the ship on tracks of train ferry dock (bottom), taken from Uysaltürk and Makaracı, 2005

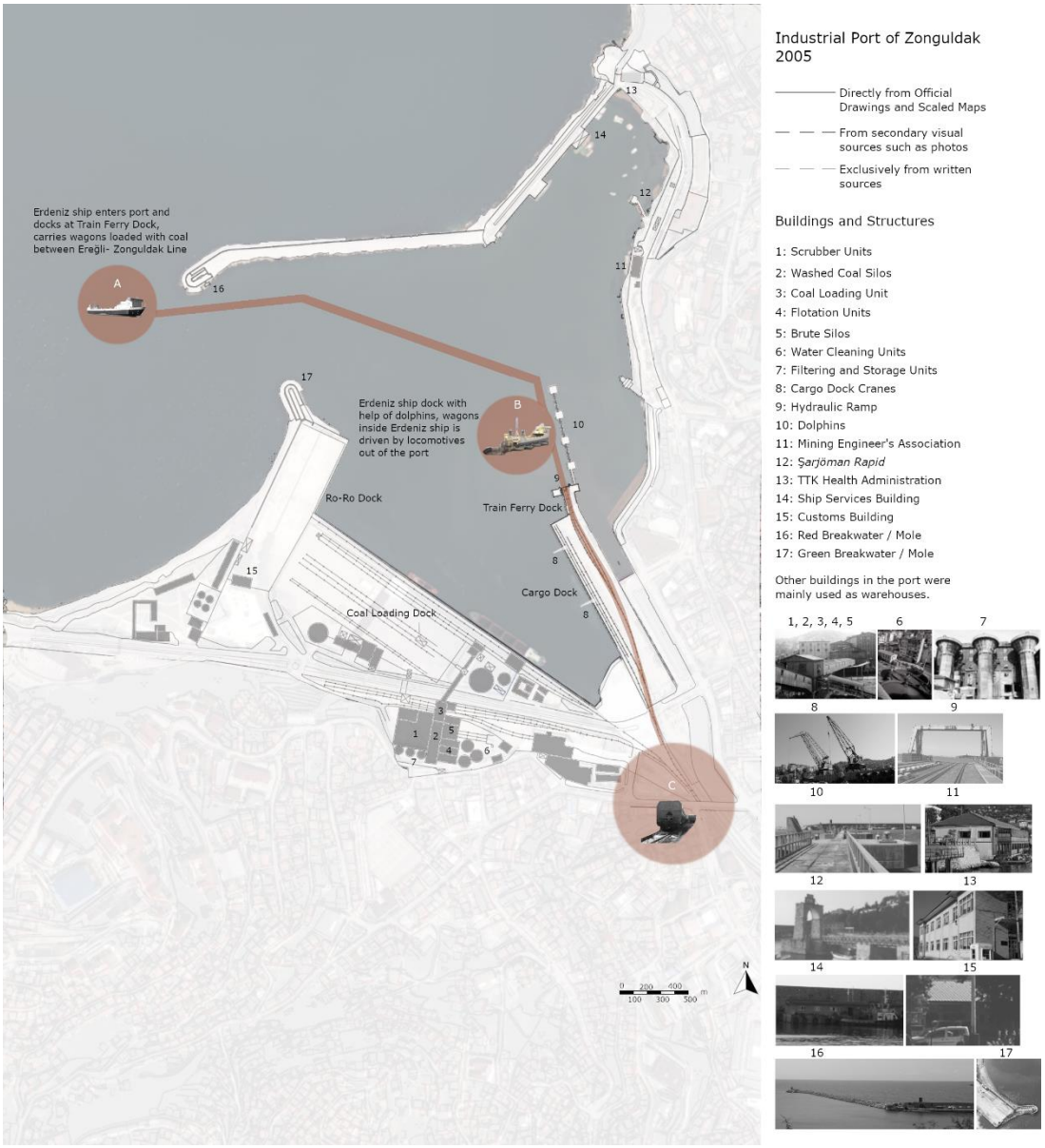


Figure 118: Port Activity Diagram of Train Ferry Dock, fourth period, 2005, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

Above is the port activity diagram illustrating the operations of the Train Ferry Dock (Figure 118). A ship named Erdeniz carrying wagons and a locomotive would go back and forth between Ereğli and Zonguldak ports to bypass land routes, carrying coal and various goods. Both ports had the same train ferry dock with breasting dolphins

helping the ship to dock and a hydraulic ramp to keep the ship in place. Railroads extended into this dock that was constructed as an extension of cargo dock. The locomotives would come with the wagons through the Erdeniz ship, leave the port through the railway line of Train Ferry Dock, change locomotives at the central station, join the broad railroad of TCDD and head for various factories and facilities in the country in need of coal.

The dock consisted of 1 ramp footing, 2 locking mechanisms, 1 hydraulic ramp and 4 breasting dolphins. The hydraulic ramp was built with the aim of speeding up loading and unloading operations and locking wagons in place during load handling (Figure 119). It is at its highest point when there are no ships docked. The ship docks with the help of fenders[188] on the sides of the breasting dolphins. After the position of the ship is stabilized, the hydraulic ramp is lowered and drops freely into the ship. The pin situated below the ramps beam is then used to lock the stern of the ship to the locking mechanisms at both sides of the hydraulic ramp. After all these operations railway cars can exit and proceed through the railroads on the dock (Figure 120).

[188] Air filled device or equipment which absorbs the energy of berthing boa tor ship

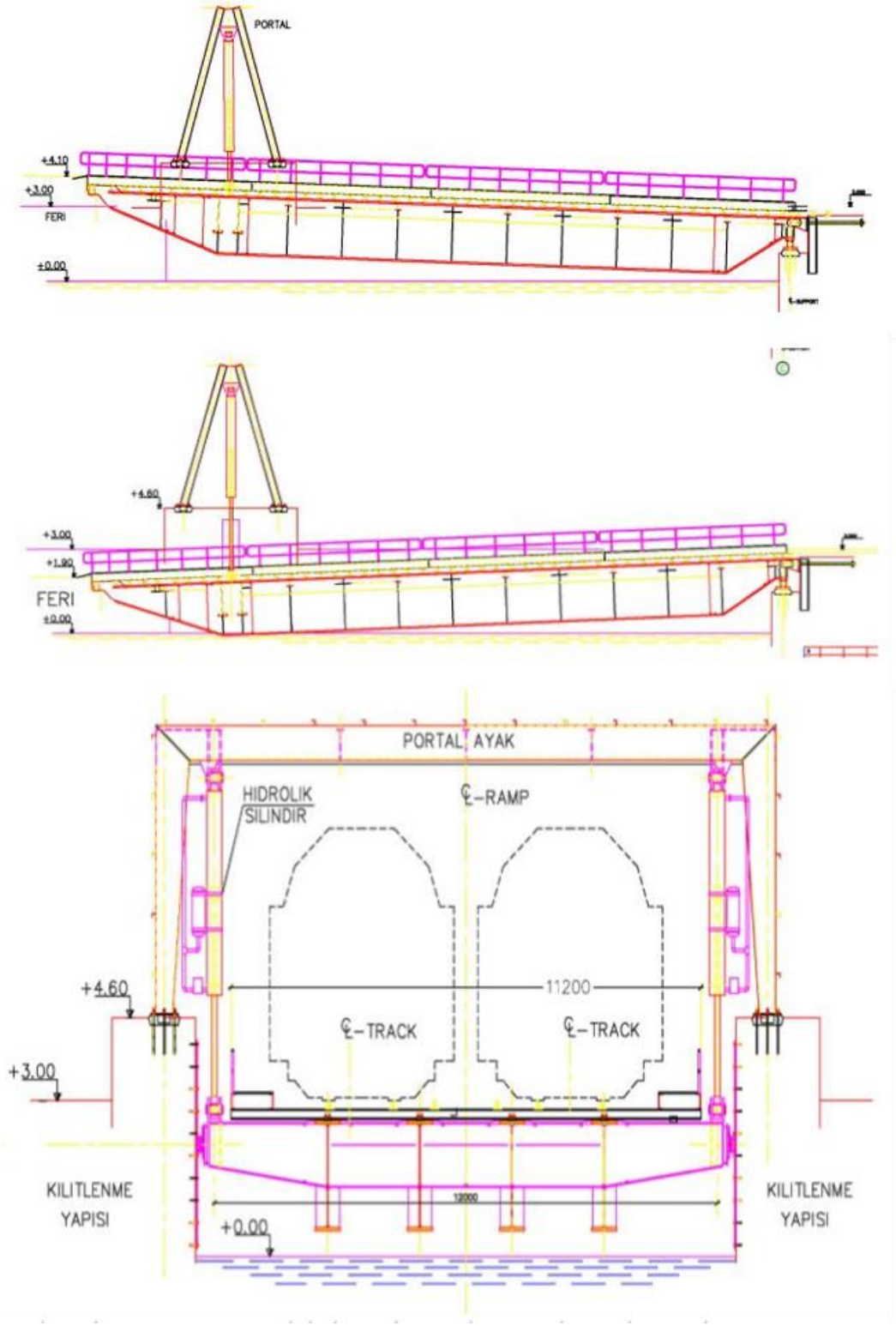


Figure 119: Mechanisms of train ferry dock, hydraulic ramp, locking systems and ramp footing, taken from Makaracı and Uysaltürk, 2005

Figure 120: Industrial Port of Zonguldak, 2005, before the demolishment of Zonguldak Central Scrubber and after the construction of Train Ferry Dock, produced by the author, base drawing from Zonguldak Municipality, base image from the Directorate General for Mapping

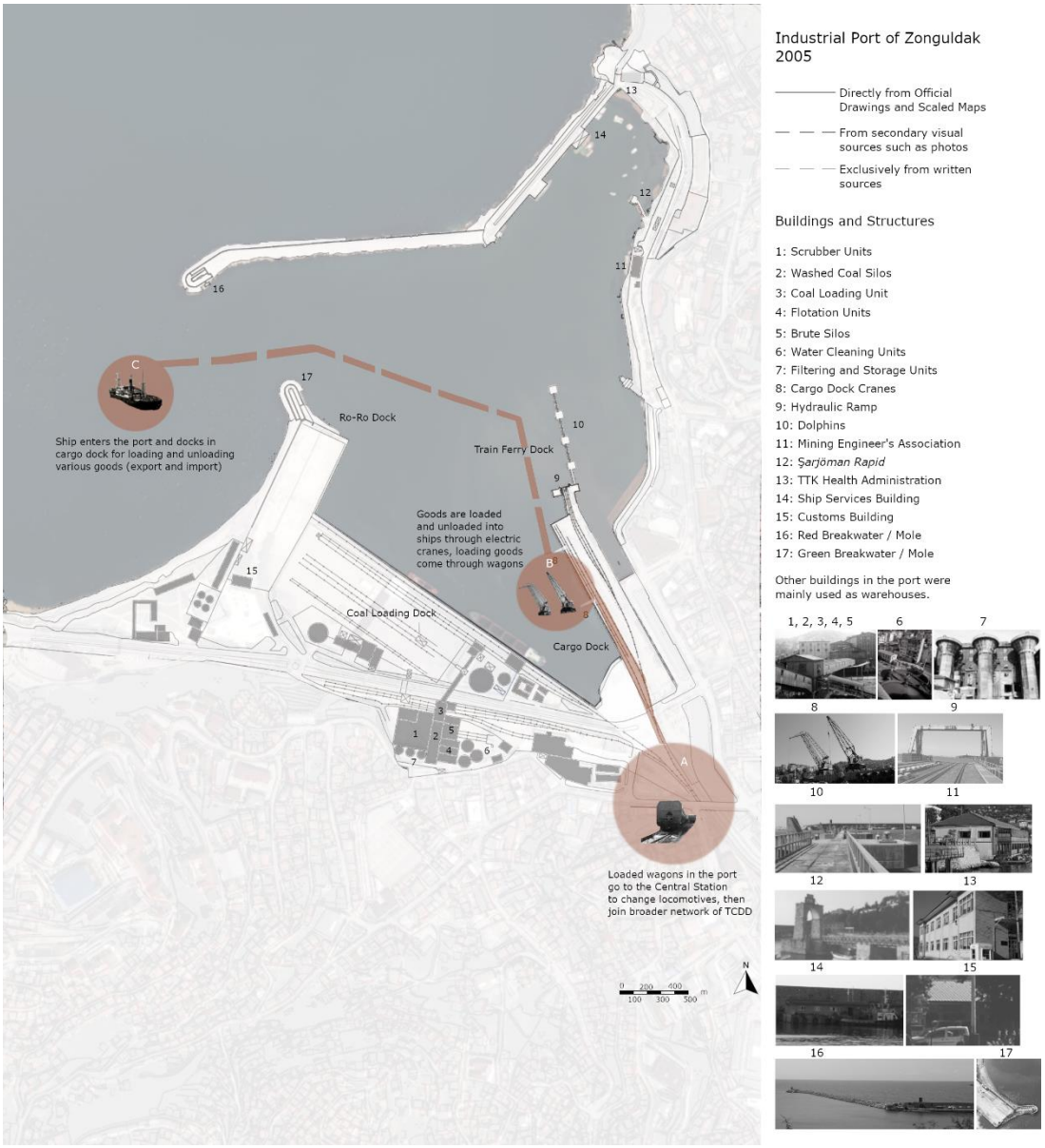


Figure 121: Port Activity Diagram of Cargo Dock, fourth period, 2005, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

In the fourth period, the warehouses in the cargo dock were demolished for the establishment of the train ferry dock (Figure 121). The dock no longer had any capacity to shelter goods which require protection from certain conditions. The scale of operations for the dock got smaller and the scope of handled goods dropped to those which could be stored in open air conditions. The transport chain did not change and

continued as in the same with second and third periods, from ships to wagons, with locomotives driving the wagons from the port to central train station where the locomotives are changed. The wagons were driven from the central train station to various cities in the country part of the railroad network.

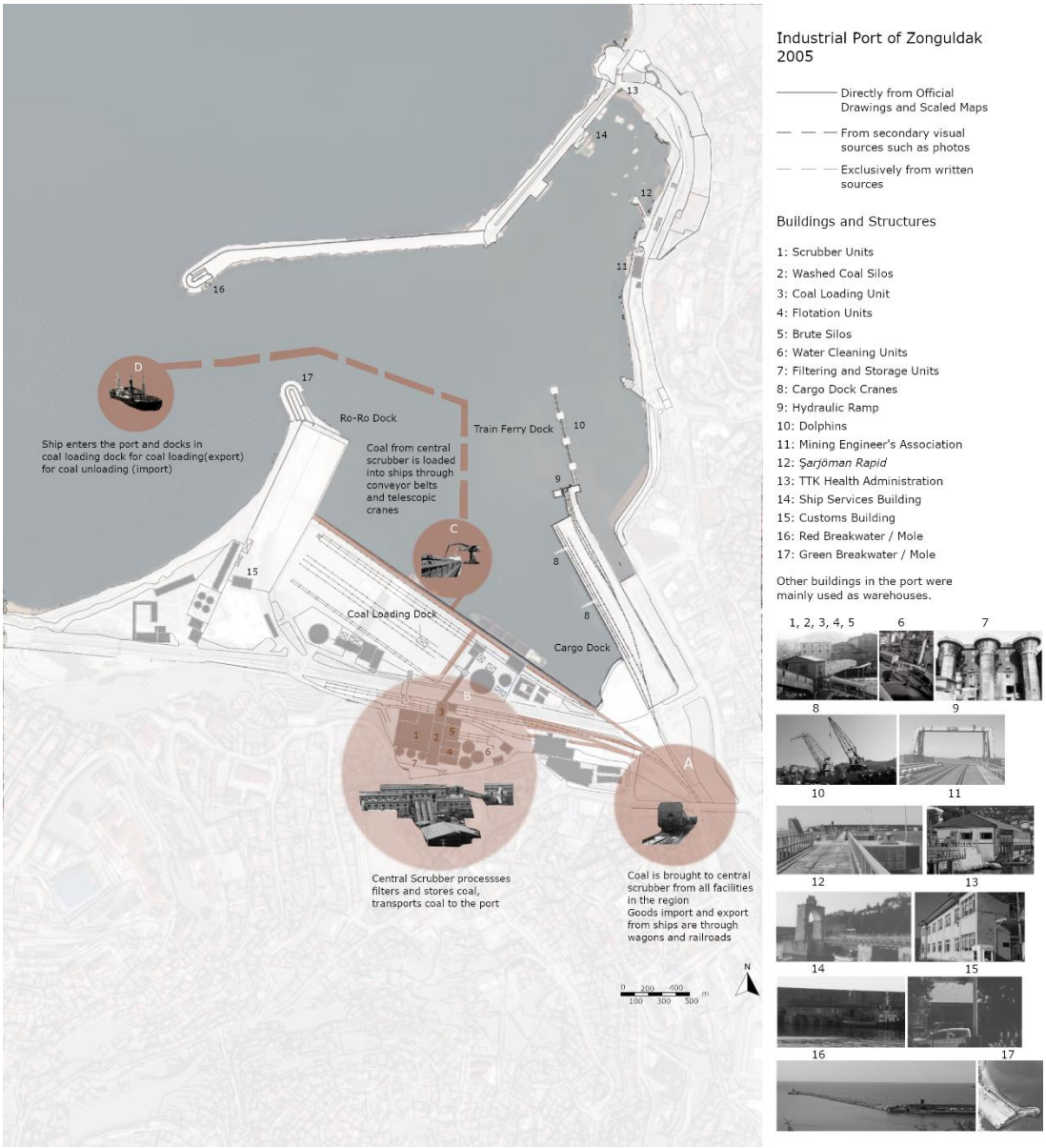


Figure 122: Port Activity Diagram of Coal Loading Dock, fourth period, 2005, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

The scale of operations for the coal loading dock decreased drastically in the fourth period (Figure 122). The telescopic cranes were dismantled and the system which allowed direct transportation from the central scrubber to ships was disassembled. Mobile cranes were incorporated for handling of coal in place of the telescopic cranes and conveyor belts. The transportation chains did not change much as it followed the same flow of ships to wagons, wagons to central train station, and from central station to cities in the country through railroads for import, cities to the central train station, central train station to dock through railroads and wagons to ships for export operations.

Figure 123: Port Activity Diagram of Ro-Ro Dock, fourth period, 2005, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

Ro-Ro Dock continued operations the same as in the third period (Figure 123). Ro-Ro ships would dock at the port and trucks inside the ships carrying goods would navigate through the ramps into the port and leave the port after clearing regulations to deliver their goods via land transportation routes for import operations. For export, trucks carrying goods from various production / trade facilities over the country would arrive

at the port and enter Ro-Ro ships docked at the port. These ships would sail for international ports, especially to those in the Black Sea.

From 19th of November 2004 to 31st of May 2005, 103 voyages were completed and 11.900 wagons were carried. 272.754 tons of coal to KARDEMIR, 31.277 tons of coal to ERDEMIR in addition to 70.147 tons of regional ores, 15.795 tons of quartz and 4.647 tons of rolled tin for a total of 394.618 tons of load was handled and transported.[189] However, the train ferry line would cease operations just after 4 years of activity, at 16th of November 2008. Eren Port was opened in 2010, which served to import and transport coal to the thermal power plants in the region, namely Çatalağzı and Eren. The port was in close proximity to both the facilities and provided them with their needed supply. This would hurt the prospects of the train ferry dock, but does not entirely explain why it stopped operating altogether. The connection between ERDEMİR factory and Zonguldak should still have been valuable and provide enough reason for the operations to continue. There is still not a concrete explanation or resource about why the train ferry was abandoned just 4 years after a huge investment. What can be said for certain is that the inactivity of this dock, its occupation of the inner port by decreasing the operational area of the ships, and the demolishment of the warehouses in the cargo dock has hurt the Industrial Port of Zonguldak significantly. After the demolishment of central scrubber, this was the second major incident which hurt the prospects of the port and a downward trend in terms of the significance of the port started to appear.

The central scrubber would be dismantled and demolished in 2006, in the year ICOMOS announced as 'World Industrial Heritage Year'. Only its towers and the main building, in a state stripped of all of its facilities and context, would remain. This was a major turning point in the history of the port. Nearly an entire half of the port was dedicated to the transportation of locally produced and washed[190] coal through the central scrubber. Numerous cranes, storage areas and an entire dock was working in

[189] (Uysaltürk ve Makaracı 2005)

[190] The process of refining coal as in removing impurities through various methods such as screening, washing and separation and preparing it as final product before transport, this reduces emissions and provides a more consistent and efficient coal

unison to achieve this. While the scrubber was being demolished, a new proposal for the port was already underway (Figure 124). The coal loading dock were to be divided into two. Its northwestern side would be used as a truck parking area to serve the Ro-Ro dock while the southeastern side would be further divided into two. The northern part of the southeastern side of the port would be used as a bulk cargo dock, handling various cargo and containers. The leftover area left in the southern part would be filled with fisherman's shops. Instead of handling locally produced coal, the port handled only imported coal from countries such as Russia. The imported coal was then transferred to either the steel-iron factories or to the newly emerging nuclear power plants. The warehouses in the cargo dock were also demolished during the construction of the train ferry dock.

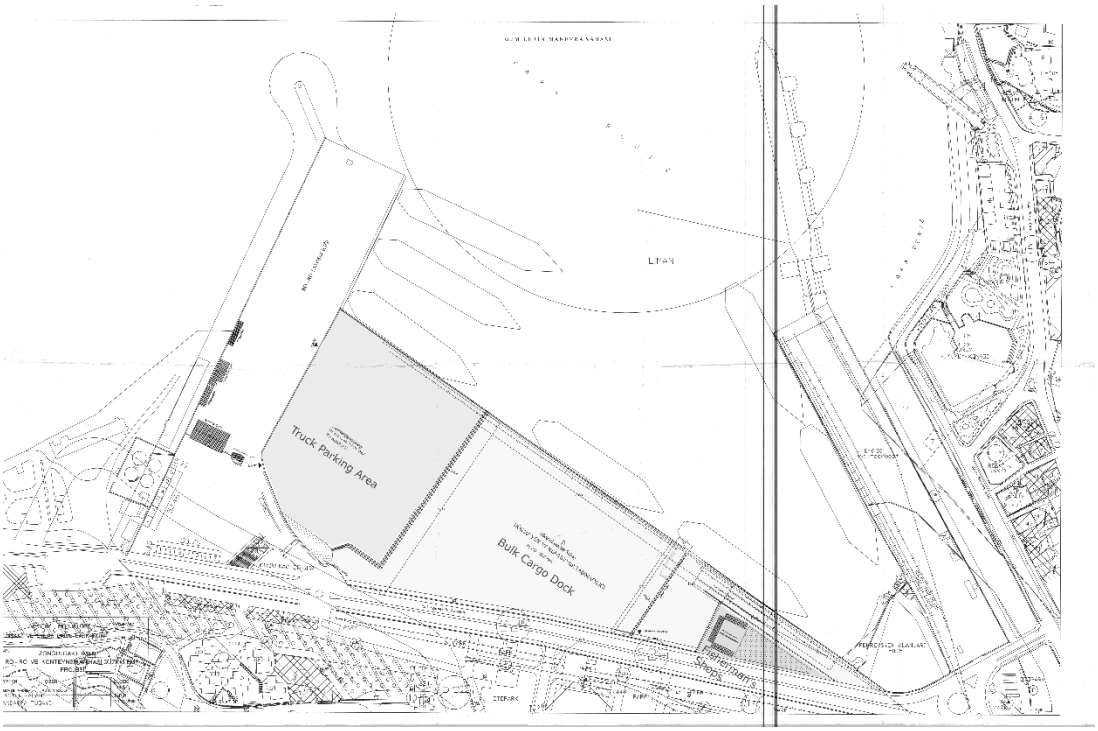


Figure 124: Proposal Plan for Industrial Port of Zonguldak, 2005, taken from the archives of TTK

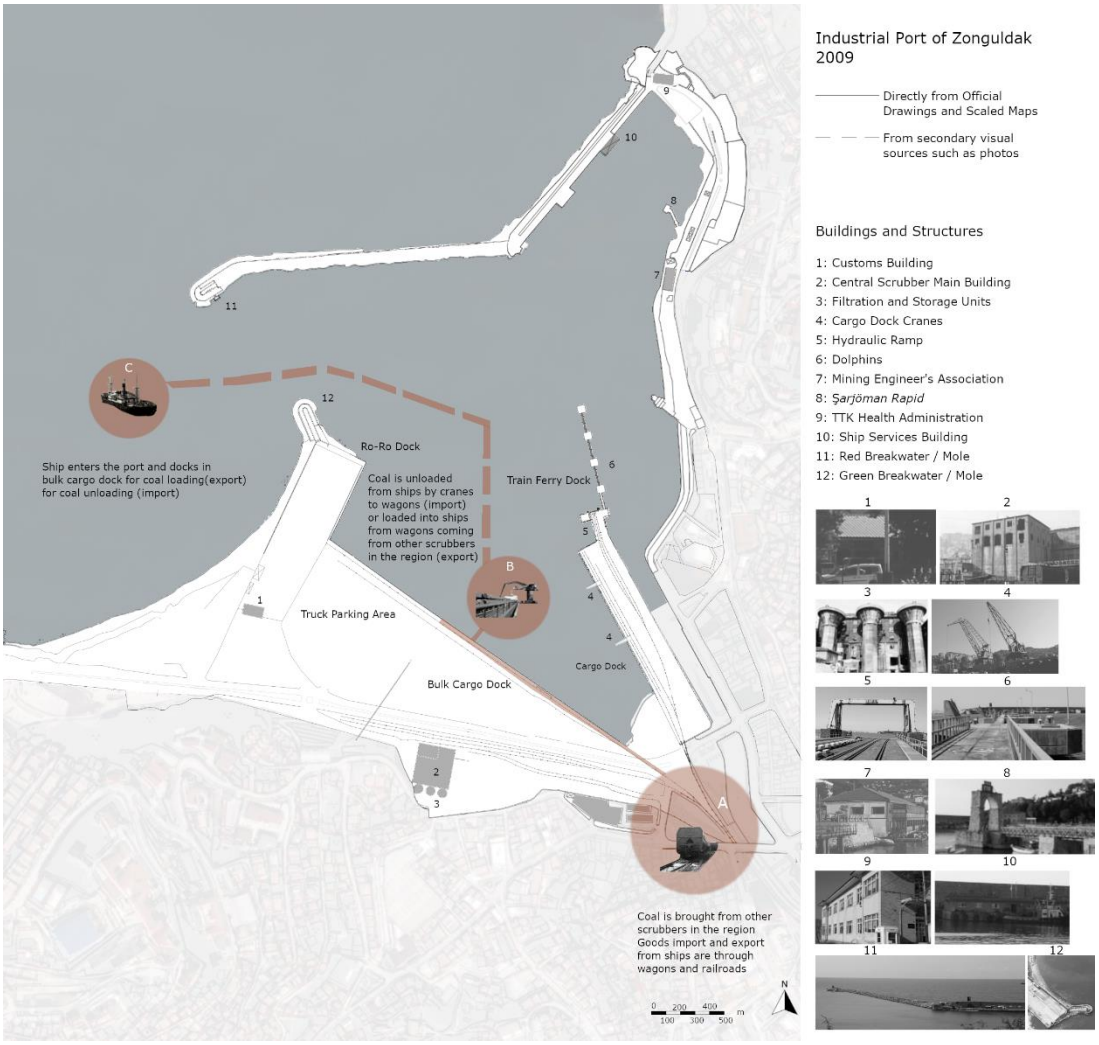


Figure 125: Port Activity Diagram of Bulk Cargo Dock, fourth period, 2009, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

The central scrubber and its facilities were demolished in 2006. Because of this, coal had to be transported to the port from other scrubbers / coal washeries in the area such as the Çatalağzı Scrubber, a lower capacity version of the Zonguldak Central Scrubber. The export operations of coal decreased because of this development and import increased. The port which was supplying nearly the entire country with their need of coal through locally produced and refined coal with direct transportation methods from a production, storage and refinery adjacent to the port, started to change to one which was importing cheaper import coal from international ports (Figure 125). The

dock changed from a rapid coal loading dock to a bulk cargo dock. For import, ships would anchor at the bulk cargo dock, and coal would be unloaded from the ships through mobile cranes into wagons or to the open-air storage area. The wagons would be driven out from the port to the central train station to change locomotives and be distributed to various facilities in need of coal around the country which are connected to the railroad network. For import, the locally produced coal in the region would be processed in the coal washery facilities such as the Çatalağzı Scrubber and be loaded into wagons which were then driven by locomotives via railroads inside the port to the bulk cargo dock. The coal in the wagons would be loaded to ships through mobile cranes.

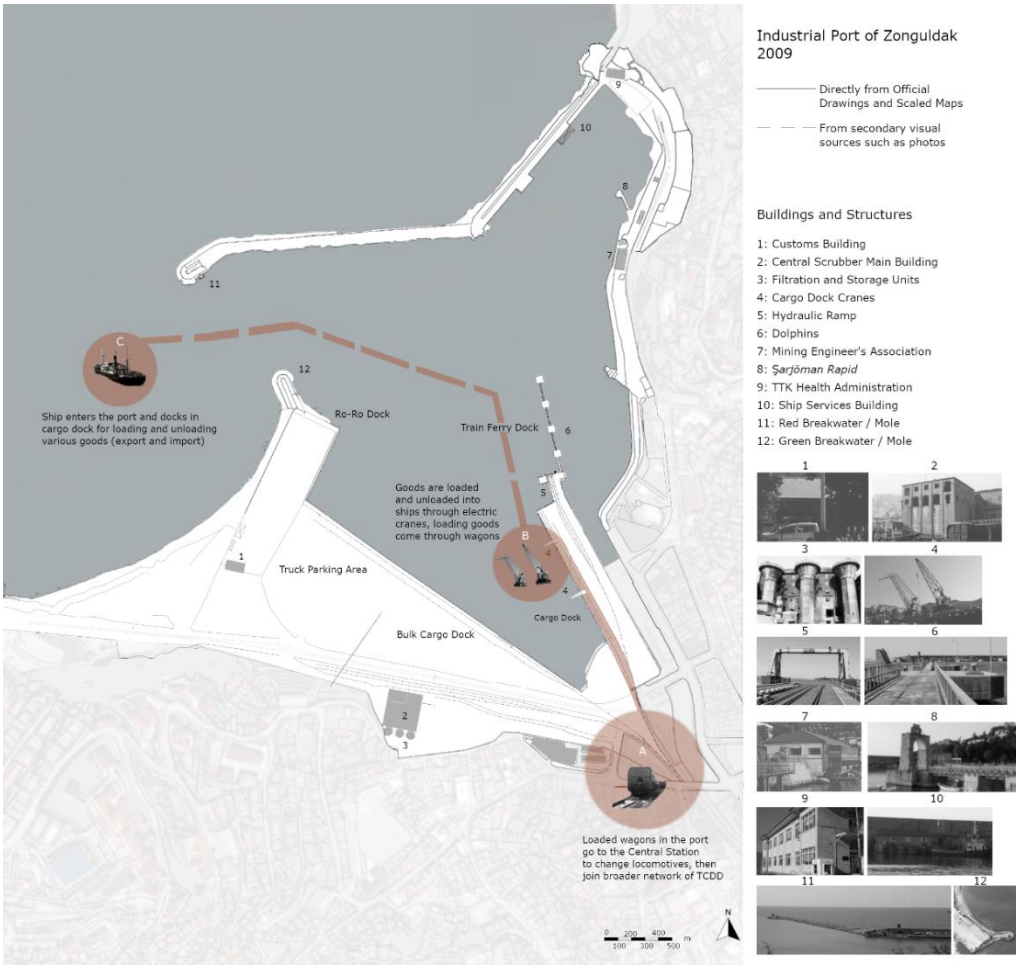


Figure 126: Port Activity Diagram of Cargo Dock, fourth period, 2009, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

The cargo dock continued operations in line with the 2005 layout (Figure 126). The transportation chain remained the same and there were no major changes to the operations for import and export. The cease of operations of the train ferry dock did not contribute to the cargo dock as the space of the now redundant train ferry dock was not used as storage for the cargo dock.

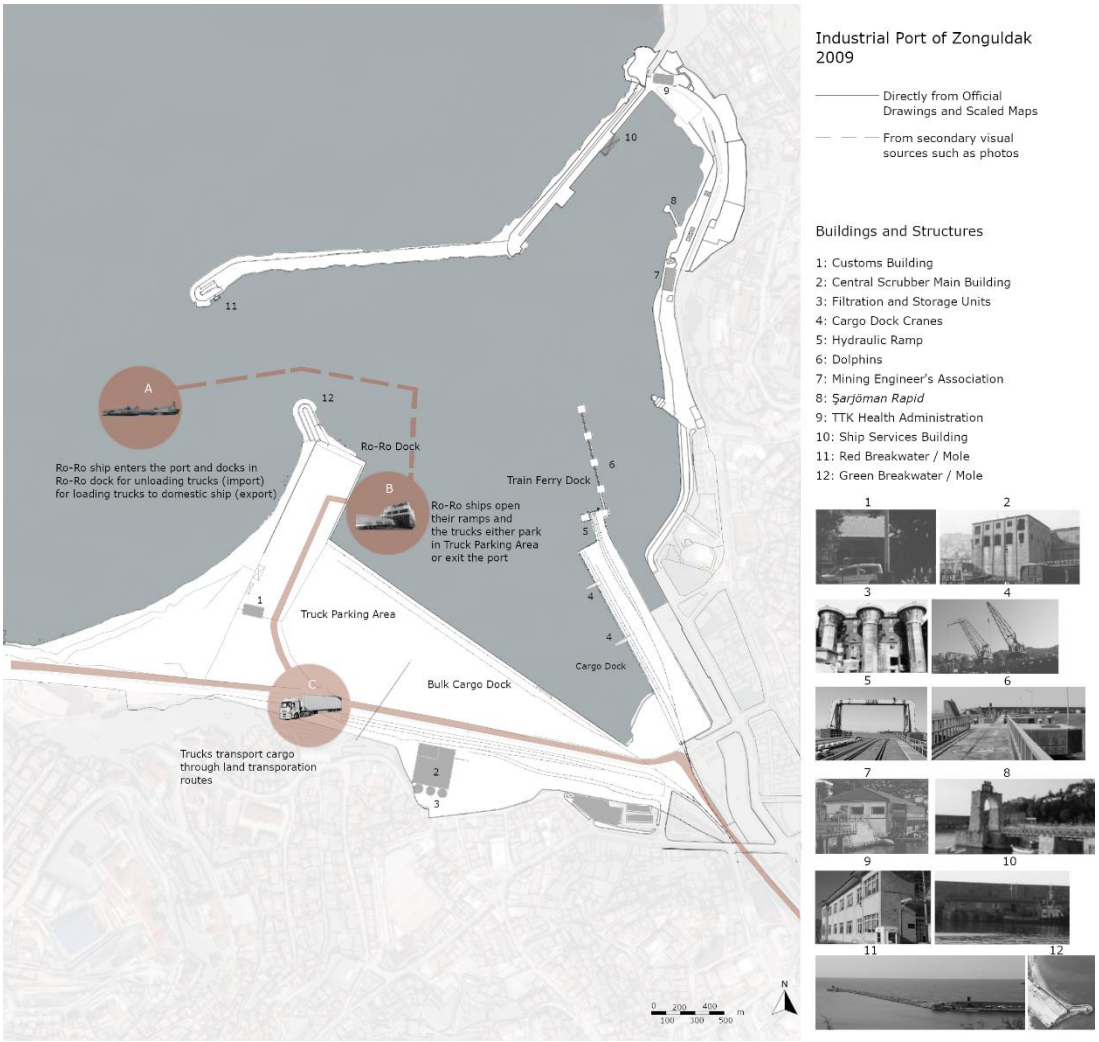


Figure 127: Port Activity Diagram of Ro-Ro Dock, fourth period, 2009, produced by the author, base drawing from Zonguldak Municipality, base image from General Directorate for Mapping

Through the division of coal loading dock into two, Ro-Ro Dock gained a truck parking area (Figure 127). This area allowed for the trucks coming from Ro-Ro ships to stay at the port for a night or for days, depending on circumstances. This allowed

to accommodate delays and certain mishaps while increasing the capacity and volume of ro-ro transportation activities for the port, which had become crucial for its economic presence. The transportation chain stayed the same as in the third period and in 2005 state of the fourth period for import and export operations. The port's layout in this period, after the train ferry dock stops functioning in 2010, is nearly identical to the current situation (Figure 128).

Figure 128: Industrial Port of Zonguldak, 2009, (top), produced by the author, base drawing from Zonguldak Municipality, base image from the General Directorate for Mapping, Aerial photo of Zonguldak, 2009, (bottom), taken from Directorate General for Mapping

3.5.5. Fifth Period of Industrial Port of Zonguldak

In 2015 proposals for taking the northwestern side of the port which is adjacent to the Ro-Ro dock started. In 2019 two projects were agreed on by the government. One involved the northwestern area and would turn it into a recreational area with a mosque named after Uzun Mehmet, founder of hard coal in 1829. This took away a large storage area from the port and resulted in an awkward relationship of adjacent customs area and recreational area. The other, the coastline urban renewal project, involved the entire northern coastline and aimed to transform it through an urban renewal project. Fishermen huts had taken over the northern side of the port, which was no longer used for loading and unloading operations.

This project involved the removal of the fishermen huts and would create infills in place of them. Though objections of TTK, for the reasons that they would harm the maneuvering of the ships and shorten the port area, the infills were not realized. In place of them, wooden street furniture was allowed to extend to certain points from the walkways of the coastline. Buildings throughout *Liman Caddesi* was planned of which all had the same function, restaurants and cafes. Both these projects were concerning as they magnified the downward trend the port has been taking since the demolishment of the central scrubber.

The area of the port was being reduced and opened to public, through chunks. Instead catching up to contemporary standards of industrial ports, it was being pushed further back in terms of area, technology and development. After the construction of the train ferry dock, which has not been in active use since 2009, no major funds or investments were realized in the port in terms of facilities and structures. Ro-Ro dock serves as the main economic capital of the port, yielding good results through its activities with Ukrainian and Russian ports. However, the initiation of the Russian- Ukrainian in 2022 caused it to cease operations, which dealt a huge blow to the activities of the port. The dock has only recently restarted its activities, in 17th of October, 2024. Through these changes the port reached its layout present in the current situation (Figure 129).

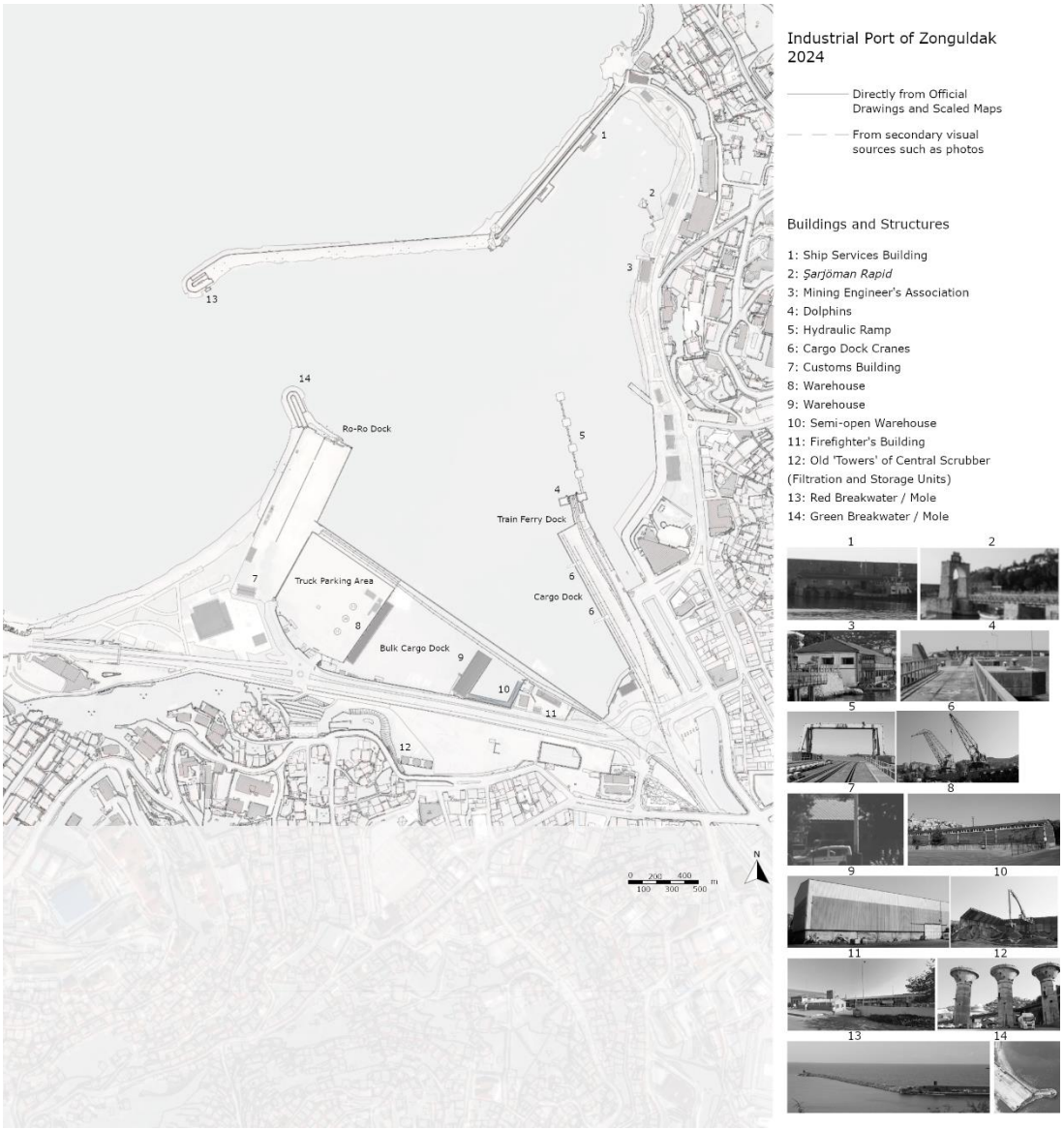


Figure 129: Industrial Port of Zonguldak, 2024, current situation, produced by the author, base drawing from Zonguldak Municipality, base image from the General Directorate for Mapping

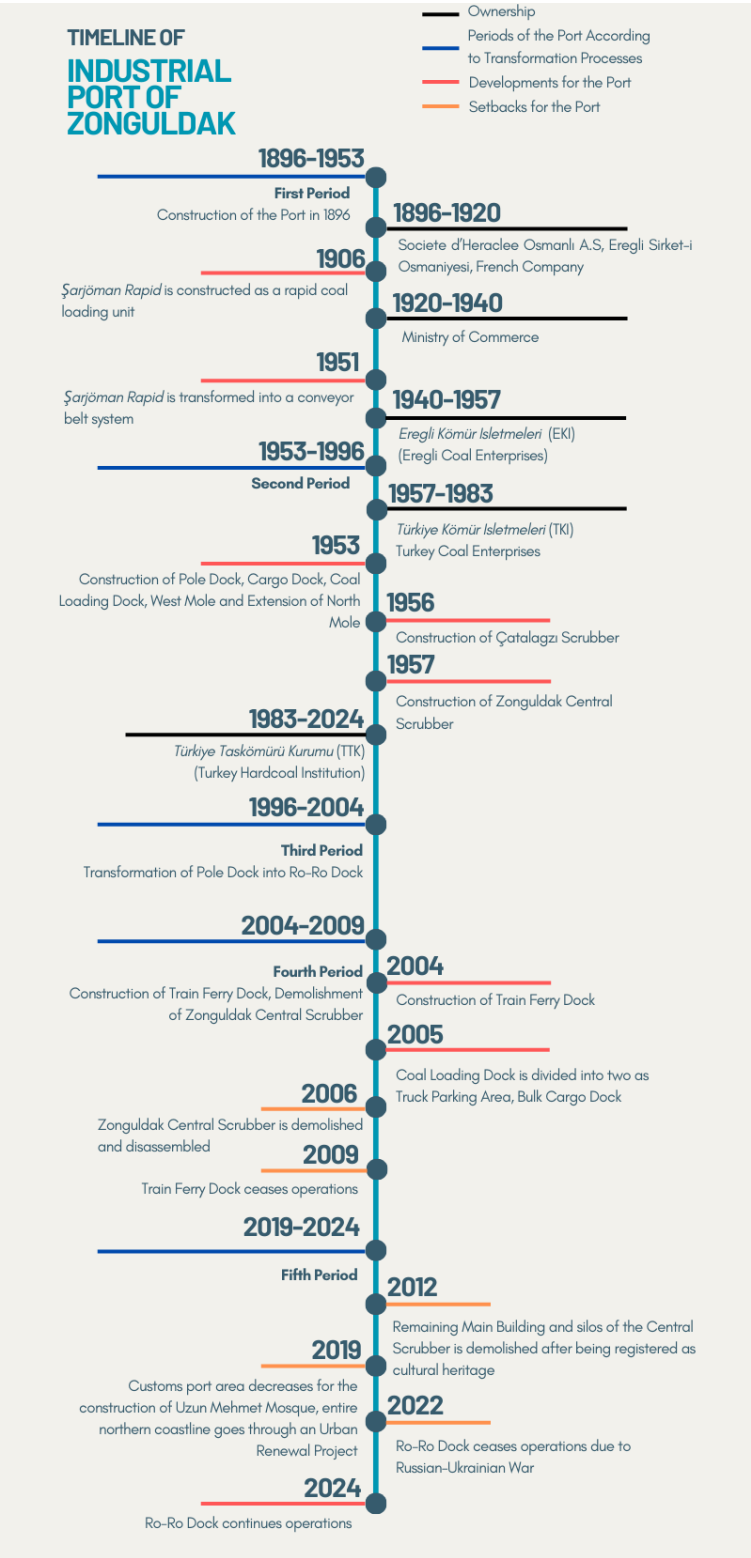


Figure 130: Timeline of the Industrial Port of Zonguldak, produced by the author

CHAPTER 4

VALUE ASSESSMENT OF INDUSTRIAL PORT OF ZONGULDAK

The Industrial Port of Zonguldak is a heritage place. It is inseparable with the development and identity of Zonguldak. The city would not have the same developments and its unique stature if not for the port. The port constitutes of a collective memory and have affected its environment deeply.

4.1. Values of Industrial Port of Zonguldak

The value definition systems used for assessing the significance of cultural heritage such as the ones proposed by Riegl[191], Jokilehto[192] and Mason[193] as well as some recent studies like the value definition matrix proposed by the study of TU Delft[194] in addition to important documents regarding the value assessment and documentation of industrial heritage such as the Dublin Principles [195] were investigated and the decision to choose the value definition system for assessing the significance of the Industrial Port of Zonguldak came down to the ability of the value definition system to represent values of the port as a whole. Moreover, it needed to be able to accurately portray the coexistence of the port's changing and unchanging components. Özçakır's value definition system, which was initially designed for value assessments of conservation sites in Turkey, was chosen for the value assessment of the Industrial Port of Zonguldak for its ability to represent the values

[191] (Riegl 1982, translated by Forster and Ghirardo)
[192] (Jokilehto 2016)
[193] (Avrami and Mason 2019)
[194] (Clarke, Nicholas and Stroux 2019)
[195] (ICOMOS and TICCIH 2011)

of the port as a whole while being able to highlight the various values of its individual components.[196] However, two additional value definitions were added to this value definition system to cover the scope of industrial heritage and port heritage which is in unison regarding the values of this port. Social value was added to elaborate the connection of the local communities and public with the port, the effect of the port on the life surrounding it, the relations of the port and the city and the connections of the people working in the port and their ties with the city. Group value was added to represent the unique meanings, situations and contexts brought by the togetherness of the port's components. These components highlight, in their singularity and in their wholeness, different values of importance.

There are eleven values in this system, these are;

- Age and Historical Value
- Authenticity Value
- Architectural and Technical Value
- Document Value
- Aesthetic Value
- Symbolic Value
- Identity Value
- Memory Value
- Prestige Value
- Functional Value
- Real Estate Value

[196] (Özçakır 2018)

The Industrial Port of Zonguldak (Figure 131) **has existed for more than 128 years**, going through five different transformation processes. Although its cargo handling systems was dismantled, the structure of *Şarjöman Rapid* and the stone pier that leads up to it remains on the site, registered as cultural heritage. The breakwater and its quay wall in northern side of the port, which is connected to *kırmızı mendirek* (red breakwater / mole) remains in a good condition structurally, and is being used. These structures are as old as the port itself.

Figure 131: Industrial Port of Zonguldak, first period, taken from the archives of Zonguldak Directorate for Culture and Tourism

The landfill of the current docks (Figure 132) was exercised in 1953, through the first modernization of the port and establishment of its new docks. The railroads that are extending inside the docks are from that period as well, with the exception of the railways to the train ferry dock, which were laid out much later. The electric cranes which are still currently active in the port has been used since 1956. Three silos which was directly connected to the main building of the central scrubber remains and traces of demolished buildings together with the entire lot of the demolished

industrial complex are visible on the site, even though it is currently separated through a road from the port.

Figure 132: Landfill of cargo, bulk cargo and ro-ro docks, taken by the author

Şarjöman Rapid and the first breakwater of the port with its quay wall have not undergone interventions that have changed their character and remain in the port (Figure 133). They represent the first period of the port, the scale, layout and the construction techniques used during that time. Their structural condition is good and there is no major issues of decay or material failure on either of them. Unfortunately, the loading systems of *Şarjöman Rapid* was dismantled together with the cranes used for cargo handling that were situated on the landfill platform in front of the breakwater, causing in the loss of the physical manifestation of much of the technology from that period. The railroads extending into the end of the breakwater has also been lost together with the original lighthouse and mole during the modernization of the port in 1953. The first breakwater was extended and a new lighthouse was constructed at the end named the 'green lighthouse', hence the new name of the breakwater '*yeşil mendirek'*.

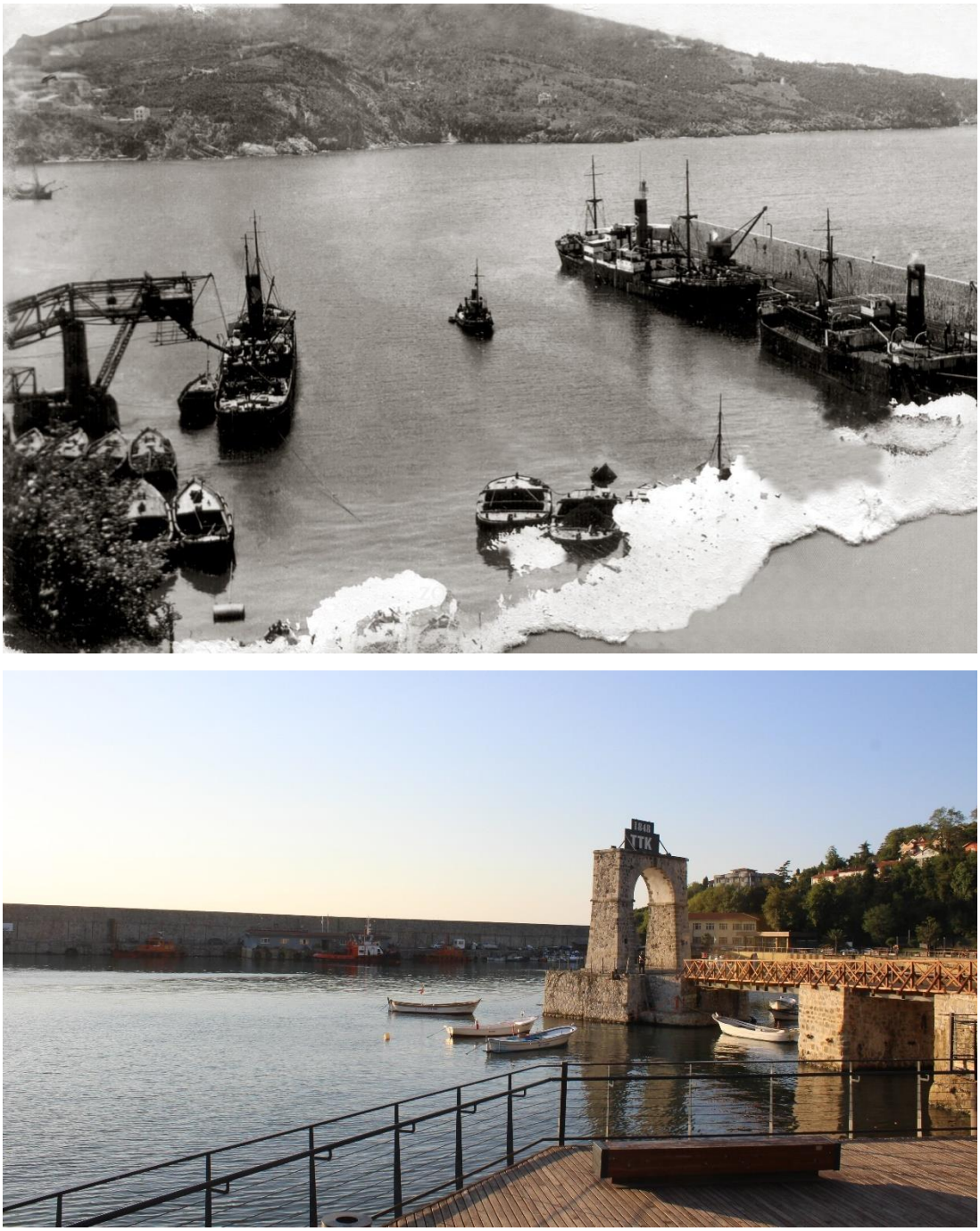


Figure 133: *Şarjöman Rapid* and quay wall in active use during first period (1896-1953) (top), taken from the archives of Zonguldak Directorate for Culture and Tourism, current situation, *Şarjöman Rapid* and quay wall in the back (bottom), photograph taken by the author

The second period of the port is represented through several components physically present on the site, in terms of structure, infrastructure and buildings. The landfill of the docks remains without change from their construction with the exception of the addition to the cargo dock. 3 filtering and storage units (*Lavuar Kuleleri*) of the central scrubber remain and have been registered as cultural heritage (Figure 134). Railroads which extend to inside the docks provide insight on the history of industrial transportation networks. Both breakwaters that was constructed in this period are in good condition.

Figure 134: *Lavuar Kuleleri*, photograph taken by the author

The electric-powered cranes (Figure 135) have been operating in the site since 1956. They are among the structures in the port which have **kept their integrity** such as the railroads, hydraulic ramp and dolphins of train ferry dock, and the breakwater / moles at both sides. *Şarjöman Rapid* is the oldest surviving structure of the industrial heritage of the port. It was built in 1906, and was used until the north-northeast part of the port was made public space, ceasing port activities. It was used like a conveyor

belt to carry load and unload from the ships to wagons and vice versa. Steel structural system and braces were tied to the top of its stone arch. The system in its entirety had great value and should have preserved as whole, with careful maintenance. Currently only the arch itself remains and serves as a monument in the public space of the port.

Figure 135: Electric-powered cranes and its railroad tracks, photograph taken by the author

Industrial ports that are continuing their operations which also have components that reflect all of its transformation processes is rare. In the Industrial Port of Zonguldak, there are structures or traces from each period, with some being in active use for the port while others being treated as monuments and cared for. *Şarjöman Rapid* was a rare system of its time. For coal loading, mostly mechanized and steam-powered cranes were used in the 19th century. There are not many examples of the combination of stone structures, brace systems and mechanized early-stage conveyor belts like the *Şarjöman*, it's a rare combination of system and a particular way of assembly.

The integrity of the structures carrying the system such as the stone arch and the stone pier was preserved. The systems were unfortunately disassembled, though they were documented through archival photographs.

The integrity of the quay wall (Figure 136) was protected through multiple periods of interventions and repairs through the storms suffered by the port. It is intact in its original place and is still serving its original function. The foundations of the breakwater which sheltered the port from storms is also located beneath this quay wall and has kept its integrity. Dredging operations have not been carried below certain depths due to the risk of collapse of this original foundation.

Figure 136: Old quay wall, backside, photograph taken by the author

The breakwaters that were added in 1953 (Figure 137), *kırmızı mendirek* and *yeşil mendirek* have been preserved with their original form and function. They still serve as the main components of the harbor of the port, allowing for safe port operations. The landfill that was exercised in the site in 1953 remains in the site without any change as well. The original railroads that were laid out that reaches the docks on these landfills have **kept their integrity** and are still being used for transport. The electric cranes from this period, through maintenance, are still being operated in their

original form of machinery. The previous filtering and storage units of the Central Scrubber*, Lavuar Kuleleri* are registered as cultural heritage and are physically present in their original form with complete integrity of their structures. The train ferry dock, its hydraulic ramp, dolphins and railroads are still kept at their original state despite being inactive.

Figure 137: Breakwaters of the port during construction in 1953, *kırmızı mendirek* (left), *yeşil mendirek* (right), retrieved from https://www.facebook.com/photo/?fbid=503380209812743&set=a.421319804685451

Şarjöman Rapid, which was used for transferring coal from wagons to ships through an old version of a singular conveyor belt system (Figure 138), built in 1906 on the stone pier that was constructed in 1896 together with the construction of the port and has remained in the site. The stone masonry **construction technique and the architectural style** of the late 19th century port structures can be observed from the *Şarjöman Rapid* and its pier.

Figure 138: *Şarjöman Rapid* in active use in first period (1896-1953), retrieved from https://www.facebook.com/photo/?fbid=479760518841379&set=a.407295592754539

High quality stone and good workmanship is apparent on the pier, and the stone arch of the *Şarjöman Rapid* is remarkable with steel beam reinforcements inside the arch and a combination of different stones (Figure 139). The quay wall of the northern side of the port shows interventions from different periods. It was constructed together with the port in 1896 as well and **displays the architectural quality and construction technique of its period**. It bears the value of a quay wall that resisted numerous storms through repairs.

Figure 139: The stone workmanship of *Şarjöman Rapid* and its arch's construction technique, photograph taken by the author

There are traces of the ports previous facilities such as the Zonguldak Central Scrubber, built in its second period of the 20th century which acted as a compact whole with it. Unfortunately, the remarkable architectural and technical qualities of the scrubber and its facilities have been lost as they were demolished. However, the previous filtering and storage units of the scrubber, referred commonly to as *Lavuar Kuleleri*, is physically present in the site with **valuable brutalist style architecture and peculiar form**. The lot of the scrubber have been preserved as well, and traces of footprints of the previous buildings can be observed.

The breakwaters of the port remain in good condition after periodic maintenances since 1953. They provide shelter for the ships docking in the port and offer protection from storms. Their **technical value** comes from their structural soundness, functionality and quality of foundations. The two electric-powered cranes of the cargo dock that have been in use since 1956, with 5 and 15 tons respectively, are

testaments to the quality of their workmanship through their durability. They are still functional after 72 years.

The hydraulic ramp and the dolphins of the train ferry dock (Figure 140) in combination with the railroad infrastructure specifically laid out for it is physically present in the port. The technology, layout and machinery of a train ferry dock early 21st century is situated at the end of the cargo dock as an extension. The technical qualities of the hydraulic ramp, its mechanisms and joints, the bracing systems between the dolphins and their concrete foundations that span into the bottom of the sea are all **valuable in terms of workmanship and technical value**.

Figure 140: Train ferry dock (top), hydraulic ramp (bottom), photographs taken by the author

The Industrial Port of Zonguldak is one the only ports with access to railroads in Turkey. Majority of the railroads that were laid out during the different periods of the port are still present in the site and their technical expertise, technology and construction methods can be observed. The railroads from ports second period and fourth period are present while the ones from the first period are missing, due to the port ceasing operations of cargo handling and passenger transfer in the north side. The **evidences of industrial heritage in the port give us insights on its technology and operations** from the 20th century and presents a powerful intangible and concise yet important tangible heritage.

The changes in different transformation process are all visible with the analysis of the port and through its layout. The historical timeline of the port can be observed which follows as; construction of rapid loading dock in the northern side of the port in 1896, addition of landfill and the various docks and the cease of coal loading operations of the northern side of the port after 1953, conversion of pole dock to Ro-Ro dock in 1996, addition of train ferry dock in 2004, the incorporation of a ro-ro truck parking area and the shrinkage of the coal loading dock in 2005, the demolishment of central scrubber in 2006, cease of operations of train ferry dock in 2009, shrinkage of the port area by recreational area and the construction of the mosque in 2021 and the coastal renewal project in 2021.

Physical assets from each era are present in the site as buildings, structures, infrastructure or machinery. Additional documents such as the projects for each stage of the port, as well as its surroundings is available through archival resources. Even for cases of demolished facilities and buildings as is the case for the Zonguldak Central Scrubber, the projects of each unit of the facilities are in the archives of TTK. Old photographs showing the demolished buildings and facilities is available through online archives, or through personal collections of some local in the city. The scrubber was a vital part of how the port operated from 1956 till 2006, hence it is very unfortunate that it was demolished. However, its technology, functional role,

character, architectural and spatial qualities, and its context in the site of the industrial port was documented.

Şarjöman Rapid provides **document value** by being physically present on the site, highlighting the workmanship and construction technique of its era. In addition, its coal handling systems can be observed and studied through archival documents. The quay wall constructed with the port in 1896 is present in good condition in the site. Interventions can be observed but they are not as heavy to conceal the construction technique or to hurt the authenticity of the wall. Together with *Şarjöman Rapid*, it documents the construction technique of a small 19th century industrial port.

The electric-powered cranes (Figure 141) of the cargo dock have been operating since 1956. They document the technology of cranes from the mid-20th century. It is rare to find working versions of these cranes, as they are replaced with new models or with other cranes specialized for different purposes such as gantry cranes for container handling. The railroads that extend into cargo dock and bulk cargo dock coupled with the existing landfill of the docks reflect the infrastructure of mid to late 20th century. The breakwater / moles on north and west, namely *kırmızı mendirek* and *yeşil mendirek,* through their foundation, systems and lighthouses offer **document value** as the components of the harbor of the port.

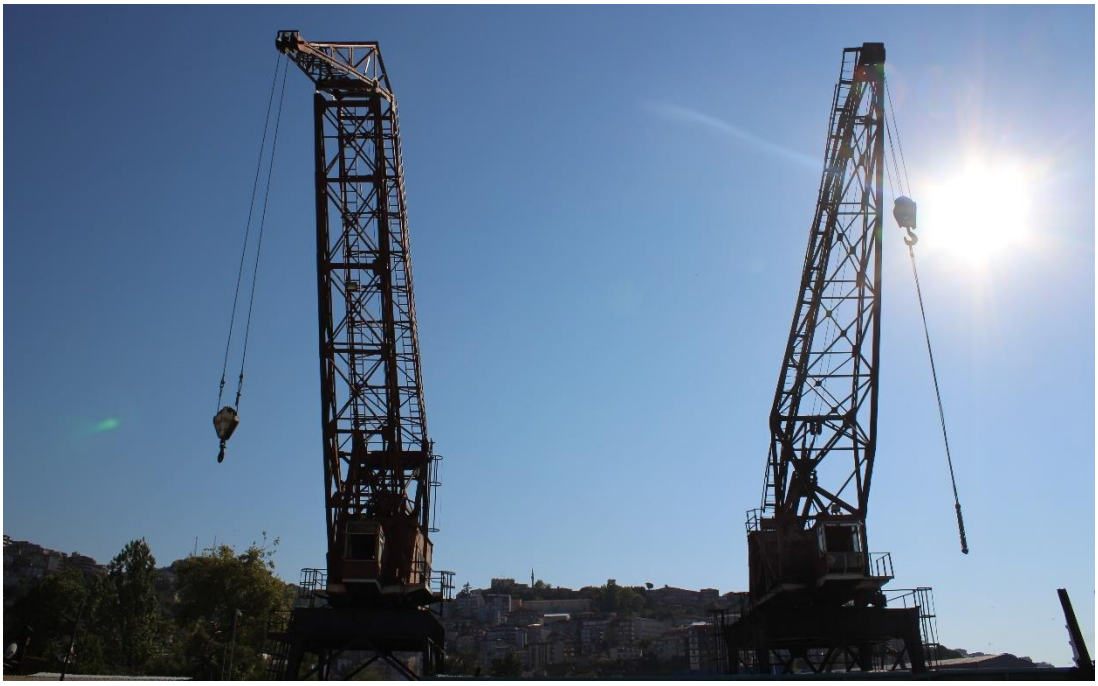


Figure 141: Electric-powered cranes, photograph taken by the author

The infrastructure and machinery of train ferry dock, despite the dock ceasing operations in 2009, is physically present in the site as well. It reflects the technology and a facility of the port from early 21st century. The architecture style and technology of each period of the port can be observed in the current situation of the site. This is substantially valuable and rare.

Ports are formed through the construction of harbors according to the direction of the waves and provide shelter against them. Nature is the base for human construction and the inspiration of works of aesthetic value. The forms and patterns which are found attractive, although can be relative to the person, is dependent on the interpretations drawn from nature. They surface as abstractions of nature through the lens of mankind. The orientation, shape, layout and formation of the breakwaters sheltering the port is a product of conforming to nature, in a way the act of trying to conquering it. It is shaped by nature, while bearing visible marks of human touch through material, construction technique and functions attributed to it. The north and south breakwaters of the Industrial Port of Zonguldak (Figure 142) have a unique

outlook due to its geography. Their angle, width, depth, length and orientation would be different in another part of the world. They shape the ports outline, set its limitations and operation area. They are a sight to behold and hence harbor a significant **aesthetic value**.

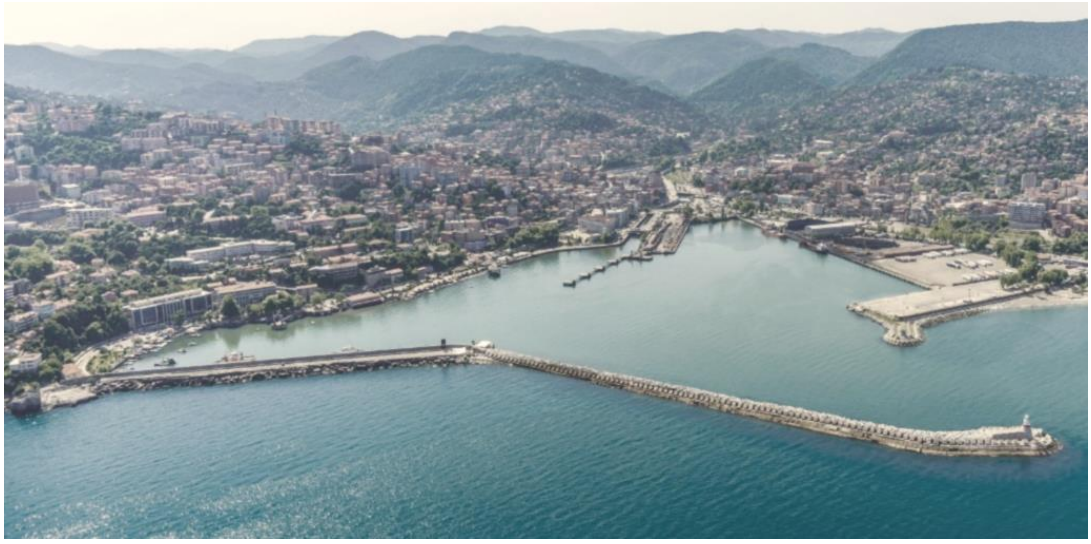


Figure 142: Breakwaters of the Industrial Port of Zonguldak, the city and region in backside, retrieved from https://batikaradeniz.gov.tr/?p=3321

Şarjöman Rapid provides a sense of place to the northern side of the port together with the quay wall. They frame the port and serve the highlight its history. The quay wall acts as a promenade and catches the attention of visitors and locals which are spending their time in the port area. The old stone workmanship, its patina and position in its original location all contribute to an **aesthetic outlook** as the wall separates the inner port area and outer port area together with its breakwater. *Şarjöman Rapid* features good stone workmanship through its pier and arch. The proportions and the quality of material are high, and their age value adds to their aesthetics. Moreover, when looked from inside the arch, a viewer is provided a satisfying view of the port and its components.

The Central Scrubber (Figure 143) was a vital part of the system of the Industrial Port of Zonguldak during its second period and third period, from its facilities opened

in 1956 till its eventual demolishment in 2006. Although majority of the complex has been demolished, 3 silos that used to be connected to the main building remain. They have a unique appearance resembling tall towers with openings that are on different levels and sides. Due to their current condition their aesthetic qualities may be overlooked but they certainly exist. The form of these structures couple with the use of exposed concrete signifies the **industrial aesthetic** of its period and are valuable.

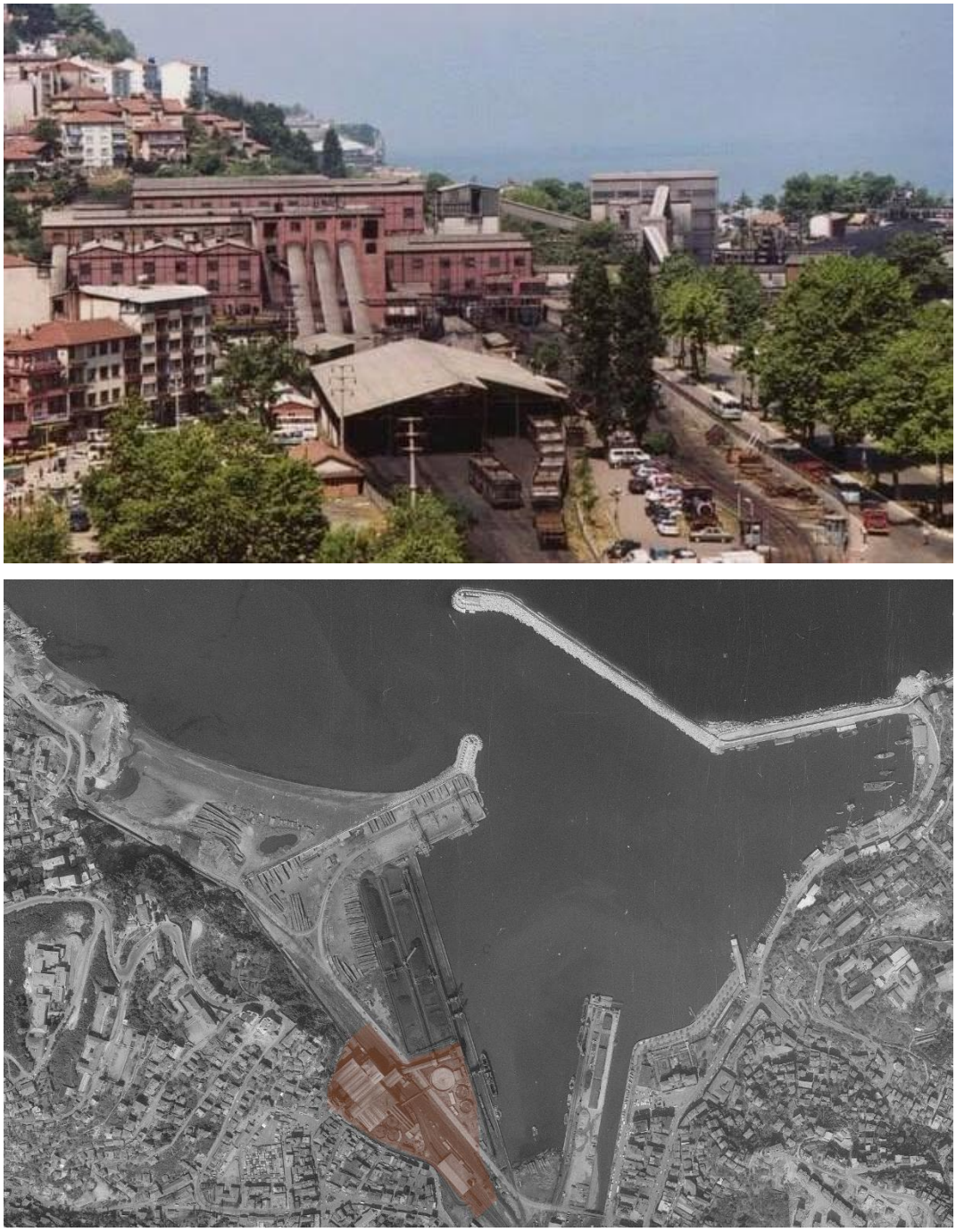


Figure 143: Zonguldak Central Scrubber, 2003, (top) courtesy of Saffet Can, retrieved from https://www.facebook.com/zonguldaknostalji/posts/merkez-lavuar%C4%B1-nostalji-sanayi-kentinin-simgesi-bir-yap%C4%B1yd%C4%B1al%C4%B1nt%C4%B1-saffet-can/1339063106244445/,

location in the context of port, Zonguldak Central Scrubber from 1975 (bottom), original image taken from the General Directorate for Mapping

In terms of the industrial port and its heritage, the only physical component that is being celebrated as a monument is *Şarjöman Rapid*. It is situated at the end of a stone pier and is a stone arch structure reinforced with steel beams inside. It served as the first rapid coal loading system with a conveyor belt mechanism. Railroads would extend to under its arch and wagons would be placed directly underneath. A brace system was mounted on top the stone arch which covered the space in three directions (left, right and top) for an operator to oversee the loading and unloading operations to ensure their coordination. This was replaced with a building in later stages, instead of being a semi-open space. Coal would be loaded directly into wagons from ships.

Currently, only the stone arch and the pier remain (Figure 144). This is the only structure intentionally **heralded as a monument and serves as the symbol of the port**. There is a story board near the monument which explains the brief history of the monument and the port. Although the systems providing much insight to the technology of coal loading of this structure was lost, the parts that remained kept their integrity in a high level. It provides an outstanding scenery from underneath the arch and from the road of the pier leading up to it.

Figure 144: *Şarjöman Rapid*, current situation, photograph taken by the author

The accessible part of the port is not often a spot missed in itineraries of Zonguldak, the city is not very large and the waterfront is an attractive point for many. Hence, it is always visited by tourists who come to the city and the *Şarjöman Rapid* as its most striking structure features in the photo collection of nearly every visitor. This provides as good publicity of the promotion of the city and the port and conveys the message that it is indeed a heritage place, spanning more than a century since its existence.

The electric-powered cranes of the cargo dock (Figure 145) while not celebrated intentionally as monuments like the *Şarjöman Rapid* offer significant **symbolic value**. They occupy an important space in the silhouette of the city and their durability for keeping up operations since the second period of the port is remarkable. The previous filtering and storage units (*Lavuar Kuleleri*) of the Zonguldak Central Scrubber is iconic as well, with their brutalist architecture and constant reminder of the destruction of a physically manifestation of the rich industrial era of the port's second period.

Figure 145: Cargo Dock, photograph taken by the author

The **identity of the port** comes from its background as an industrial port (Figure 146) and its unique series of transformation processes. Every era of transformation process is visible physically on the port's current situation. The stone workmanship of *Şarjöman Rapid* and the quay wall, the brutalist architecture of the *Lavuar Kuleleri* (Towers of Central Scrubber) from its second period, the ro-ro ramps from the third period, the hydraulic ramp and dolphins from its fourth period and all the interventions in the fifth and current period can be observed. The technology utilized in different periods of the port, the transformation of existing dock to new docks, the changing focus of the port's activities and even the relocation of major facilities of the port from the northern side to the south-western side combine to **create an identity**.

Figure 146: Industrial Port of Zonguldak, second period (1953-1996), modified by the author, original image retrieved from https://www.garajantik.com/1970-zonguldak-liman-ve-sehirden-gorunus-kartpostal-renkli-ofset-baski.html

This identity makes the Industrial Port of Zonguldak unique. The port is a rare case of an industrial port located in the heart of the city center (Figure 147) which is in active use despite sufficient container handling operations. The appearance of the city of Zonguldak on maps and its development is simultaneous with the construction of the port. The city expanded and developed rapidly, only when the port was receiving modernization, new facilities and dedicated support. Through the decline of the port, the city also declined. As much as Zonguldak is known for and is presented solely as a mining city, the identity of it as a port-city is as significant. There is a 128 years rich history of the port dating back to 1896 and five different periods of transformation processes which highlight this.

Figure 147: Location and entrance of the port in the city center, photographs taken by the author

The port has undergone four different periods of transformations and is in its fifth period currently. Each period has substantial developments that changed the port in a major way. The inhabitants have **memories** of going to *Liman Caddesi* to play when they were children. People carrying heavy loads in their backs to the port, walking on the railway tracks spanning the north side of the wall. The construction of the quay wall (Figure 148), the stone pier and the concrete pillar. The construction of *Şarjöman Rapid*, the cranes continuously loading the ships, the boats waiting at the concrete pier. The hardships of multiple storms hitting the port, especially the

devastating 1931 storm and to see that the port continues on, unyielding, just like the people of Zonguldak. The port embraces its people and the people embraces it. The industrial facilities of Zonguldak carry important places in the locals and the industrial port is no exception. Watching the central scrubber and its activities through their windows, tracking the coal run through the conveyor belts into mobile cranes to be loaded into ships. Their days passing by waiting for their parents to come home from the Central Scrubber, the collieries and from the port.

Figure 148: Quay Wall and the extension of *Kırmızı Mendirek*, photograph taken by the author

The people express their **memories**, cherished moments that they have of observing the port change through its lifecycle as they got older. Some of these expressions can be accessed online, through reading the post and comments of the locals in *Zonguldak Nostalji,* a website embedded in Facebook. It has an archive of old photographs, maps and archival documents of the industrial facilities of Zonguldak, especially for the port from its different periods. It is an extensive archive, available for public use, free of charge. The willingness of locals in wanting the preserve these areas, and their expressions of sadness and disappointment in developments such as

the demolishment of Zonguldak Central Scrubber and the removal of the *Şarjöman Rapid'*s cargo handling systems shows a deep connection towards the industrial heritage of the port and the area.

The structures and facilities of the port are in good condition, but they also show signs of aging. The wear and tear of cargo handling operations on the port's landfill, the rust on the railroads extending inside the port, the sight of old wagons from the 20th century (Figure 149) being loaded in the port by the electric cranes from the ports second period, the locomotives carrying wagons from the port to the train station, the stagnation of the *Lavuar Kuleleri* as they provide us the memory of the demolished Central Scrubber, the aged stone and brick combination on the northern breakwater, emerging cracks, patina on the *Şarjöman Rapid* on its more than a century old stone masonry, serve to convey emotions regarding the site's age and past. The site is not ancient, but is still old enough to **evoke a previous era's memories in people**.

Figure 149: Wagons from Bulk Cargo Dock, photograph taken by the author

The port is located in the middle of an imaginary line splitting the central district into two (Figure 150). It is also at the intersection of the busiest junction in the city. The

sceneries from residential building all over the city look over the port. It is the focal point of the city and attracts attention. For this reason, it has to be constantly maintained to a certain degree, to provide a good image for the city. This ensures that a certain amount of care will be dedicated to the port and the area surrounding it.

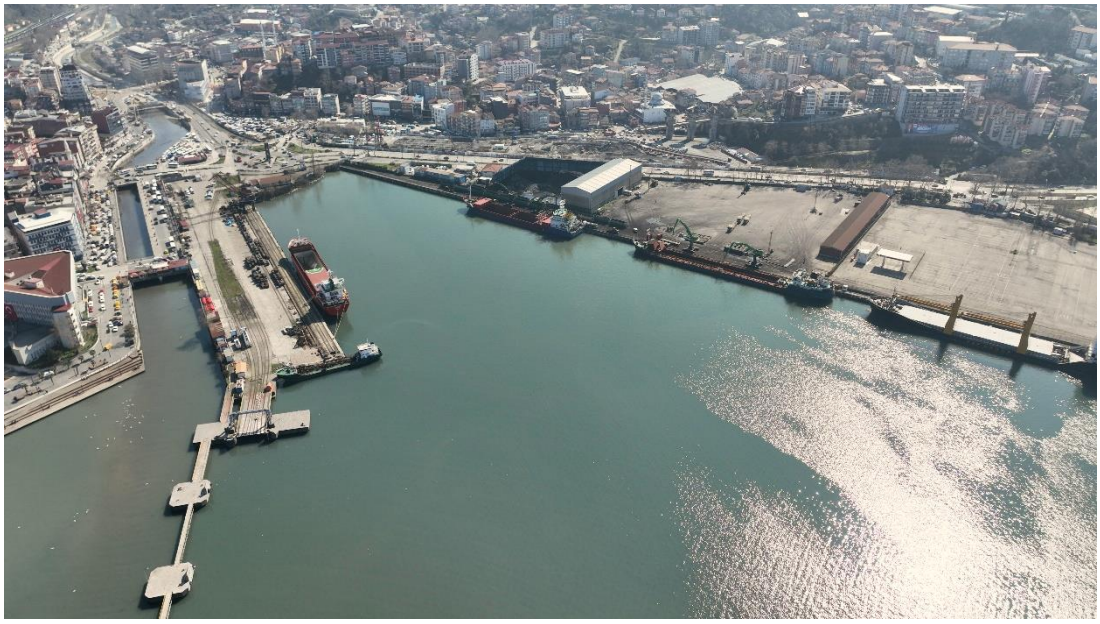


Figure 150: Industrial Port of Zonguldak, aerial view, modified by the author, original image by courtesy of TTK

The most **prestigious** neighborhood of Zonguldak is *Fener Mahallesi* (Figure 151) the only registered 3rd degree urban and natural heritage site in the city. It is in close proximity to the port and its vista points overlook the port. There is a direct entrance from the northern side of the port through a tunnel, Varagel Tunnel, that reaches up to this neighborhood directly. Even its name, '*Fener*' translates to lighthouse in Turkish, which shows a connection between the port and the neighborhood.

Figure 151: *Fener Mahallesi* retrieved from https://batikaradeniz.gov.tr/?p=3062

Multiple important state buildings such as the Courthouse and the Governorship Building are just behind *Liman Caddesi*, which is the street that runs adjacent to the coastline of the port. *Şarjöman Rapid* is situated at the coastline and is accessible through this street and it serves as the most prominent monument of the port. It receives continuous maintenance to appear in good condition. The northern side of the port has undergone a waterfront renewal project which was finished in 2021. While the project, its aims, effects and the impact on the port is controversial, it served to make the area more prestigious by making possible the removal of fisherman huts that were clogging the coastline.

The Industrial Port of Zonguldak is **in active use** (Figure 152). It has not ceased its operations, and it is not planned for it to do so. There is not another port which has been constructed with the aim of gradually taking over the maritime activities of the port. There are other ports in the vicinity, but they serve different aims and are not replacements for this port. It still takes an active role in the industry of the country, through several different transportation activities. The bulk cargo dock and cargo dock are operating continuously. Through the bulk cargo dock, the locally produced

coal and the imported coal from Russia, are transported to the steel / iron factories to be used as fuel in the port's hinterland such as KARDEMIR. They are loaded into wagons from ships and are transported through railroads. The cargo dock handles various goods such as aluminum sheets and rolled tin. The unloading of cargo is directly into wagons and the transport is through railroads.

Figure 152: Industrial Port of Zonguldak, Bulk Cargo Dock in active use, taken by the author

The port's most important dock in terms of economic significance and trade activity is the ro-ro dock. The port used to be the leading port of the country in terms of ro-ro transportation and never fell out of top 10 ports of the country which were active in ro-ro trade activities before the Russian-Ukrainian War broke out. This abruptly stopped the port's ro-ro trade routes to the ports of Ukraine and Russia. These were connections, back and forth trade routes with multiple prominent ports in the Black Sea, which included Odesa, Chornomorsk, Ilıychevsk and Evpatoria.

The port is directly open to trade in the Black Sea (Figure 153). It is currently facing problems of low draft and lack of sufficient container handling facilities, but these

problems can be solved with an investment in infrastructure and new docks with modernized facilities which can be built adjacent to the southwest side of the port as an extension. However, establishing a new port is subject to strict regulations and complex legal situations and is substantially more expensive than expanding an existing port. Hence, **that the port is in active use is truly valuable**. Moreover, the port is not in deep territory of a river, nor is it flanked by settlements from both sides. The southwest coast of the port is open and suitable for an extension.

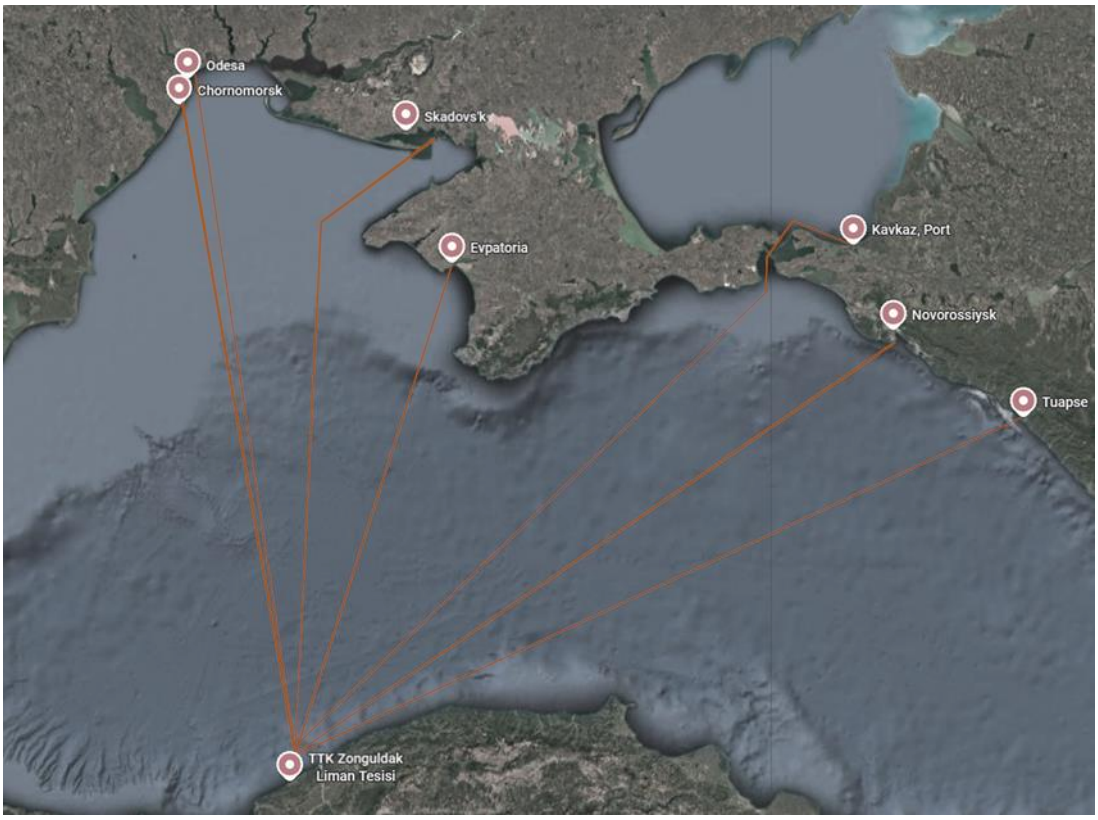


Figure 153: Location of Industrial Port of Zonguldak in the Black Sea and connections with Russian Ukrainian Ports, produced by the author, base image from Google Earth Pro

The Industrial Port of Zonguldak does not need relocation as it is **a port in active use**. This is very valuable, as numerous ports undergo waterfront revitalization instead due to physical limitations of their sites and their geography. The bulk cargo

dock still serves as the coal provider steel-iron factories in its hinterland, most notably KARDEMIR, the oldest steel-iron factory which is still active and contributes greatly to the country's economy. The cargo dock is also operating at its full capacity, used for the handling of mostly rolled metal such as rolled tin and aluminum.

The hinterland of the port extends till the inner parts of Anatolia such as Ankara, and has access to diverse land transportation routes through railroads and highways. Zonguldak has access to two of the most major cities in Turkey, Ankara and Istanbul through railroads. The connection to Istanbul has been important since the Ottoman Period while to Ankara was since the Republican Period, especially after the privatization of steel/ iron industry and the foundation of KARDEMIR Steel and Iron Factory.

The Industrial Port of Zonguldak dates back as far as the mid-19th century (Figure 154). It is not a historic port dating back to 13th or 15th century. Hence, it does not bear any burdens of the test of time, **its structures and facilities are relatively new albeit valuable**. There is no apparent serious decay in any of the structures in the port. The industrial port was an important component of the economy of its city and it has gone through alterations throughout its lifecycle. The port has not ceased functions in any period throughout its opening. Through these alterations and the continuous use of the port, its condition has been maintained to a certain extent. Criticisms concerning the technology of the port in comparison with modern standards are valid but they do not take away the fact that the port operates as medium sized port in considerable capacity.

Figure 154: Industrial Port of Zonguldak, first period (1896-1953), retrieved from https://www.facebook.com/photo/?fbid=389477571203008&set=a.384019231748842

The Industrial Port of Zonguldak is owned by the state treasury. This is due to the law on coastlines. Before 2009, it used to belong to TTK (Turkish Hard Coal Institution) and is being managed by the same institution even though it is not directly owned by them. **It is a coveted area for the state and private investors**. It is capable of expanding as a port due to being a seaport[197]. It is in direct contact with the Black Sea and has good trade routes with the ports of Black Sea, especially Ukraine, Russia and Bulgaria. The possible return in value of investment is high if a joint-stock effort was established to modernize the facilities and to expand the port or in the case of sociocultural projects on the northern side of the port.

The port is located in the city center and occupies a large area of the coastline (Figure 155). *Liman Caddesi* is adjacent to the port area and is one of the two oldest and most iconic streets of Zonguldak together with *Gazipaşa Mahalles*i. The latter is the parallel to the *Liman Caddesi* and is the busiest street of the city. There are several state-owned buildings between these two streets such as The Center for Culture and

[197] A port located in direct contact with the sea

Arts of Zonguldak Municipality, the Governorship and the Courthouse. Fener Mahallesi, the only registered conservation site in the city and the most prestigious neighborhood, is in close proximity to the port.

Figure 155: Industrial Port of Zonguldak, aerial photograph of current situation, taken from the General Directorate for Mapping

The port is in the setting of a city that was coveted by foreign investors during the Ottoman era, which transformed into a former industrial hub as nearly the sole provider of coal during industrialization to the Republic of Turkey. Although the volume of coal production and export has fallen off, the port has diversified its activities and docks to remain significant as an active port. It is connected to its hinterland through a strong connection of railroads in addition to improved vehicle transportation routes throughout the years. There is a rich history of industry which dates back two centuries. The surroundings of the port are still in its character of an industrial city and an industrial network. The port is at the junction of this the

crossroads of these industrial production and transportation networks. This significantly **raises its value of land**.

Different values are expressed through individual components of the port such as age, architectural and technical, document, memory, identity and symbolic values. While identifying the values the components of the port, it is also vital to recognize the value that is brought by the entity, the industrial port itself as a whole, made possible through the coexistence of its components. In its current state, the port is comprised of elements that are functional and non-functional. It has elements which have changed and those who have stayed the same throughout its transformation processes. The port's area of active use and its functions have changed and affected the structures and the layout. That the port is able to still function as a customs area, in addition to preserving some of its elements with minimal change or no change at all, while entirely changing its other sections is a rare case. The port is made up of functional components been in use from their construction till now, adapted components and components in stagnation. The functional components bringing the port value are; the quay wall, the breakwaters and their lighthouses, the electric-powered cranes, the landfill of the docks and the railroads passing through them. The adapted components are*; Şarjöman Rapid* and the entire northern coastline barring the section of the quay wall. The stagnant components are *Lavuar Kuleleri* and the train ferry dock. These three types of components bring up a peculiar and valuable entity through their side-by-side coexistence. The character of the port is shaped through this coexistence and separates itself from other industrial ports in ascertaining its significance. *Lavuar Kuleleri*, a registered cultural heritage (Figure 156) in the empty lot of the previous Zonguldak Central Scrubber, *Şarjöman Rapid*, a registered cultural heritage (Figure 156) which is the symbol of the port through its sheer presence and integrity of its authentic structure witnessing more than a century of the port's transformation processes, the sight of wagons going in and out of the port, the railroads still crossing the center of the city into the port's docks still carrying cargo, the ever changing and adapting use of the southwestern side of the

port and the complete transformation of the northern side of the port while keeping the quay wall as it is, all these aspects manage to work together and bring out a unique whole through their **group value**.

Figure 156: Registered Cultural Heritage Map, produced by the author, base image from General Directorate for mapping, base drawing from Zonguldak Municipality

The Industrial Port of Zonguldak has affected the **social life** of Zonguldak greatly since its construction in 1896. There would be no city of Zonguldak without it and the socio-cultural landscape of the region would be much different. It is the oldest

port in the area, and it paved the way for the urbanization of the region. The policies in the Ottoman era were to strike a balance of miner-villager occupation status for the people to prevent urbanization that was expected to reduce the efficiency of the coal mining activities. The port's existence, however, changed this. The cultural exchange through internal trade brought new ideas, norms, notions and cultures into Zonguldak which broadened people's minds and opened new frameworks of thought. Through the development of the port, backed by the industrial production and mining, the conditions of the region improved and Zonguldak started to emerge as an industrial city. A different type of population formed through varied professions such as miners, villagers, port workers and engineers. The first lodgings and buildings were constructed around the port and mining areas for the employees of the port and the first collieries, including the area of transition between them. The **social** life of Zonguldak was established through industrialization, via its port and mining facilities.

Zonguldak was announced as the first *vilayet* (administrative region, city) in the Republic of Turkey, which speaks volumes for its early development. Through the Republican Period, the socio-cultural facilities, housings for the public, parks and several other components of a modern city was established. The major avenue of the city (*Gazipasa Mahallesi*) built in the Ottoman Period started to house an active social life which was parallel to *Liman Caddesi* that was adjacent to the port. In the later periods, the public buildings such as the governorship and the courthouse, and important cultural facilities such as the cities first cinema (it was transformed into a public cultural center in the current situation) were mostly built along this avenue. *Liman Caddesi,* which was used solely for the port activities in the Ottoman Period transformed into a public space in the Republican Period through green areas and public walking routes for people to socialize.

The port personnel, the workers which were mostly called from countries such as Montenegro and Serbia in the Ottoman Period, and the engineers from France in the construction of the port and the Netherlands in the second period of the port were

replaced with local employment throughout the years. Currently, the navigators and port personnel are mostly comprised of natives of Zonguldak that live either in the central district or nearby districts. The engineers are from different provinces all around Turkey, but they mostly live in the central district. Especially from the Republican period onwards, the port has become an entity fueled by local production and local workforce to drive local development. This improved work opportunities and the life standards of the city. Through the construction of Zonguldak Central Scrubber and the second modernization of the port, many job opportunities were made available to the public. The memories of this scrubber which was in the port area in its active use holds a special place in many of the Zonguldak's locals. It represents the age of industrialization for Zonguldak and the port's busiest period.

The changing imagery extending from the port's five transformation processes are engraved into the public's memories. The port, being in the center of the city, dividing it into two through itself as an axis, is as old as the formation of the city and its public life. However, it is perceived in alternative ways by different age groups and socio-economic groups. The locals who have worked in the port and / or facilities connected to the port in addition to those who have spent their childhoods around the port area or in the city center have positive memories regarding the port and they hold it in high regard, especially those who are old enough to have witnessed its transformation processes. The locals or people who have migrated into the city seem more on the edge when it comes to the port as they see its current situation as a port functioning in limited capacity and use which blocks their access to coastline public areas, reinforced by the recent waterfront renewal projects that have shrunk the port area. I would argue that this results from a lack of awareness of the port's history and narratives and its role on the development of the city. Hence, it is critical to recognize the port's **social value** in shaping the daily lives of the local community and the development of the city as a main factor in impacting how the city of Zonguldak functions and the life people lead there. The close relationships of the city, the mining

facilities and the port are what has truly shaped Zonguldak and should be regarded as a whole when trying to understand and assess the city.

4.2. Significance of Industrial Port of Zonguldak

The Industrial Port of Zonguldak is a heritage place signified by its multitude of age and historical, authenticity, architectural and technical, document, aesthetic, symbolic, identity, memory, prestige, functional and real estate values. The port, through its values, character, history, location and transformation processes, is unique. It simultaneously grew with its city and reached the current situation as an active port and as a bearer of its cultural heritage.

Through investigating the port's history, surveying the site, receiving the opinions of experts and locals and combining this knowledge with the identity and history of the city, it is unthinkable to separate them. Zonguldak is a port-city in character as much as it is a mining city and the lesser pronounced but critical significance of the character of the port-city of Zonguldak can only be pronounced by understanding the significance of the port. Hence, the port has been studied extensively. The five transformation periods of the port were unearthed and compiled to better understand it as an entity. Every single component, that had a functioning role in the port whether it is a building, a structure, machinery, equipment or part of an infrastructure was examined in detail. This examination brought out the values of the port that were hidden and also reinforced the ones that were visible.

The Port of Zonguldak, emerged as an industrial port and is still exercising this character. It is the underappreciated backbone of the city that has supported it through 128 years, since its construction in 1896. It is vital not just for those who are concerned with the future of Zonguldak to understand the value and the history of this port, but for all who are in the aim of conservation of world heritage. The Industrial Port of Zonguldak is a rare combination of an industrial port in active use with authentic structures from its different periods. It is invaluable to its context but

it is also invaluable in itself. It has a rich history and a combination of elements of particular importance such as *Şarjöman Rapid, Lavuar Kuleleri,* its railroads, electric-powered cranes, breakwaters, quay wall and the formation of the inner port area. It carries immense potential, as it in a living heritage place that also preserved the integrity of its character to a certain degree. The demolishment of the Zonguldak Central Scrubber which was vital for the port's functions for 50 years was a substantial damage to this integrity. It is necessary to recognize and to understand the significance of The Industrial Port of Zonguldak as a heritage place to prevent further damages to its integrity and identity and to carry its values to the next generations (Figure 157).

Figure 157: Values Map of Industrial Port of Zonguldak, produced by the author, base image from General Directorate for mapping, base drawing from Zonguldak Municipality

CHAPTER 5

CONCLUSION

Ports emerged to realize activities of trade and transport through the collaboration of people inhabiting settlements built on land adjacent to bodies of water. They settled near water to utilize its natural resources. With the establishment of ports, not just the natural resources of water, but resources of all kinds started to be utilized and the settlements with ports started to develop rapidly. This led to the advent of port-cities which is a spatial location having the functions of both port and city.[198] The port city served the area of transition, where the port and urban jurisdiction interacted and their relations intertwined.[199] This signified that the port and city was inseparable and that a specific culture was forming. The trade activities with overseas brought an exchange of cultures, knowledge and an enrichment of vision for these cities. Their economies stayed relevant throughout the port activities and their cities developed in parallel with their ports. Throughout history, sovereignty was granted to numerous port cities such as Lisbon, Gdansk and Hamburg due to their strong economy and overseas relations as they were the gatekeepers to international trade before the industrial revolution. These were the first phase of port cities[200] and the first generation of ports[201].

The advent of the industrial revolution changed the state of the ports greatly. They were no longer the gatekeepers to international trade. The arrival of steam-powered vehicles and railroads provided an alternative way of transport and trade to ports. However, ports simultaneously underwent changes through the invention of steam-

[198] (Hayuth 1982)
[199] (Hoyle, The Port-City Interface: Trends, Problems and Examples 1989)
[200] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)
[201] (UNCTAD 1992)

ships, steam-powered cranes and machinery which could handle cargo much faster than manual methods which were utilized in conventional ports. Industrial ports emerged on the second half of 19th century.[202] Wooden ships disappeared from the vicinity of ports and were replaced with steam-powered iron ships with much bigger sizes.[203] They also incorporated railroads into their system and achieved multimodal transportation, offering a connection between land and sea, a continuous way of transportation. Additionally, ports incorporated industrial production facilities into their territories to eliminate additional transport between production and transportation. The hinterland of the ports grew significantly, which covered entire industrial regions. A network between industrial districts, production facilities, railroads and industrial ports was established. Industrial ports were the second phase of port cities[204] and the second generation of ports[205].

The prime of industrial ports lasted until the 1980s. The concept of containerization was invented by Malcom Mclean and the first shipping container was patented in the year 1956. The first container ship, Fairland, docked in Bremen in 1966.[206] Containerized cargo and its shipment was substantially more profitable compared to the trade of raw materials or industrial produce. All kinds of good, especially electronics, equipment of various sectors and refined materials could be shipped in these containers without ever being opened. Transportation of much larger amounts cargo also became available through the new container ships. This signified the arrival of the next generation of ports. Deeper drafts, extensive infrastructure, more developed machinery such as gantry cranes, larger areas of landfill and the automation of port services emerged as the new requirements of the new generation of ports. The industrial ports, due to the globalization policies in economy, privatization of state

[202] (Andrade and Costa, Touristification of European Port-Cities: Impacts on Local Populations and Cultural Heritage 2020)
[203] (Schubert 2008)
[204] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)
[205] (UNCTAD 1992)
[206] (Schubert 2008)

institutions which owned most of the prominent industrial ports operating around the world, and the exhausting of raw materials through extensive industrial production were starting to show signs of struggle and entered a true state of decline through the advent of containerization.

The industrial ports took, in most cases, two courses of action against these developments. They either underwent waterfront regeneration projects or continued operations through adaptation to new technologies. The ports that have successfully adapted to new technologies are the third generation of ports.[207] The industrial ports which had sufficient spaces around their surroundings expanded their facilities, increased their landfill and incorporated container terminals and ro-ro terminals to their existing port facilities. Ro-ro (roll on-roll off) terminals emerged to enable ro-ro ships, which carried trucks loaded with goods that could freely circulate from the port to their destination. This combined sea and land transport through bypassing long land transportation routes. Although the concept of ro-ro was not as revolutionary as container shipment, they were also integral parts of the third-generation ports. These ports skip the third and later phases of Hoyle's port city model[208] as they are not relocated and continue their active uses as ports. Port of Odesa and Port of Varna are examined to provide examples for this generation of ports.

The industrial ports that lacked the sufficient surroundings to expand or the infrastructure to support dredging operations to deepen their drafts became redundant and their port activities ceased. These ports were mostly in the banks of rivers, in city centers that were in a drought of urban land. The ports in this situation, through their values being deemed significant by the decision makers and local authorities underwent waterfront regenerations projects. These projects emerged in the United States in the 1960s in places such as Baltimore and Boston and were followed by many examples from Europe such as Hamburg HafenCity, Port of Bilbao and London

[207] (UNCTAD 1992)
[208] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)

Docklands. The port is relocated downstream or to the outer periphery in these cases to meet the demands of new technologies and port operations and the original port in the city center is transformed to house a multitude of different functions while losing its port functions. An active effort of conservation takes place, to preserve the values of the port and its components. Buildings and structures of importance as cultural heritage are protected and are re-purposed. The machinery that carries symbolic and memory value are turned into monuments. The port turns into a spot of attraction for tourists and a place of leisure for the locals, owing its success greatly to the spirit of the place unique to itself. The Port of Bilbao is examined to serve as an example for the case of ports that undergo this form of transformation.

The development of industrial port cities depends on the equilibrium between geographical characteristics and advancements in technology together with relation of maritime perspectives and urban planning concepts.[209] While true to an extent, this definition skips the significance of ports as heritage places. Multidimensional values of a port, as a port-city through its relation with its city, the memories and emotions it evokes, its architectural and technical qualities, its history and transformation processes, the era it represents and the impact it has on its surroundings ought not to be dismissed. Industrial ports are transformed even when they lose their functions because they are valuable. Their values move others to act in their conservation as heritage places. Hence, it is crucial to developed shared values in industrial ports to respond to the different perspectives and priorities of all the different stakeholders, decision makers and the local community.[210] The significance of industrial ports brings together numerous actors with different priorities to work together in achieving the goal of safeguarding them as heritage places which allows all parties to benefit from different angles. The success of conservation efforts direct towards industrial

[209] (Hoyle, The Port-City Interface: Trends, Problems and Examples 1989)
[210] (Hein, Hamburg"s Port Cityscape Large-scale urban transformation and the exchange of planning ideas 2011)

ports result in the protection of the identity and character of port-cities while serving to ensure the development of both the city and the port.

The text above aims to provides a summary of the research covering the framework of ports and port-cities, their classification, development, transformation processes and phases throughout history which was followed by narrowing the framework down to focus on the transformation of industrial ports and industrial ports as heritage places.

There are cases of industrial ports which do not fit into both of these situations entirely. Some have ceased functions and are still vacant or have received waterfront regeneration projects but failed to succeed, while others have continued their active use but are lacking in development and have entered a slow but steady decline. The Industrial Port of Zonguldak is such a case, with a rich history covering more than a century since its construction in 1896.

The Industrial Port of Zonguldak is located at the central district of Zonguldak, in the Western Black Sea Region of Turkey. The port has direct access to the Black Sea and is at the end of Acılık and Üzülmez streams. It is a medium sized[211] industrial[212] seaport[213]. It fits into the second phase of port-city in Hoyle's port city model[214] and is in between the second and third generations of ports according to UNCTAD's generation of ports[215].

The general characteristics of the city of Zonguldak and its historical timeline from the founding of coal in the early 19th century following its development as a city till the current situation was examined to provide the context surrounding the port. After understanding its place in the historical context, the analysis of the current situation

[211] (Roa, et al. 2013)
[212] (Sheikholeslami and Langeroodi 2024)
[213] (Roa, et al. 2013)
[214] (Hoyle, Global and Local Change on the Port-City Waterfront 2000)
[215] (UNCTAD 1992)

of the port was provided before its historical development and transformation processes aiming to provide a clearer picture for ease of understanding.

In its current situation, the southwestern side of the port is customs area and functions through its 3 docks, cargo dock, bulk cargo dock and ro-ro dock. Ro-ro dock had ceased operations since 2022 due to Russian-Ukrainian War but has started operating again recently. The train ferry dock is physical on the site but has been redundant since 2009. The northern side of the port is available to public barring the frontside of the quay wall which is used for ship services by TTK and by the coastal guard. *Şarjöman Rapid* is preserved as a monument of the port in this side. The port has declined through the demolishment of the central scrubber, the cease of operations of the train ferry dock and the redundancy of the ro-ro dock due to the war. The port is not able to handle deep enough draft due to its limited structural capacity of its breakwaters built in 1953 and also suffers due to the constant dredging operations caused by the dirt rushing from the streams to the inner port.

The historical development of the port was divided into five periods according to major changes it went through its transformation processes. The first period (1896-1953) covers its construction in 1896, during the Ottoman Empire, as a coal loading dock in the northern side of the coastline. The old quay wall and *Şarjöman Rapid* was constructed during this period, both are physically present on current situation. The second period (1953-1996) covers its transformation to a medium sized industrial port providing coal to nearly the entirety of the Republic of Turkey through the construction of new port facilities and docks on landfill on the southwestern side of the port coupled with the construction of Zonguldak Central Scrubber. The third period (1996-2004) covers the establishment of ro-ro dock and its activities. The fourth period (2004-2019) covers the extension of the train ferry dock in 2004 and its cease of operations in 2009 in addition to demolishment of the facilities of the central scrubber in 2006 and 2012. The fifth and final period (2019-2024) covers the waterfront renewal projects which shrunk the port's usage and customs area and

signifies the decline of the industrial port and its activities which were starting to show especially since the fourth period.

The port had its peak during its first and second periods but started to decline especially after the 1980s due to factors such as globalization, containerization, downsizing in public institutions. The decision to transform the pole dock constructed in 1953 to a ro-ro dock in 1996 was a decision that allowed the port to stay relevant even while the local coal industry was struggling to keep up with low prices of private collieries and cheap exported coal. However, it is apparent that for the continuation of the port, an expansion with sufficient draft to support container handling facilities is necessary. Fortunately, the port is in a suitable geographic condition to allow for such an expansion adjacent to its current location through construction of new breakwaters. Improvements can also be made to existing docks and facilities currently on the port.

The investigation of the transformation processes of the port and delving deeper into its history coupled with experiencing the port first-hand in the site has unearthed its values. It is rare example of an industrial port that has kept its function while keeping components from each of its different transformation periods physically on the site. The port has a unique history and context and is significantly valuable in terms of industrial port heritage in the world and for the development of the city of Zonguldak. Numerous studies have been made on Zonguldak on industrial heritage, but none have focused specifically on the legacy and heritage of its port. The mining heritage and the character of Zonguldak as a mining city is pronounced, but its heritage as an industrial port city is not recognized. Hence, the Industrial Port City of Zonguldak and its significance as a heritage place was assessed in this study. The value definitions of Özçakır were used to identify the different values of the port.[216] The age and historical, authenticity, architectural and technical, document, aesthetic, symbolic, identity, memory, prestige, functional and real estate values of the port was studied. A

[216] (Özçakır 2018)

comprehensive assessment was provided at the end of the value assessment highlighting the significance of the port as a heritage place.

To provide a starting point for future conservation efforts and for the continuation of the port through retaining its values, there are a set of principles that would need to be followed. The baseline governing these principles should be to preserve the heritage values of the port which are no longer part of port activities in parallel with elevating the active part of the port to modern standards as a competitive port in the Black Sea through improving, expanding and adapting it. The duality of a competitive port and a heritage site must be achieved to ensure the port's status as a heritage site as an active industrial port, characterized by the rare coexistence of evidence from all of its transformation processes.

The parts that have ceased their port activities, but are still suitable for maritime purposes should be re-integrated into functionality and restart their activities, whether in their previous activities or with different ones. The recreational areas which were attained by shrinking the port area should be reconsidered. Their current state and functions should be adapted to either functions that would contribute to raising awareness in terms of the industrial port heritage of the city or they should return back to their previous state as active port areas. Currently, these areas have no connection with the port despite being physically adjacent to it. Especially the recreational area adjacent to the customs area of the Ro-Ro Dock should be reconsidered. That area is critical, for it would serve as the portion of the coastline which would be the most suitable point of expansion for the port. This expansion would be to host the construction of a dedicated container terminal as well as other installation of infrastructure and terminals which are necessary for active ports in the current situation. This is a must for the port as it cannot maintain its relevance without the construction of a dedicated container terminal. The buildings that are in that area should be adapted to different uses which would either encourage public engagement with industrial and port heritage or into port specific uses such as a passenger terminal building, a shipyard atelier, office for the port personnel or administrative uses for port

authority. These remarks hold true to a certain extent for the northern part of the port as well, which has lost its port activities and has been reduced to only cafes and restaurants. This area should be reconfigured to host various port activities again as in the first and second periods of the port or diversify its functions to create more connections with the port and its heritage.

Passenger transfer should be reinstated into the port's activities. The platforms in front of the quay wall for the port's previous passenger terminal and / or the recreational area adjacent to the customs area in the southwestern side of the port could serve as suitable areas for this function. These areas are accessible by the public and can stay that way while also contributing through port activities with their transformation into passenger transfer areas. Travelling to and from important destinations in the Black Sea domestically as well as internationally would be possible through this implementation. The port and the city would draw greater attraction and recognition. The social activity would increase and diversify in the city through circulation and contributions to the economy would be enabled through the diversification of port activities. The Acılık / Üzülmez stream that makes its way into the port could be considered as an additional alternative route for passenger transfer as well that would allow for passenger transfer within the city as an alternative way of transportation or as an attraction for visitors.

The redundant registered cultural heritage should receive functions which would either contribute to the port or serve to respond to the needs of the city through strengthening the bonds between port and the city. The previous filtering and storage units of the demolished Zonguldak Central Scrubber, *Lavuar Kuleleri,* registered cultural heritage structures, has been redundant since 2006 in spite of the efforts made to transform the area and the structures such as the *Kent Düşleri Zonguldak Merkez Lavuar Alanı Değerlendirme Projesi,* a National Architectural Project Competition for the redundant area of the demolished central scrubber in 2008. The winning project was never realized and no additional efforts for made to make the area or structures functional until the current situation. Currently, the area is used at times for truck

parking for Ro-Ro trucks and some car parking activities, but serves no other function. Considering that this area was once an active, an integral part of the port, especially during the second and third transformation periods, its state leading from 2006 till the current situation is a great waste of potential and values. These structures as valuable, registered heritage should be adapted so that they would reflect the loss and legacy of the port's central scrubber area. An alternative use could be for them to serve as memorials to the port's lost heritage due to negligence and remind us of the importance of realizing heritage values and the importance of taking action regarding the port's valuable components and its integrity as a whole.

The area of the central scrubber which host the *Lavuar Kuleleri* is separated from the port activities as it lost the structures and facilities which established a meaningful physical and functional relationship with the port area. In its current state, the area can be transformed to strengthen the connection between the port and the public, through socio-cultural facilities. The construction of a museum of the Industrial Port of Zonguldak, providing its entire history and transformation processes with interactive exhibitions, free study areas and a public library dedicated on port heritage, industrial heritage with particular focus on Zonguldaki, its identity as an industrial port and mining city would be one of the alternatives that could be envisioned for this area.

Şarjöman Rapid, a registered cultural heritage structure, currently acts as the symbol of the port, situated in the norther side of the port and is publicly available. However, there needs to be more emphasis on the history, industrial character and transformation processes of the port, which is not sufficient with the small storyboard near the *Şarjöman* on the site. More constructive efforts such as an information center, more graphics and details explaining the port's heritage, routes to experience the port from different angles and interactive activities to raise awareness towards the port's values should be planned together with this registered heritage structure that is frequently visited by the public and is the focal point of the current port's accessible area.

The Industrial Port of Zonguldak should be registered as a conservation site. This would allow for the port's group value to be recognized which in turn would result in the recognition of the port's value as an industrial heritage site. The port's values as a whole have not been recognized yet although there are 2 registered cultural heritage structures in the port area. This has caused the demolishment of central scrubber in 2006, facilities and buildings which were vital to the industrial port heritage. Through the registration of the port as a conservation site, the approach towards the port area and its surroundings would change and the repetition of such a demolishment would be prevented. The port would much be included much more likely in larger scale projects that could allow for better connections with the city, impact on daily life and the possibility for better funds needed to implement the decisions necessary for the retainment of the port's values as a heritage place. The loss of the integrity of the port as a whole will be minimized through recognizing and protecting its values.

The port is part of an active network which far surpasses its own boundaries. This network includes the mining facilities which provide it with coal such as Armutçuk, Karadon, Kozlu and Üzülmez Enterprises, the ports in the Black Sea which the port has active trade and transportation activities such as ports of Russia and Ukraine, the cities in the country which the port transports cargo to and receives cargo from such as Karabük, Ankara and Istanbul. The railroad and sea transportation networks connects the port to different places and extends its influence far beyond its physical borders. It is important to understand the port's value in the grand scheme of interconnected transportation routes and impact in the regional economy as well as its role in international trade markets. Hence, it is crucial to factor the role of the Industrial Port of Zonguldak through all of its hinterland and sphere of influence when configuring its plans for its future development. The port's extensive connections through railroads to major economic powers of Turkey such as Ankara and Istanbul, its relevance in Ro-Ro trade routes with the Black Sea should be integral parts of concern. Through an emphasis on these aspects of the port with the addition of a container terminal and modernization of facilities to contemporary ports standards,

there is no reason for the Industrial Port of Zonguldak to not become a port of great significance, even the most important in its country, in the Black Sea such as the ports of Varna and Odesa. The port, because of its own significance and through its importance to the city of Zonguldak, must continue improving and expanding. The Industrial Port of Zonguldak must continue its active use as an integral part of the identity of Zonguldak and the backbone of the development of the city.

In summary, regarding the principles to ensure the safeguarding the values of the Industrial Port of Zonguldak and its continuation;

- The heritage values of the port as a whole must be recognized through registering the port as a conservation site combined with additional efforts to raise awareness
- The valuable components of the port must be protected and adapted to uses which respond to the needs of the port and the city without harming their integrity or character
- Redundant heritage structures, buildings and areas should be adapted to port activities or functions that would strengthen the connection between the port and the city
- Port's facilities should be modernized to contemporary standards and a dedicated container terminal must be incorporated through an expansion of the existing port area
- The coastline port area should be dedicated to port activities as much and as effectively as possible, the port as a whole should be emphasized and unified
- The duality of the port's unchanging heritage structures and changing functional part must be maintained through careful planning and execution

This thesis aims to assess the significance of the Industrial Port of Zonguldak as a heritage place. The purpose of this is to prevent further losses to the values of the port

and to enable its continuation of active use through raising awareness to its significance as a heritage place.

This study tries to provide a baseline for future conservation efforts in a proactive manner. Further studies should be conducted to examine Zonguldak in city and urban scales through the hinterland of the port and the industrial production facilities in several districts. The mining city identity and the port city character of the city should be united through more comprehensive urban scale researches. Feasibility studies on a possible expansion of the Industrial Port of Zonguldak are necessary to come up with plausible solution to ensure continuation of port activities. Alternative approaches also need to be developed to balance the different values of the port that make it a heritage place against conflicting priorities of the stakeholders and decision makers.

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