SUSTAINABLE BROWNFIELD DEVELOPMENT

CASE STUDY IN ZONGULDAK IN AN ABANDONED COAL PREPARATION AREA

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Sustainable Brownfield Development

Case Study in Zonguldak
in an
abandoned coal preparation area

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AFFIDAVIT

I declare that I have authored this thesis independently, that I have not used other than the declared sources/resources, and that I have explicitly indicated all material, which has been quoted either literally or by content from the sources used. The text document uploaded to TUGRAZonline is identical to the present master's thesis dissertation.

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Signature

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Hereby I would like to thank to two important men of my entire life;

My dad, Orhan Papila: during this process, once again I wished you were with me. (As I always do.) I am so sorry that this thesis remained lack of your wise opinions.

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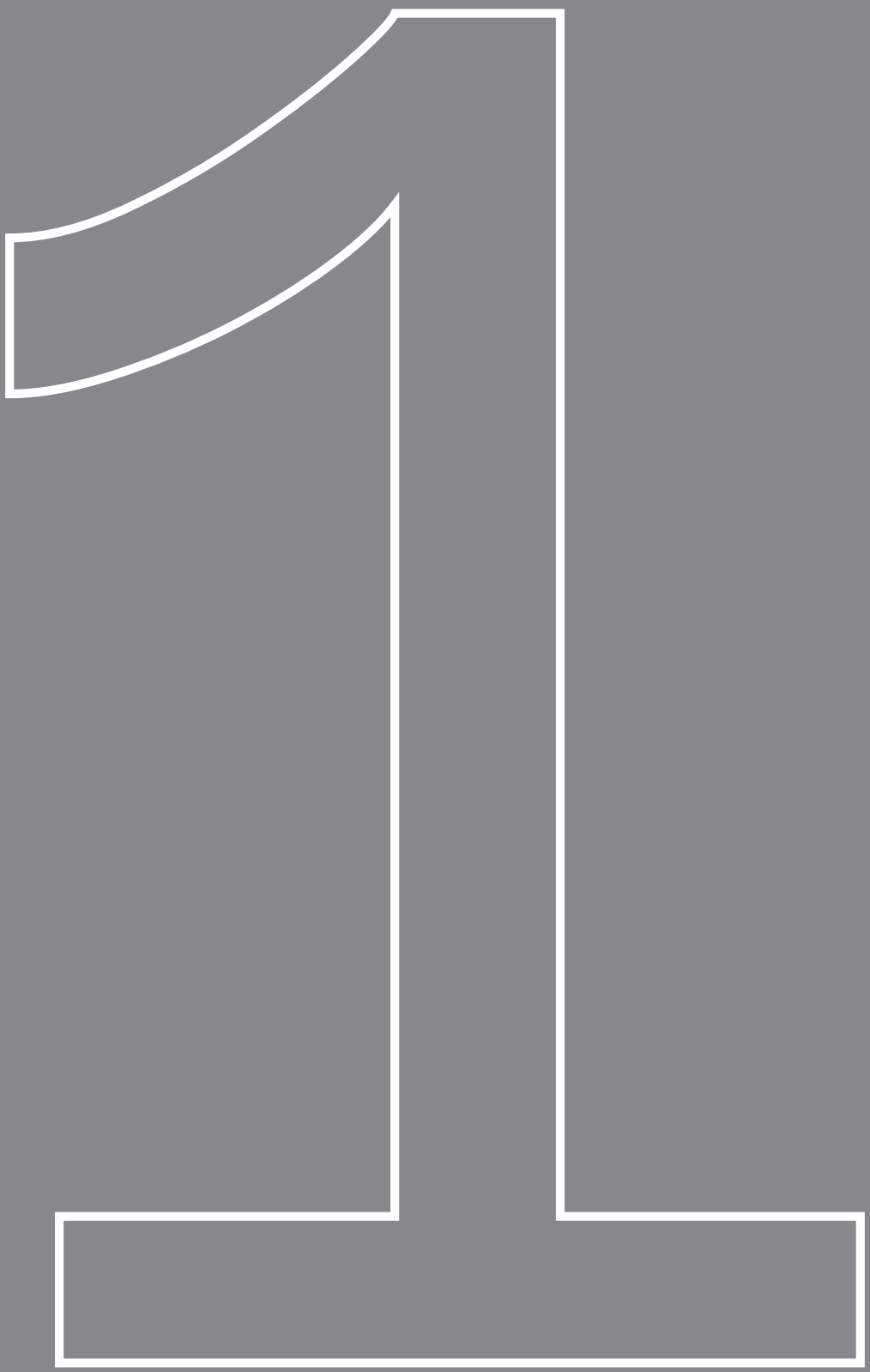
And of course to my professor; Aglaée Degros, for the full support and precious opinions.

CHAPTER ONE

INTRODUCTION



Concept

During the industrial revolution and for most of the 20th century, the layout of many cities could be explained with zoning models. Mainly due to the advantage of reduced communication and transportation costs, industrial and commercial areas emerged tightly packed in certain segregated section of cities. Nevertheless, in post-industrial period after all technological improvements, declined transportation costs and the precautions against pollution, those industry zones have begun to move further away or faded out because of differentiations in dependency of industrial products, or major business crisis. Keeping those brownfields abandoned increases the depression of cities and causes the new loss of green fields. Offering a new use, which strengthens the relationship with its surrounding and is suitable for the historical, social, economic and physical characteristics of the city, brings a new opportunity. The main aim of this thesis is to analyse all the process for a conversion of a brownfield and to find strategies for a sustainable development. The thesis deals with a case study in an abandoned coal preparation area in Zonguldak by analysing the major examples of other cities, valuable inputs of the chosen area and offers a new design project where all economic, social and environmental benefits are evaluated.

CHAPTER TWO

BROWNFIELDS: ABANDONED INDUSTRIAL PLACES

“Brownfields are a human-made problem borne largely out of our successes.”[1]

"Sustainable Brownfield Regeneration is the management, rehabilitation and return to beneficial use of brownfields in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations in environmentally sensitive, economically viable, institutionally robust and socially acceptable ways within the particular regional context."[1]

2.1 – CONCEPT OF BROWNFIELD

The Industrial Revolution, begun in England in the early 1800's, spread out all over the world until the end of the 19th century. It was a period of indescribable welfare, optimism and transformation as the countries shifted itself from an agricultural society to one, which primarily focused on manufacturing. Factories are rapidly established and built for financial gains in generously allocated zones mainly in urban areas, neglecting prospective changes in the future, urban development and environmental conditions. Unfortunately, it was a time of unconsidered destruction to the natural environment, polluting air, earth, and water.[3]

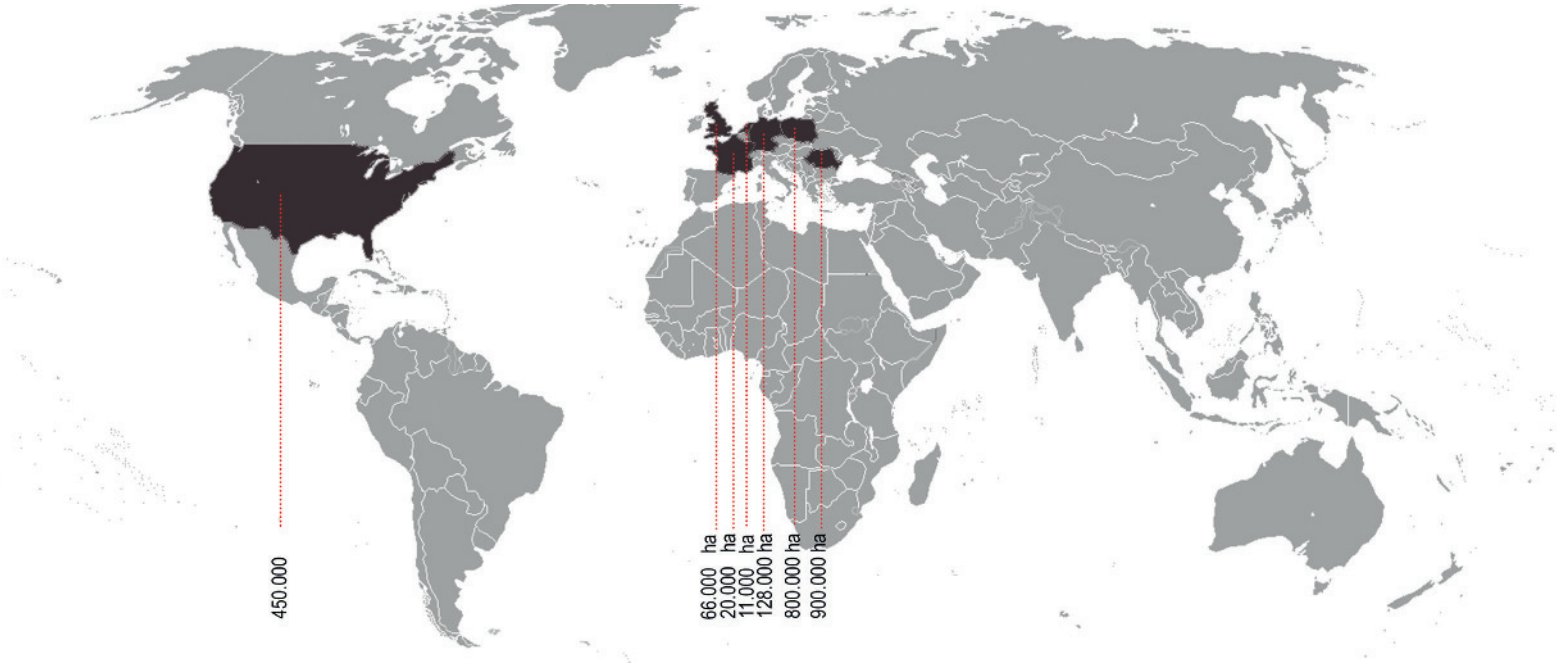
In our present post-industrial era, within the major shift in industrial methods, traditional heavy manufacturing has given way to light manufacturing, specialty production or so called informational industry.[4] That brought about de-industrialization or smaller and more compact factories. Different markets, international competition, advances in production technologies, researches for improvements of urban hygiene and lowered transportations costs have directed this trend to new modifications. In present post-industrial era, many communities have experienced plant downsizings and shut-downs, leaving underused or abandoned industrial sites in their own wake.

Brownfields

Brownfield is the general term now used to describe that kind of abandoned or underused lands, formerly used for industrial or some commercial purposes with low (or even none) to medium levels of contamination and which require intervention to bring them back to beneficial use. Despite the fact that every country has their own definition for this term due their own perspective and perception, as a common approach, they are all considered as potential development and investment opportunities rather than environmental nightmares[5]. Most of the governments are aware that keeping them abandoned and unused increases the depression of cities and causes the new loss of green fields. Offering a new productive use which strengthens the relationship with the localities and its surrounding which is suitable for the historical, social, economic, ecological and physical characteristics of the city, brings a new value and opportunity to urban development and civic economy. Most studies on brownfields to date have focused on the public benefits to be achieved through redevelopment. Policymakers are facing new challenges for bringing the derelict lands back into beneficial

[Figure 1] Photo represents abandoned or underused former commercial areas.

1 Medlen, quoted by Haslam, 2012, 1.
2 Cabernet, 2006, 53.
3 Cf. Ryan, 1997, 5.
4 Cf. Ergen, 2013, 2.
5 Cf. Ryan, 1997, 2.



[Figure 2] Total Brownfield Areas in USA and in Europe.

use with considering previously ignored hygiene and for creating new development strategies for sustainable new uses. It is important to integrate new methodologies into solutions to overcome the unemployment problems, which has been occurred during the de-industrialization process.

It is estimated that there are more than 450.000 brownfields in the U.S.[6] , 20.000 Ha in France, 900.000 Ha in Romania, 800,000 Ha in Poland, 128,000 Ha in Germany, 11.000 Ha in the Netherlands[7] , 66.000 Ha in England[8].

Brownfield organizations and financial incentives

The process of re-mediating and redeveloping a brownfield site can be complicated and expensive depending on the contamination degree. Due to the issue of liability and clean-up costs, it requires more time during the development process. On the other hand, those sites are in advantageous locations that are accessible to infrastructure and close to people, which make them good candidates for revitalization projects[9].

6 Cf. Anon.: Overview of Brownfield Program. What is a Brownfield? https://www.epa.gov/brownfields/overview-brownfields-program, 31.08.2017.

7 Cf. NICOLE Brownfield Working Group, 2011, 15.

8 Jennifer Gray: Brownfield Sites, 06.06.2017 http://www.sustainable-build.co.uk/brownfieldsites.html, 31.08.2017.

9 Cf. Anon.: Land Revitalization Basics, https://www.epa.gov/land-revitalization/land-revitalization-basics, 31.08.2017.

[Figure 3] Civil Organizations for Brownfield.

Most of the local governments all around the world have encouraged such efforts by offering developers numerous tax and financial incentives in return for bringing these sites back into productive use. Several organizations are working to ease the processes[10].

The most important examples are revealed in U.S. due to huge number of brownfield areas:

- EPA (Environmental Protection Agency): The organization has informational, financial, legal, and technical revitalization tools to assist in redeveloping the site, property.
- BEDI (Brownfield Economic Development Initiative): The organization helps tax increment financing and support green building development in brownfield areas[11].

10 Cf. Edwards, et al., 2008, 1.

11 Ibid.

• CERCLA (Superfund-The Comprehensive Environmental Response, Compensation, and Liability Act): The investment fund established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites and established a trust fund to provide for clean-up when no responsible party could be identified[12].

Examples of Europe organizations:

• CABERNET (Concerted Action on Brownfield and Economic Regeneration Network): The European expert network.[13]

• RESCUE (Regeneration of European Sites in Cities and Urban Environments): The organization tries to define a common sustainable strategy for brownfield development and shows necessary tools to maintain sustainability in Europe.

• CLARINET (Contaminated Land Rehabilitation Network for Environmental Technologies): The organization develops technical recommendations for sound decision-making on the rehabilitation of contaminated sites; identify research and development needs for a sustainable land use.[14]

• NICOLE (Network for Industrially Contaminated Land in Europe): The organization takes part as a guidance for the liability transfer of a Brownfield in Europe. NICOLE brings industrial landholders a road-map for liability management goal and helps to secure a clean exit.[15]

• ERDF (European Regional Development Fund). [16]

• TIMBRE project (Tailored Improvement of Brownfield Regeneration in Europe): The project explores innovative solutions for overcoming barriers that prevent the reuse of large and complex contaminated sites.[17]

Almost all organizations and funds aim to supply or support a combination of liable, social, environmental and economic benefits through sustainable development perspective. Regeneration of the land is considered for minimizing the use of resources, minimizing pollution, protecting biodiversity, natural and cultural environment, industrial heritage, moreover, a job creating opportunity to improve life quality and reducing urban sprawl by being a valuable alternative.[18]

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12 Cf. Anon.: Superfund: CERCLA Overview, https://www.epa.gov/superfund/superfund-cercla-overview, 31.08.2017.

13 Cf. Ramsden, 2010, 4.

14 Cf. Kılınç Ürkmez, 2016, 139.

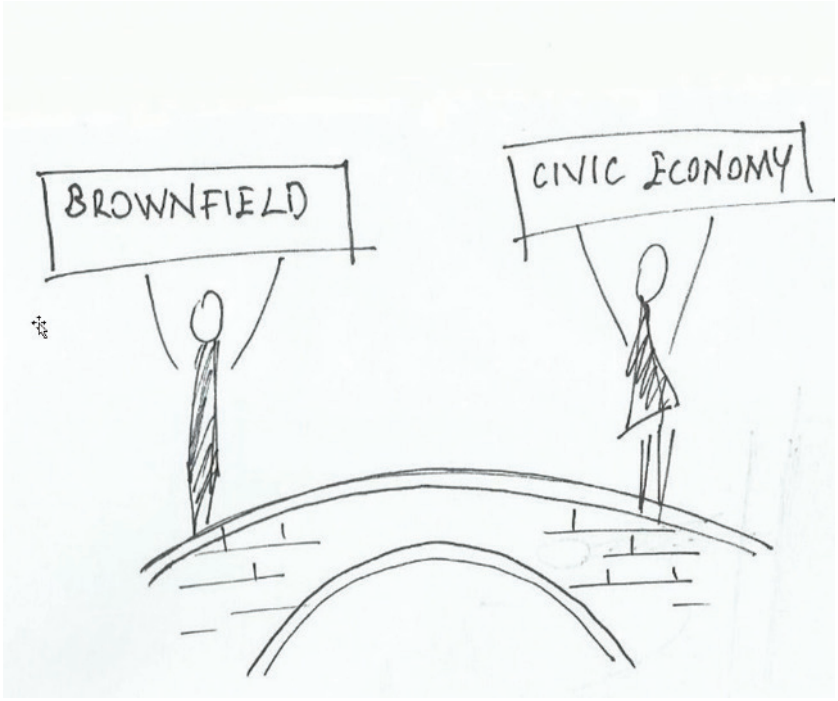
15 Cf. NICOLE Brownfield Working Group, 2011, 7-8.

16 Anon.: https://ec.europa.eu/eip/ageing/funding/european-structural-and-investment-funds-esif/european-regional-and-development-fund_en, 07.01.2018.

17 Cf. Meitl, 2015, 53.

18 Cf. Kılınç Ürkmez, 2016, 143-144.

A bridge to civic economy



[Figure 4] Sketch for collaboration of civic economy and brownfield.

The global financial crisis and its aftermath put the civic economy and its further potential in spotlight. Brownfields can be a part of this bridge to widen local economy. In the 19th century, during the rapid changes of industrial revolution, creating independent institutions and coalitions improved people´s lives powerfully and made places more resilient. More than a century later, the civic economy is yet again in focus. [19]

Due today's conditions, we primarily have to consider brownfields and their surroundings have local features. It is important to enable the citizens to be investors or co-producers instead of being just customers or consumers. Setting apart the civil society, market and state is not a solution anymore. A collaborative approach where everyone plays their own part or where everyone involves in production, development, knowledge sharing or financing, improves not only urban growth but also country´s welfare. Realizing the potentials of the places improves the bridge between public, private and organized third-party sector and helps people to feel more connected to their neighborhoods.

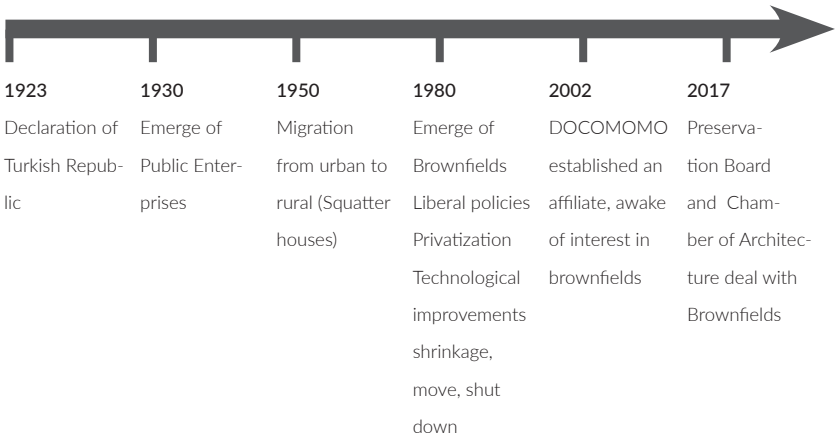
19 Cf. Nesta/ Design Council Cabe, 2011, 11.

Road-map for common solutions

Each revitalization site or project is unique by definition and need individual progress plan. However, six important steps of common principles for a development process can be stated as follows:

Step 1: Developing a community vision & identify brownfield sites
Step 2: Assessing level of contamination
Step 3: Determining reuse options considering civic economy
Step 4: Evaluating clean-up options
Step 5: Implementing a redevelopment plan[20]

2.2 - BROWNFIELDS IN TURKEY



[Figure 5] Short Overview of Brownfield History in Turkey.

Turkey has relatively a short history of industrialization; thus, brownfields are a new phenomenon. The term brownfield defines only a former industrial area and it has been recently introduced to Turkish agenda.

Public Enterprises emerged during the 1930s, made large-scale investments

20 Cf. Anon.: Brownfields Redevelopment Toolbox. A Guide for Massachusetts Communities, http://www.mass.gov/eea/docs/dep/cleanup/bftool.pdf, 31.08.2017.

on behalf of governments in order to establish the essential industrial infrastructure, to prevent unemployment and to reduce regional inequalities. Since 1950s, migration from rural to urban areas had a significant effect in urban sprawl in most of the cities. At the early stages of this process, squatter houses appeared as the form of unplanned and uncontrolled urban development on the public lands around the industrial sites.

After 1980, with the impact of technological improvements, liberal policies/ privatization and globalization, most of the industries moved to the organized industrial areas with the support of local and central governments. They did not prefer to give any effort to revitalize or to enhance the technological capacity of the former industrial enterprises. Many of the industries abandoned their properties in the inner cities due to the high land values and insufficient lands to expand. Because of this urbanization process, the former industrial areas in the city center remained idle with many contamination and other environmental problems and caused deep impacts in Turkish cities. Over the last decades, brownfields turned into opportunities in order to obtain sustainable increase in living standards especially in urban areas which had been struggling with many economic, social, environmental, and politic problems.

The brownfield policies in Turkey, discussed in a modest way in the context of urbanization and heritage preservation where decisions are more inclined to the preservation of industrial plants and buildings on the site being important indicators of former industrial identity. The political and legal uncertainties, contamination levels, environmental-related issues and alternative usage to relate other urban functions that would potentially affect economic development are usually neglected.

In recent years, most of the local authorities have renewed the upscale and detailed plans. However, they have tended to regard urban regeneration mostly as a project-based development rather than a realistic restructuring process at the urban scale. As a result, former spaces of industrial production sites turn into luxurious residences, gentrified neighborhoods, office towers, shopping complexes.

In 2002, an international organization, DOCOMOMO (Documentation and Conservation of Buildings, Sites and Neighborhoods of the Modern Movement) established its affiliate in Turkey and played a crucial role to awake the interest in conservation of built heritage, which reflects the spirit of the Modern Architecture. Until DOCOMOMO´s initiative, many of the industrial modern buildings were not considered as the elements of heritage and resulted as demolishment or modifications in original structure. DOCOMOMO´s activities accelerate the institutional and academic interest on brownfield sites.[21]

[Figure 6] Example for squatter houses from Istanbul.

[Figure 7] Gebze / Istanbul organized industrial area.

[Figure 8] DOCOMOMO Turkey.

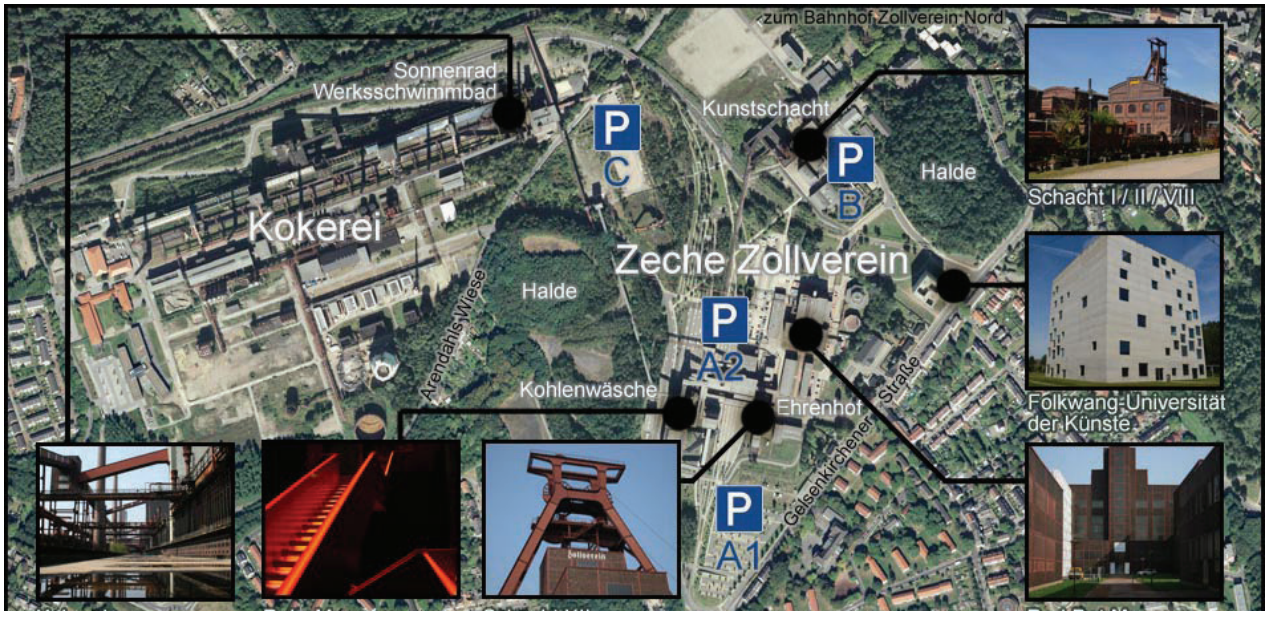
21 Cf. Kılınç Ürkmez, 2016, 144-145.

2.3 - BEST PRACTICES OF BROWNFIELD CONVERSIONS FROM ALL OVER THE WORLD

Zollverein (different complexes)

Location: Essen / North Rhine-Westphalia / Germany
Architect/Year: Multiple Architects / 2010
Master Plan: OMA (The Office for Metropolitan Architecture)
Ruhr museum: (transformation of Coal Refinery) Collaboration with local architects Heinrich Böll and Hans Krabe with OMA
The Red-Dot Design Museum: (transformation of the mine's boiler-houses into the world's largest exhibition of contemporary design) by Foster + Partners
The Zollverein School of Management and Design: (new building) by SANAA
Original Use: Industrial Site (Coal Mining Factory/ Refinery, Coking plant, etc.)
New Use: Different Complexes involving Museum, Design, Art
Area: 100 ha[22]
State of Environment: -
Total Costs: -

[Figure 9] Zollverein complex.



22 Merin, Gili: A Photographic Journey Through Zollverein: Post-Industrial Landscape Turned Machine-Age Playground, 06.08.2014, http://www.archdaily.com/534996/a-photographic-journey-through-zollverein-a-post-industrial-landscape-turned-machine-age-playground, 05.01.2018.

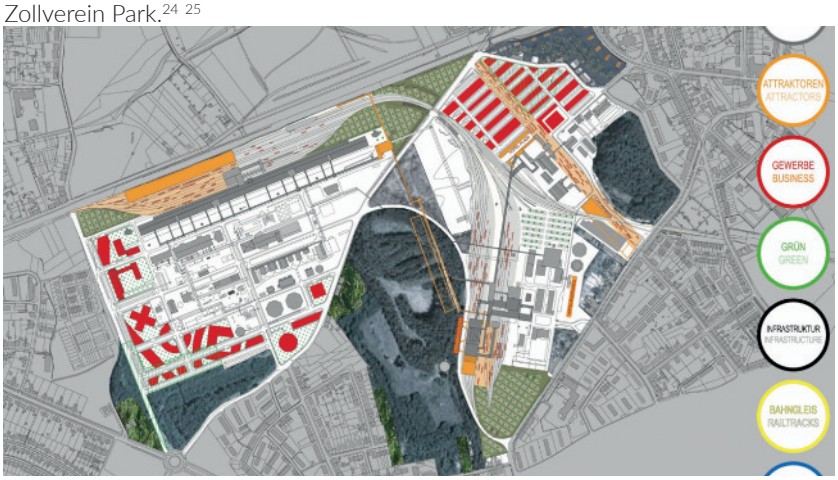
Owner: Ministry for Culture Sport and Housing Nordrhein-Werstfalen Development Company Zeche Zollverein

Zollverein is the most well-known conversion project. Until 1986, a total of 240 million tons of coal had been produced, up to 8,000 miners worked daily in the area. In 1988 the coal refinery of the Zeche Zollverein was closed and the mines had been entirely shut down after five years. The world´s famous coal region Ruhrgebiet lost the driving force behind its identity. For about 10 year despite not being clear enough for the transformation of the site, the authorities bought it from the former owners and declared it as a part of the industrial heritage of Germany.

In 2001, UNESCO added Zeche Zollverein to the list of world heritage industrial monuments. The master plan was developed with a close collaboration of heritage specialists and conservationists within respect to the site´s identity, and whole project was completed until 2010. [23]

The master plan consisted of a band around the historic site. New roads leaded an easier access. The rail tracks inside the site were maintained as public space and were connected to the main buildings. The sky bridges for transporting coal were opened for visitors to visit a former mine up to 1,000 m deep.

With the new buildings and re-programming of the existing buildings, new functions were added to inform and attract visitors with numerous leisure activities, art and cultural events. About 1.5 million guests from all over the world visit the site every year to gain an insight into the golden age of European heavy industry, participate in guided tours, visit exhibitions, celebrate festivals or relax in the Zollverein Park.[24] [25]



[Figure 10] Zollverein master plan by OMA.

23 Anon.: UNESCO-Welterbe Zollverein in Essen, https://www.ruhrgebiet-industriekultur.de/zollverein.html, 05.01.2018.

24 OMA. Zollverein Masterplan, http://oma.eu/projects/zollverein-masterplan, 05.01.2018.

25 Trettin, Neumanna, Zakrzewski, 1-25.

Ruhr Museum/ OMA & Heinrich Böll & Hans Krabe

During the transformation of the Coal Refinery, %80 of the existing building including rusty pipes, colossal coal ovens and tall chimneys were kept in their places, only with the help of visible iconic red escalators, added by Rem Koolhaas, created an impressive monument, which lead visitors straight into the depths of the entry hall.[26]

[Figure 11] The Iconic Escalators of Ruhr Museum.

[Figure 12] (left) Conversion of the main powerhouse.
[Figure 13] (right) Post-Industrial Landscape Turned Machine-Age Playground.

[Figure 14] (left) The Iconic Escalators.
[Figure 15] (right) Light Art in the Ruhr Museum.

26 Merin, Gili: A Photographic Journey Through Zollverein: Post-Industrial Landscape Turned Machine-Age Playground, 06.08.2014, http://www.archdaily.com/534996/a-photographic-journey-through-zollverein-a-post-industrial-landscape-turned-machine-age-playground, 05.01.2018.

[Figure 16] Reddot Design Museum.

Reddot Design Museum/ Foster+ Partners

Red Dot Design Museum Essen tells us the story of the site by being a bridge to old and new. It aims to transform the old powerhouse into the home of an art center for the promotion of contemporary design in Germany and abroad. The design still preserves the industrial architecture and product culture. It was originally built between 1928 and 1929 by the architects Fritz Schupp and Martin Kremmer. Those former boiler houses served as the powerhouses of the Zollverein Coal Mine Industrial Complex for many years.[27]

British star architect Sir Norman Foster not only restored and cleaned the former structure to reveal the old principles of the building but also rebuilt the house for its new purpose. The new interior architecture in glass and concrete merged with the old red brick facades, pipework, fittings and steel staircases and thus created a breath-taking, inspiring stage for contemporary product design. Some floating exhibition galleries are designed like boxes within boxes by emphasizing the contrast to heaviness of the original fabric by its lightness.[28]

Between former steel steam boilers, different spaces are designed by featur-

27 Cf. Anon.: Red Dot Design Museum.Cathedral of industrial culture, https://www.red-dot-design-museum.org/essen/about-us/architecture/, [05.01.2018]

28 Cf. Foster and Partners: Red Dot Design Museum, http://www.foster-andpartners.com/projects/essen-design-centre/, [05.01.2018]

ing new areas for presenting outstanding designs. The cantilevered walkway guides visitors along steel beams, past metal pipework and burnt tiles, allowing for a view over 4,000 square meters of exhibition space. Sir Norman Foster was awarded the "Knight Commander's Cross of the Order of Merit of the Federal Republic of Germany," cited for his ability to achieve "balance in between preserving the old and creating the new." [29]

The Zollverein School of Management and Design/ SANAA

[Figure 17] Cuboid structure of the School of Management and Design.

SANAA aimed a transparency in concrete structure. The Zollverein School of Management & Design was the first new building on the historical coal-mining Zollverein site. The design, a cuboid structural shell, picks up the basic functional

29 Cf. Merin, Gili: A Photographic Journey Through Zollverein: Post-Industrial Landscape Turned Machine-Age Playground, 06.08.2014, http://www.archdaily.com/534996/a-photographic-journey-through-zollverein-a-post-industrial-landscape-turned-machine-age-playground, 05.01.2018.

and effective idea used by the original Zollverein architects Schupp and Kremmer. The oversized cube, which measures 35 meters by 35 meters and is 35 meters high, reflects the dimensions of the Zollverein mine.[30]

C-Mine

[Figure 18] C Mine creative hub of the city.

[Figure 19] (left)renovated buildings.

[Figure 20] Light art in C- Mine.

[Figure 21] Square for activities and events.

Location: Genk/ Limburg / Belgium
City Center
Architect/Year: 51N4E Architects/ 2012
Original Use: Industrial (Mine Area)
New Use: Cultural and Education Center
Area: 3, 5 ha[31]
State of Environment: Cleaned Up before project started
Total Costs: 8.917.442 EUR
Owner: City of Genk

30 Merin, Gili: A Photographic Journey Through Zollverein: Post-Industrial Landscape Turned Machine-Age Playground, 06.08.2014, http://www.archdaily.com/534996/a-photographic-journey-through-zollverein-a-post-industrial-landscape-turned-machine-age-playground, 05.01.2018.

31 Cf. Timbre Pojects: Cmine, http://www.timbre-project.eu/en/c-mine.html, 05.01.2018.

C Mine project, listed in TIMBRE projects, is a precise answer about dealing with a large-scale abandoned industrial area. It is located in Genk, a small city in Limburg province with 65000 inhabitants with 107 different ethnic backgrounds, which had a magnet city for miners from all over Europe with its three mines.[32] 25 years ago, mines started to close and 7000 miners lost their jobs. The former owner cleaned the mining area after closing. The buildings were classified as historic buildings.[33]

The city went looking for new opportunities for the enormous mine sites on its territory and this pursuit conceived an urban square project, which brought up a creative hub in the buildings of the old coal mine of Winterslag in the heart of the city. The story began with a competition in 2005 and the project completed in 2010.[34] Different organizations were involved in a wide partnership including Media Design Academy, various universities, research institutes and local involvements. ERDF supported for finance.[35] Beside two additional new structure, most of the remained buildings are renovated and transformed into new buildings to serve for education, economy, recreation, innovation, design and tourism. It is a place not only for young entrepreneurs but also for all inhabitants, artists, students and tourists, with meeting rooms, a cultural center, design center, touristic center, festival hall, theatre, concert hall, café & restaurant, studios and offices.

C-mine expedition serves guided tours for a mine experience. It has created 330 jobs in 42 companies and organizations, including around 200 jobs in the creative sector in 33 creative companies.[36] The square is in addition fulfills the need of a place for the events and activities. It is paved with black slate which refer to the black gold are in different sizes and laid in an informal pattern and is the same material as the waste material from the mining activities that was placed on the terrains around Genk. Lighting on the surface of the paves gives a different ambiance during the night-time together with illuminated surrounding facades and the former mining shaft towers.[37] The furniture; chairs and stools are the part of the design, which are made of a folded stainless steel plate and in red and silver color, glitter like diamonds against the black surface of the square.

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32 Cf. Over C Mine: http://www.c-mine.be/Contact_Info/Over_C_mine, 05.01.2018.

33 Cf. Ramsden, 2010, 16.

34 Cf. Ettherington Rose: C mine by 51N4E, 11.04.2011,https://www.dezeen.com/2011/04/11/c-mine-by-51n4e/, 05.01.2018.

35 Cf. Ramsden, 2010, 16.

36 Cf. Over C Mine: http://www.c-mine.be/Contact_Info/Over_C_mine, 05.01.2018.

37 Cf. Anon.: Genk C Mine, http://www.archdaily.com/253647/genk-c-mine-hosper, 05.01.2018.

Pieper Site/ Business Street Project

[Figure 22] Pieper Site

Location: Liege /Wallonia/ Belgium
Inner City/ Along the river Meuse/ 2010
Original Use: Industrial
New Use: Business Development Zone
Area: 1, 2 ha [38]
State of Environment: After complete decontamination
Total Costs: 1.423.000 EUR
Owner: Province Liege

Pieper Site project, listed in TIMBRE projects, is a business park and an urban revitalization project, designed to get the business back into the city where they could grow their activities as a part of a long-term strategy to revive the economic life of urban areas by an EU finance support.[39] Liege, with a population of 190,000, is the economic hub of the Province of Liège, which has more than 1 million inhabitants. City had played an important role in Europe's industrial revolution during the 19th century, when it became an important center for the steel making and coal-mining industry. Project aims to provide new opportunities by an industrial restructuring and replacing jobs that have been lost in recent decades. The site was formed by cleaning up two adjoined brownfields by providing the entire necessary infrastructure including a new road. The financial costs of cleaning-up the site were covered with a grant of €96,377 from the European Regional Development Fund (ERDF) and an equivalent amount from the regional government of Wallonia. The site was divided into 10 plots. In 2010, five of these plots were already sold to a heating and ventilation company, an electrician, a furniture maker, a glazier and window-maker, and a company operated for solar panel

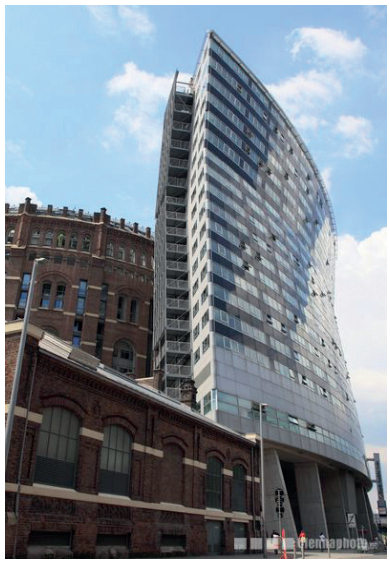
38 Cf. Timbre Pojects: Cmine, http://www.timbre-project.eu/en/c-mine.html, 05.01.2018.

39 Cf. Rue d'entreprises : http://www.spi.be/upload/publications/2012/Plaquette_pieper.pdf, 05.01.2018.

installations. These companies employ currently 30 people.[40]

Gasometer

[Figure 23] (left) Renovated Gasometers
[Figure 24] (right) Former photos of Gasometer



[Figure 25] (left) Courtyard for Gasometer by Manfred Wehdorn

[Figure 26] (right) Gasometer B by Coop Himmelblau.

[Figure 27] Exterior view of Gasometer B.

40 Cf. Anon.: Belgium makes place for urban enterprises, 23.12.2010, https://www.euractiv.com/section/regional-policy/news/belgium-makes-place-for-urban-enterprises/, 05.01.2018.

Location: Simmering/ Vienna/ Austria
Architect/Year: Jean Nouvel & Coop Himmelblau & Manfred Wehdorn & Wilhelm Holzbauer/ 1999-2001
Original Use: Gas tanks
New Use: New urban complex for living, working, entertainment, shopping.
State of Environment: Cleaned up
Area: 4 x 90,000 m^3 storage capacity Gas Tanks (Each gasometer is 70 meters high and 60 meters in diameter.) [41]

Gasometers had been operated between 1899-1975 and because of the changeover from town gas to natural gas they were was shut down and kept inactive. In 1995, Vienna called for ideas for the new use of those 4 protected monuments of former Gasometers. The chosen designs were completed in 2001 by the architects Jean Nouvel (Gasometer A), Coop Himmelblau (Gasometer B), Manfred Wehdorn (Gasometer C), Wilhelm Holzbauer (Gasometer D). Each Gasometer was divided into zones for living (on top), working (middle floors), entertainment (ground floor), and shopping (ground floor). Shopping mall levels of each gasometer are connected to each other with sky bridges. The historic exterior wall of bricks were conserved. There are 615 modern apartments, an event hall holding 3.500 people, a cinema center, a shopping mall, a student home, the Vienna's municipal archive, offices of telecommunication companies, a kindergarten, schools, medical and other facilities in the four gasometers.

In Jean Nouvel´s design there is an indoor plaza with a translucent roof which helps to create transparency, reflection and refraction between old and new.

Coop Himmelblau added 22-storey building to the existing one. It houses a concert hall, a student hostel, health facilities, a shopping mall and residential apartments. The building includes 256 flats, 73 student apartments and a concert hall seating 3,500.

Manfred Wehdorn designed an indoor garden and an eco-friendly terraced structure. Wilhelm Holzbauer occupied the center of the existing building with lift and stairs, from which three compact sections were divided by indoor gardens penetrating the perimeter of the existing building. [42]

Remediation of the site: Groundwater and soil was found highly contaminated. Some prevention structures were installed such as a hydraulic barrier, a pump and a treatment system. These measures were useful to prevent a further infiltration of pollutants permanently in the ground, as well as to protect groundwater reservoirs from effluvium coming from contaminated sites. In parallel, several facility projects were launched for the Gasometer City. For instance, the

41 Cf. Anon.: Gasometer, Geschichte, 17.9.2011, http://www.wien-konkret.at/bezirke/11/gasometer/, 05.01.2018.

42 Cf. Anon.: Gasometer. Die Gebäude, http://www.gasometer.at/de/architektur, 05.01.2018.

Fischer-Landfill, a former gravel pit which had been using as a landfill for dumping municipal and industrial waste, represented an opportunity to test new pre-treating in-situ techniques as well as to preserve a supply of drinking water to the city of Vienna.[43]

La Minoterie Lofts

[Figure 28] La Minoterie Lofts.

Location: Roubaix/ France
Close to the border of Belgium, along the canal of Roubaix/ North France
Architect/Year: TANK Architects/ 2008
Original Use: Flour Mill / Industrial Building
New Use: Housing/ Lofts
State of Environment: Cleaned up
Area: 0, 49 ha
Total Cost: 3.409.800 EUR
Owner: Town Hall of Roubaix

La Minoterie Lofts, former mill, new housing site is listed in TIMBRE projects and located in the center of the industrial city Roubaix. It was rehabilitated to let the natural light through the flats by additional loggias, balconies, terraces and roof unit, made up aluminum-glass material within contrast to the existing brick and concrete structure. It is popular among younger generation nowadays.[44]

43 Cf. Pérez, Sánchez, Liedekerke, 2015, 114-115.

44 Cf. Timbre Pojects: La Minoterie Lofts, http://www.timbre-project.eu/en/la-minoterie-lofts.579.html, , 05.01.2018.

Loisinord Ski Resort

[Figure 29] Loisinord Ski Resort.

Location: Bethune/ France
Close to the border of UK, Netherland, Belgium &Germany, / Northeast of France
1990
Original Use: Coal Mining Area
New Use: Recreational Area (leisure, park, sport, facilities, nautical base, skiing **slope)**
State of Environment: After complete decontamination
Area: around %10 built up area of 200 ha (1,6 ha ski slope, 22ha nautical base and recreational area.)
Total Cost: 400.000.000 EUR until now
Owner: Town Hall of Noeux-les-Mines [45]

Loisinord Ski Resort is listed in TIMBRE projects with the rehabilitation of a slag heap as an artificial ski center in a former coal mining area in Bethune. By the sixties coal mining in northern France was losing money. Cheap oil substituted for expensive deep-mined coal. Electric trains & natural gas replaced with coal-fired steam locomotives & old gasworks. France started to generate nuclear electricity on a big scale of the industrial city Roubaix. As part of a European plan the pits were helped to close down gradually. The EU Plan gave the coal-mining communities time and financial help to attract new industries so ex-miners and their children could find other work. Since the last mine closed in 1990 most slag-heaps have reserved for green areas, country parks or sport activities. The artificial snow-slope at Nœux-les-Mines is 320 meters long, 74 meters high (and 114 meters above sea level), attracting over 30,000 skiers per year.[46] In addition, a water sports center for summer activities has been set up just a short way away from the ski slope next to a man-made lake at Noeux-les-Mines is another alternative for water skiing, windsurfing, pedals and canoing, which is an ideal spot for families with picnic areas and children's play areas set around the lake.[47]

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45 Cf. Timbre Pojects: Loisinord, http://www.timbre-project.eu/en/loisinord.html, 05.01.2018.

46 Cf. Anon.: Loisinord. Ski Resort and Water Sports, //www.theotherside.co.uk/tm-heritage/visit/visit-noeux-ski.htm, 05.01.2018.

47 Cf. Anon.: Loisinord. A ski slope on a slag heap, http://www.aroundlouvrelens.com/explore/nature-and-outdoor-thrills/loisinord, 05.01.2018.

Caballero Fabriek

[Figure 30] Caballero Fabriek

Location: Industrial area Binckhorst/ The Hague/ Netherlands
Inner city, on the coast between Rotterdam and Amsterdam
Architect/Year: Group A Architects/ 2008
Original Use: Tobacco Factory / Industrial Site
New Use: Multi-Tenant Building / Business Center
State of Environment: After complete decontamination
Area: around %100 built up area of 1, 5 ha
Total Cost: 10.000.000 EUR
Owner: The Municipality of The Hague [48]

Caballero Fabriek, formal cigarette factory, is listed in TIMBRE projects, is located in City of The Hague, which approximately has 490.000 inhabitants. It was abandoned since 1995 when the production moved to Zevenaar. In 2003 the municipality of The Hague decided to redevelop the Binckhorst industrial. The first realized project was Caballero Factory, a business center for offices, companies and ateliers in the fields of culture, IT and media. The original building from 1953 has been kept untouched during the redevelopment, while recent additions were demolished. The complex has then been subdivided in common, circulation and service areas, and various-size units to be rented out. Project was divided into two stages. In the first stage units for small business were constructed approximately in 8.000 m2, in the second phase rest of the halls were rebuilt for large entrepreneurs. The contrast language and different new materials and colors are the main elements of the project. Meeting rooms are wooden painted suspended boxes, while galvanized steel and glass sliding doors indicate the entrances. The qualities of the existing structure have been kept as advantages for the project: the spacious layout and the natural light from the roof contribute to the comfort

48 Cf. Timbre Pojects: Caballero Fabriek, http://www.timbre-project.eu/en/loisinord.html, 05.01.2018.

of the working units and maintain the industrial identity of the complex. New interventions like the central courtyard, the outside terrace and split-levels added new qualities. Cross-fertilization is the main target for the center to provide an environment where companies could easily meet, interact and inspire each other. This is achieved by providing lounge areas on large corridors, common spaces and a cafeteria. Cafeteria, meeting rooms and the lecture room are not only accessible by the tenants but also by external visitors. This gives the Caballero Fabriek the character of a public building.[49]

Project of redevelopment of the Caballero Fabriek was funded by a European grant and the Ministry of Economic Affairs. This conversion project brought up a great success, every unit was rented immediately after completion. The project was winner of the New Town Award.

Gotha West Solar Array

[Figure 31] Gotha West Solar Array

Location: Golden Aue/ District of Gotha/ Thuringia/ Germany
Built by / Year: Masdar PV/ Enviromena Power Systems/ 2012
Sold to the Hamburger associated company CEE in 2014.
Original Use: Military Area
New Use: Photo-voltaic Park
State of Environment: After demolishing of buildings and complete decontamination
Area: around %100 built up area of 53, 80 ha
Total Cost: 20.000.000 EUR
Owner: The Free State of Thuringia[50]

Gotha West Solar Array, formal military area, is listed in TIMBRE projects, which was convenient with its largeness for covering the demand for generating electricity by solar arrays. The advantages of the need of low deforestation and being mostly flat while facing south direction brought up the area to an attractive point for the decision makers. The park produces enough electricity to supply households for around 2,500 family (four-person) with its equipment of 50.000 Masdar PV thin-layer modules. It has a nominal capacity of 11, 7 MW and produces 10, 8 million kilowatt hours electricity per year.[51]

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49 Cf. ArchDaily: Caballero Fabriek in Den Haag / GROUP A , 25.10.2010, http://www.archdaily.com/50776/caballero-fabriek-in-den-haag-group-a, 05.01.2018.

50 Cf. Timbre Pojects: Gotha West, http://www.timbre-project.eu/en/gotha_west.html, 05.01.2018.

51 Cf. Anon.: Photovoltaik Park.Güldene Aue, http://www.aig-gotha.de/referenzen/projekt/photovoltaik_park___gueldene_aue__-128.html, 05.01.2018.

Torvehallerne

Location: City center/ Copenhagen / Denmark
Close to Nørreport Station/ Region Hovestaden
Architect/ Year: Hans Peter Hagen/ 2011
Original Use: Business (Vegetable Market)
New Use: Business (Market Place)
State of Environment: Clean
Area: 0, 66 ha[52]
Total Costs: 120 million DKK (30 million of EUR)
Owner: Copenhagen Municipality

[Figure 32] Torvehallerne.

As already mentioned in previous sections, the definition of a brownfield differs from country to country and it is not only related with abandoned industrial sites but also commercial areas. In addition, the contamination degree could be variable from none to high. That is why Torvehallerne is listed in TIMBRE projects. It is one of the biggest market in Copenhagen whereas historical traditions of a market continues in a different sense. It used to serve as a place where people came to sell their goods like vegetable, fruit and flowers. This place worked since second half of 20th Century. In 1968, the square was renamed to the Israel

52 Cf. Timbre Pojects: Torvehallerne, http://www.timbre-project.eu/en/torvehallerne.570.html, 05.01.2018.

Square to mark. In 1980 initial attempts are made to change the place into the new market, followed by architect Hans Peter Hagen in 1997, who presented his dream of recreating lively marketplace with fresh produce. With some financing & local plan issues, the proposal waited until 2006. In 2009, the city council signed the central plan with an investor and operator of the coming market halls and they are opened in 2011.

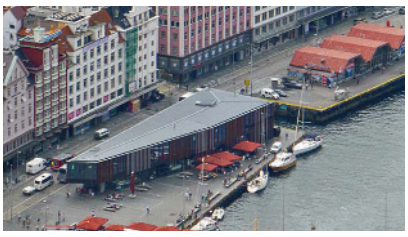
The vision of the project provided a direct encounter between small producers and their customers among the stalls of fresh seasonal food from fresh fish and meat to gourmet chocolate and spices, brought in from all corners of the country. There are permanent and temporary stalls whereas the permanent ones are housed in the covered market, the temporary ones are located outside, can be rented, even for one day only. Covered market serves for quick bites as well.

Covered Market comprises of two-separated light structure, each under a columned roof of zinc and cedar, with skylights running lengthwise. Outside there are plaza with outdoor stalls, linden trees, and benches. As many as 1,000 people are able to sit under the trees and awnings in the evening. There is a smooth transition between inside and out. Columns inside and the lindens outside are ordered in a grid that divides the entire plaza into identical little squares for the stalls.[53]

[Figure 33] Interior of Torvehallerne.

As an influence for the project lively fish market in Bergen

[Figure 34] Fish market vertical facade cladding elements on 2nd floor in different colors, representing the colorful neighborhood houses.



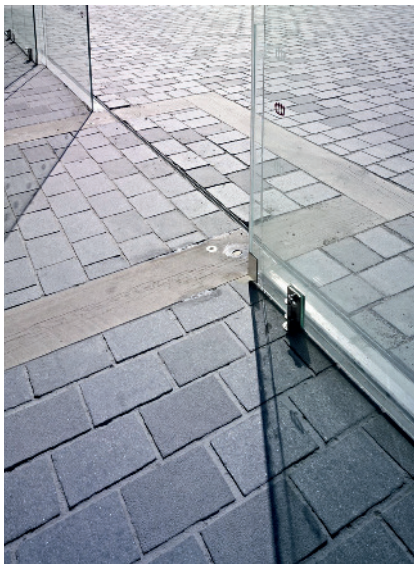
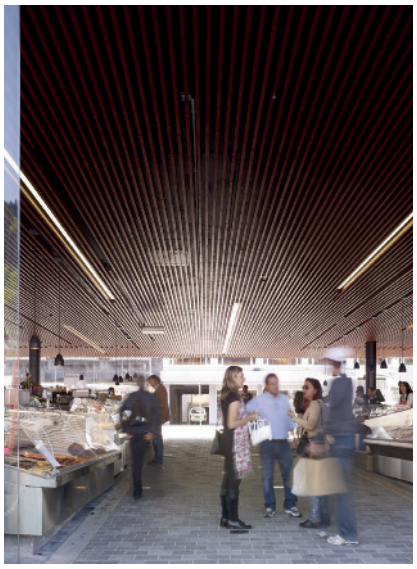
[Figure 35] (left) Transparent ground floor.
[Figure 36] (right) General View with the port.

53 Cf. DeHenzel, Chris: Stocking the City. In Copenhagen, the hottest thing since sliced rugbrød , http://archinect.com/blog/article/54676637/10-in-copenhagen-the-hottest-thing-since-sliced-rugbr-d, 05.01.2018.

Location: Strandkaien /Bergen /Norway
Architect/Year: Eder Biesel Arkitekter/ 2012
Area: 0,426 ha[54]

The Fish Market in Bergen is one of Norway's most visited outdoors markets. For the tourists it is as impressive as the historic monuments. The Fish Market sells seafood, fruit and vegetables.[55] The property is located in the heart of Bergen in historic bay and in the middle of the world cultural heritage site. The current pier had been designed to meet the needs of steamboats from the 1900s. Before, sailing ships had serviced the storehouses in the bay. The floating construction volume is a roof and creates the protected part of the marketplace. The flexible glass facade, which can be opened on warm summer days, provides shelter towards wind and weather. Market activities inside connect to those outside in a way that creates one homogeneous market place and market: Next to the public part of the market hall, there is a service entity of 3 floors. It houses storage space, cold storage and freezer, production of ice, wardrobe and restrooms as well other technical units. The market hall´s roof hosts the tourist information and the „Norwegian Sea Food Center" on the first floor. The tourist information is also public space with panorama views towards the historic center of Bergen.[56]

[Figure 37] (left) Detail for transparent ground floor.
[Figure 38] (in the middle) Streets and market place combines each other.
[Figure 39] (right) Photos of former market on the walls.


54 Cf. Anon.: Fish market in Bergen / Eder Biesel Arkitekter, http://www.archdaily.com/422608/fish-market-in-bergen-eder-biesel-arkitekter/, 5.01.2018.

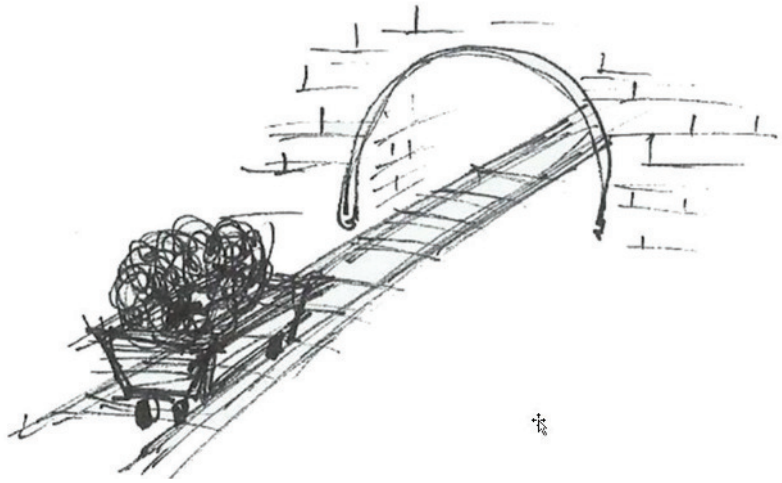
55 Cf. Anon.: Fish Market in Bergen, https://en.visitbergen.com/things-to-do/fish-market-in-bergen-p822253, 05.01.2018.

56 Cf. Anon.: Fish market in Bergen / Eder Biesel Arkitekter, http://www.archdaily.com/422608/fish-market-in-bergen-eder-biesel-arkitekter/, 5.01.2018.

2.4 - A SPESIFIC TYPE OF BROWNFIELDS: COAL MINES AND COAL PREPARATION AREAS

Coal mines and coal preperation areas, which is related to the project field and has a decline or transformation process in our post industrial era, take place as a spesific type among brownfield lists.

[Figure 40] Sketch for coal mine.



Today fossil sources supply 80% of global energy demand: petroleum (34%) coal (25%), natural gas (21%), nuclear (6.5%), hydro (2.2%), and biomass and waste (11%). Only 0.4% of global energy demand is supplied by geothermal, solar and wind.[57]

Coal as the most abundant fossil fuel, is a combustible, sedimentary, organic rock, which is composed mainly of carbon, hydrogen and oxygen. It is formed from vegetation, which has been consolidated between other rock strata and altered by the combined effects of pressure and heat over millions of years to form coal seams. The world currently consumes over 7,800 million tonnes of coal which is used by a variety of sectors including power generation, iron and steel production, cement manufacturing and as a liquid fuel.

Coal is known as the most carbon-intensive fossil fuel and the continuing use of coal as an energy supply could affect climate change strategies negatively.

There are two main categories of coal: Low Rank Coals and Hard Coals. One of the hard coal types, bituminous coal that is related to the project area can be

57 Cf. Katzer, 2007, ix.

used in heat and power manufacturing applications as a coking coal, mainly for steel and aluminum production.[58]

Despite its poor environmental credentials, coal remains the most common fossil fuel energy supply around the world and more than 75 countries have coal deposits. The current share of coal in global power generation is around 40%, which is expected to be decreased in coming years. Countries in Europe and to some extent North America, are trying to shift their consumption to alternative sources of energy. Nevertheless, any reductions are excessively far in developing economies, primarily in Asia, which are powered by coal and have significant coal reserves. China alone now uses as much coal as the rest of the world.[59]

The top five producers are China, the US, India, Indonesia, Australia and South Africa.[60]

Coal Mines

Extraction of the mineral or ore from the ground is the first step in coal mining. There are three general approaches to extraction:

- Underground mining: ore is extracted without removal of the overburden (the topsoil and rock above the ore)
- Surface mining: overburden is first removed in order to reach and remove the ore. Surface mines includes in-situ solution mining which is a method of extracting minerals from an ore body that is left in place rather than blasted and excavated. A solvent is circulated through the formation by injection into some wells and withdrawal from others.

The choice of mining method is largely determined by the geology of the coal deposit. Underground mining currently accounts for about 60% of world coal production; although in several important coal producing countries, surface mining is more common. Surface mining provides around 80% of production in Australia, while it is about 67% in the USA. Mineral Policy Center estimates that there are 557.000 abandoned mines. These sites have potentially significant environmental issues that would need to be addressed as part of a redevelopment strategy.[61]

This thesis deals with the theme of underground coal mining and especially its beneficiation areas, which involves crushing or milling the ore to separate the rock waste or concentrate the ore for use as a final product or in preparation for further processing.

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58 Cf. World Coal Institute, 2005, 2.

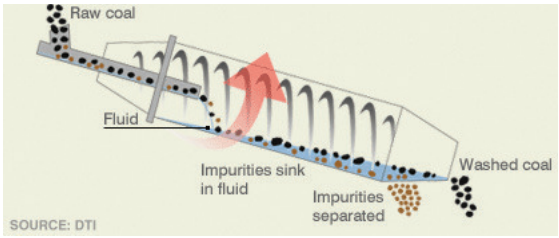
59 Cf. World Energy Council, 2013, 10.

60 Cf. World Energy Council: Energy Resources. Coal, https://www.worldenergy.org/data/resources/resource/coal/, 06.01.2018.

61 Cf. World Coal Institute, 2005, 7.

Coal preparation

Coal cleaning, also known as coal beneficiation, coal washing or coal preparation, increases the heating value and the quality of the coal by lowering levels of sulfur and mineral matter. The ash content of coal can be reduced by over 50%, helping to cut waste from coal combustion. This is particularly important in countries where coal is transported long distances prior to use, since it improves the economics of transportation by removing most of the non-combustible material. Coal cleaning can also improve the efficiency of coal-fired power stations, which leads to a reduction in emissions of carbon-dioxide.



[Figure 41] Coal washing procedure.

Coal straight from the ground, often contains unwanted impurities such as rock and dirt and comes in a mixture of different-sized fragments. Coal preparation – also known as coal beneficiation or coal washing – refers to the treatment of raw coal to supply a consistent quality before it is distributed. This process includes sorting the coal and removing any waste rock and disposing it in spoil piles, washing the coal in water to remove sulfur and other impurities, and drying the coal. In this process, the coal is separated from other impurities by being floated in a tank containing a liquid of specific gravity. As the coal is lighter, it floats and can be separated off, while heavier rock and other impurities sink and are removed as waste. The smaller size fractions are treated in a number of ways, usually based on differences in mass, such as in centrifuges. In 'froth flotation', coal particles are removed in a froth produced by blowing air into a water bath containing chemical reagents. The bubbles attract the coal but not the waste.

Coal transportation

The way that coal is transported to where it will be used depends on the distance to be covered. Coal is generally transported by conveyor or truck over short distances. Trains and barges are used for longer distances within domestic markets, or alternatively coal can be mixed with water to form a coal slurry and transported through a pipeline. Ships are commonly used for international transportation, in sizes ranging from different sizes. Around 700 million tonnes of coal was traded internationally in 2003 and around 90% of this was seaborne trade. Coal transportation can be very expensive – in some instances, it accounts for up to 70% of the delivered cost of coal.

[Figure 42] Coal transportation.

[Figure 43] Pollution in mine sites.

Pollution in mine sites

Mine sites are typically characterized by abnormally low pH (i.e., highly acidic), acute toxicity of the metals in the soil, nutrient deficiencies, and lack of vegetation.

The sources and types of contamination at mine sites vary and can affect soil, ground water, and surface water. Mine drainage, waste rock, tailings, heap leaches and dump leaches are among the major sources of contamination. Surface-water runoff from open pits, tailings ponds and ore stockpiles can carry both toxic and nontoxic materials to streams and lakes.

As an example, the Moura mine was the first operation in Australia to establish a commercial coal mine methane business alongside its coal mining operations. Reclamation activities are undertaken gradually – with the shaping and contouring of spoil piles, replacement of topsoil, seeding with grasses and planting of trees taking place on the mined-out areas. Care is taken to relocate streams, wildlife, and other valuable resources. Reclaimed land can have many uses, including agriculture, forestry, wildlife habitation and recreation.[62]

Dust and noise pollution

Dust at mining operations can be caused by trucks, coal-crushing operations, drilling operations and wind blowing over areas. Dust levels can be controlled by spraying water on roads, stockpiles and conveyors. Additional land surrounding could be used as buffer zones. Trees planted in these buffer zones can also minimize the visual impact of mining operations on local communities.

[Figure 44] Coal Slurry.

Water pollution

Backwater or coal slurry occurred during flotation in beneficiation process. Another treatment plant involves to the process and segregates the clean water and waste. Clean water is recycled to the system; wastes are collected and sent to the assigned waste collection areas by trucks. This system prevents the pollution in surface and ground water.

[Figure 45] A landscaping practice of a mine site from Germany.

Rehabilitation in coal preparation areas

Coal mining activities are only a temporary use of land, so it is vital that rehabilitation of land takes place once mining operations have ceased. In best practice, a detailed rehabilitation plan is designed and approved for each coal mine and its beneficiation areas, covering the period from the start of operations until

62 Cf. World Coal Institute, 2005, 9-29.

well after mining has finished.

However, after the abandoning period, water and soil contamination degrees have to be assigned. If the plants have treatment facilities, this degree could be negligible. Soil quality could be increased by replacement.

2.5 - CONCLUSION

Dependency on coal source and coal production techniques have changed in recent years. Most of the fields stayed idle and caused brownfield issues at the center of the cities. Most of the governments are aware that keeping them abandoned and unused increases the depression of cities and causes the new loss of green fields. Their contamination degrees are generally not counted like nuclear plants or other chemical industries. They are available for new uses after simple clean-up processes. Governments have recently been planning new development plans. Consciousness about those fields has been arisen and different organizations, incentives, funds are established. Offering a new productive use which strengthens the relationship with the localities and its surrounding and which is suitable for the historical, social, economic, ecological and physical characteristics of the city, brings a new value and opportunity to the urban development and civic economy. Most studies on brownfields to date have focused on the public benefits. Brownfields need to be prioritized in relation to economic realities.

In conclusion, for above mentioned deindustrialization or development process general strategies are assigned:

- Re-industrialization (most often through the development of high-tech industry which have demands on knowledge and innovation oriented resources and capital rather than demands on raw materials and transportation unlike the old ones)
- Modernization of the existing industry
- Bringing service sector: growth of tourism, recreation and leisure industries, as a direct result of rising real incomes: impact on sun belt' and peripheral regions. Growth of producer services (finance, banking, business and information services)
- Re-skilling the labor force
- Infrastructural renewal
- The creation of regionally- and locally- based financial markets
- Re-attracting lost population
- Feminization of labor: demand for unskilled and semi-skilled female labor, especially for part-time[63]

63 CF. Işın, 2009, 42- 47.

CHAPTER THREE

CASE STUDY OF ZONGULDAK

Fishing Boats

City Hall

City center
Business District

Port (coal load)

Towers under Heritage

Storage under
Heritage

City center
Business District

Entrance for Storage
Unit

Abandoned coal wash plant area

Zonguldak city is a typical example in Turkey, which faces the problems of new development principles in brownfield sites, due the changes on policies, dependencies and techniques on coal source in all over the world.

3.1 – MACRO ANALYSIS

[Figure 46] (left page) Zonguldak

Zonguldak is one of the most important coastal city in Turkish economic history, which lies along West Black Sea coast and has the most efficient hard coal reserves of the whole country. It plays a big role in marine trade especially with the countries in Black Sea Region. It has an area of 3310 km², 80 km coastal line and covers 6/1000 of Turkish total land area. City has 8 sub provinces (Ereğli, Alaplı, Çaycuma, Gökçebey, Devrek, Kilimli, Kozlu and capital district Zonguldak with an area of 632 km²), 380 villages and 25 municipalities.[73] It is located approximately 360 km east of Istanbul and 270 km north of Ankara. It is included in government`s agenda in West Black Sea Region together with two neighborhood cities; Karabük and Bartin, which were previously sub-provinces of Zonguldak. It has 32 building, 7 caves, 1 monumental tree, 4 religious building, 1 military building, 1 protected site in the center that are assigned officially as Cultural Heritage.[74]

Despite its being last city in alphabetical order; it was the first province, which was declared just after the proclamation of the Turkish Republic.[75] According to one theory, the city´s name is a combination of a French and Turkish word, Zone Geul-Dagh, which describes the location of the city by referring to the central point of the province, Göldağı (Lake Mountain).[76]

Economically, city has lost its power and has been facing with unemployment issues because of the differentiations in dependency to coal source, but has still several opportunities, which has to be considered primarily to improve further developments:

- Tourism potential
- Hosts first mining museum of country
- Development of sea based-sectors
- University
- Intersection point of railway, airway, highway, seaway
- Location in the focal point of Black Sea Region with its custom gate
- Culture of collaboration
- Range of natural sources
- Logistic location
- Experience and association in several specific sectors[77]

In Zonguldak, urban development and design has always stayed in 2nd prior-

73 Cf. TC. Zonguldak Valiliği: Coğrafya http://www.zonguldak.gov.tr/cografya.

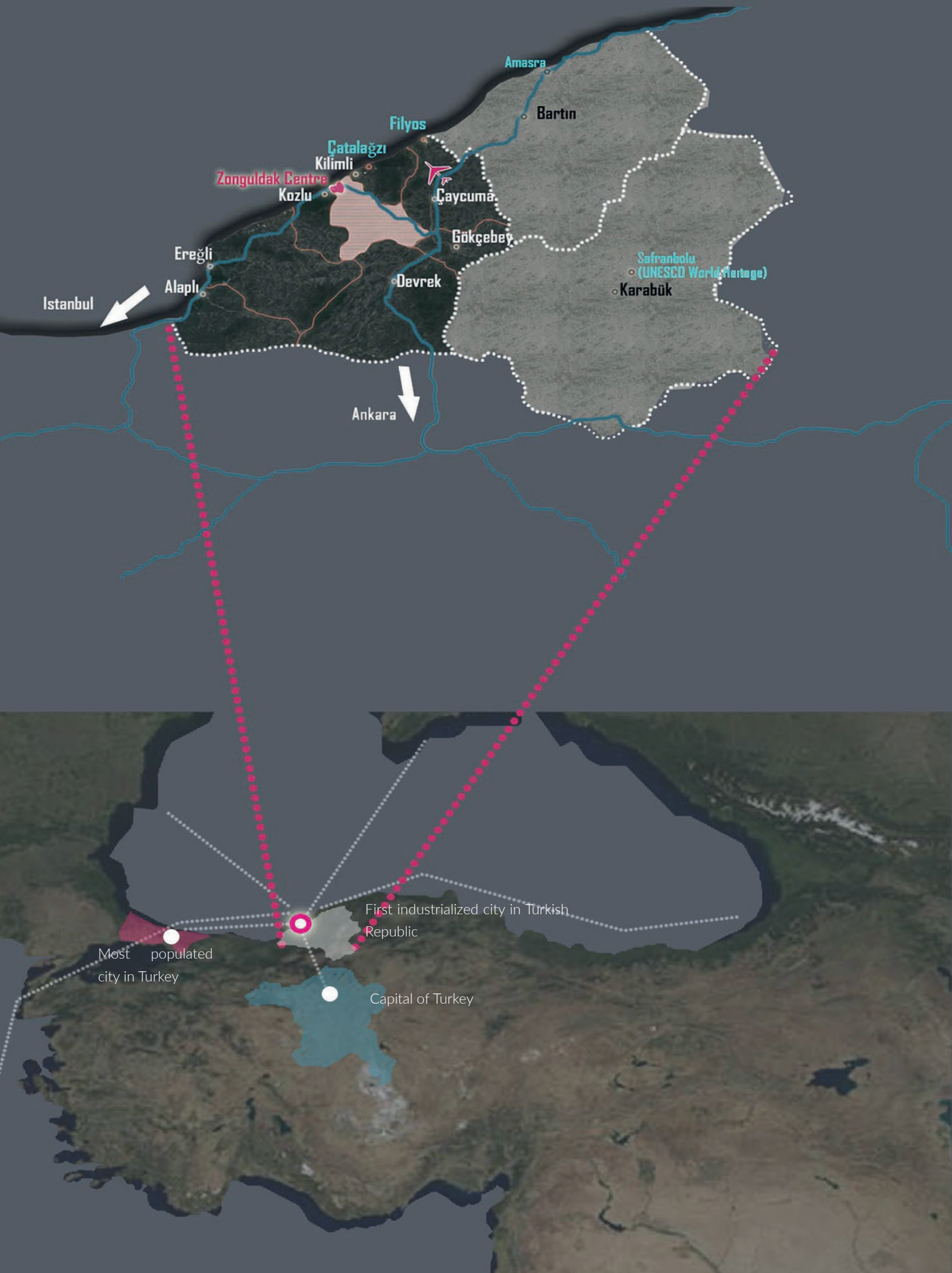
74 Cf. TC. Çevre ve Şehircilik Bakanlığı, 2014, 283.

75 Cf. TÜİK 2013, 11.

76 Cf. TC. Zonguldak Valiliği: Tarihçe, http://www.zonguldak.gov.tr/tarihce, 06-10-2017.

77 Cf. Kentsel Vizyon Platformu, 1-40.

[Figure 47] Zonguldak & Turkey



ity compared to the planning and developing activities of coal production facilities.

In the last decades, after the privatization of energy plants nearby, local coal production facilities had lost the competition against imported coal from Australia, the United States, South Africa and Russia, due to high extraction costs in unmodernized mines of the region. Moreover, the establishment of new energy production facilities based on other sources such as natural gas, caused a rapid decline in the production capacities of the Zonguldak mine sector.[78] [79]

HISTORY OF THE CITY

Until 1829

Region was settled in Carboniferous Period and had its complex layers during Alpinotype Orogeny and Hercynotype Orogeny. Despite the discoveries of ongoing researches, based on settlements in Ancient Age, the province does not have any importance until the discovery of the coal (in 1829) in the region. Until then it was an underpopulated fishing village and economy was based partly on forestry, hence the trade of woodcraft through its small wooden pier.[80]

1829: Revival of an industrial city

During the end of 18th century in Ottoman Empire Period, due to the influence of industrial revolution, expensive costs of importation of energy sources for all industry sectors caused a huge decline for the state treasury. It was an urgent need to supply the demand internally, which is especially needed for Donanma (Ottoman Navy), Darphane (mint facility), Tophane (cannon and cannonball facility), Tersane (shipyard) in Istanbul.[81] Therefore, discovery of the hard coal in Zonguldak, which is above all an efficient type of coal, was not only a revival for the city itself, but also for the country. The simplicity of marine transportation was also an advantage to acquire a new industrial city.

In 1848, coalfields around whole province (between Ereğli and Amasra), which have 185 million ton reserves, are designated and first coal mines and production areas are established. They are firstly operated by French and English companies. City was built from scratch around coalfield areas, with the operating units, facilities and labor dwellings.

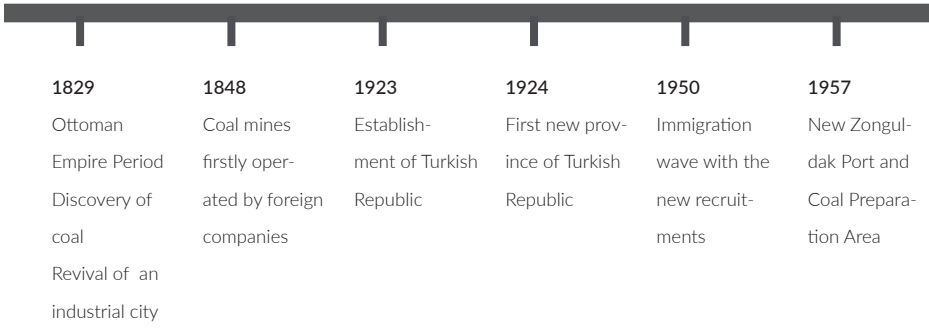
78 CF. Işın, 2009, 70-73

79 Cf. Archive Zonguldak Municapility: Zonguldak Yarışma. Genel bilgi ve tarihce.

80 Cf. Tan, 2015, 12.

81 Cf. TTK: Havza Tarihi, http://www.taskomuru.gov.tr/index.php?page=sayfagoster&id=8, 06.10.2017.

[Figure 48] Zonguldak illustration before the settlement.



[Figure 49] History of the city.

1848-1923

Effects of Crimean War (1853-1856) & World War 1 (1914-1918) kept different foreign administrative companies (such as British, Belgian, Italian, German and Russia) on site. The region continued to be surveyed, a railroad built and production increased with the technical improvements.

1923

With the establishment of new Turkish Republic, Turkish government took the administration in hand from foreigner groups.

1924

City was promoted to be a new province, which was declared firstly, right after the proclamation of Turkish Republic (1923).[82]

82 Cf. Zonguldak Kent Sempozyumu, 2011, 136.

1980
New policies
Privatization

1989
Most of the labor and management settlements assigned as immovable Cultural Property

1991
Most remarkable labor strike, obsolete industrial areas

1992
Bülent Ecevit University was established

2005
New policies
Privatization

2017
New development plans
Port is moving to Filyos to a new industrial area

[Figure 50] Zonguldak after development.

1924-1950

Turkish government provided new recruitments, which caused new migration waves from different regions of the country. In addition, coal production system triggered other industries around the city like coal preparation areas, thermal power plants for electric generation (Silahtarağa Thermal Power Plant/ Istanbul/1914-1940, Kömür Iş Thermal Power Plant/ Ereğli/1928, Çates Thermal Power Plant/ Çatalağzı-Zonguldak 1948), iron & steel production (Ereğli-Zonguldak), shipyards (Eregli-Zonguldak), etc.[83]

1957

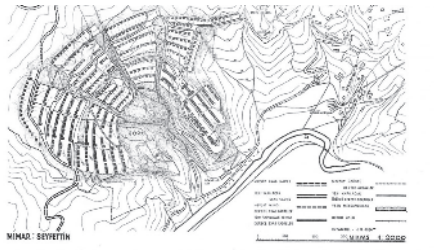
New Zonguldak Port and Coal Preparation area across the port were opened.[84]

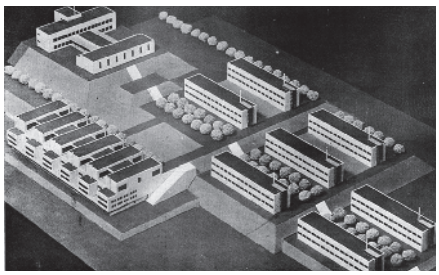
[Figure 51] Zonguldak in 1848.

83 Cf. TC. Çevre ve Şehircilik Bakanlığı, ilimiz hakkinda, http://www.csb.gov.tr/iller/zonguldak/index.php?Sayfa=sayfa&Tur=webmenu&Id=1812, 06.10.2017.

84 Cf. Akçadogan, 2014, 73

[Figure 52] Zonguldak Amele evleri. Project of labor houses.





1940-1980

Until the continual growth between 1940 -1980, new facilities for labor, like dwellings, dormitories, clubs, movie theaters, restaurants are continued to be planned and built rapidly under the control of government. Nevertheless, that could not prevent an inevitable, unplanned urbanization due illegal buildings.[85]

1980-1990

After 1980, with new liberal political approaches and economic and political reasons, decision of privatization started up, union groups and labor representation lost their power.

1989

Separately, a big part of the houses, guest-houses, schools, administrative buildings that are built in 19th or 20th century, are assigned as Immovable Cultural Property by Ankara Cultural & Natural Heritage Conservation Board and followed by other decisions during the following years.[86]

After 1990

Despite the most remarkable labor strike in Turkish history in Zonguldak, in 1991, downsizing and privatization continued until now, which brought up obsolete industrial areas and brownfields to the city and led up an emigration wave.[87]

1992

Bülent Ecevit University, which brought up a new socio-economic value, was established in 1992 and continues until now with 14 faculties, 3 Institutes, 4 High school, 9 vocational high school, 1 state conservatory and 30 Research and Application Centers.[88]

[Figure 53] Zonguldak general strike with the largest labor participation organized by Turk-is in 1991 extended over several months.

85 Cf. Archive Zonguldak Municapility: Zonguldak Yarışma. Genel bilgi ve tarihce.

86 Cf. TC. Çevre ve Şehircilik Bakanlığı , ilimiz hakkinda, http://www.csb.gov.tr/iller/zonguldak/index.php?Sayfa=sayfa&Tur=webmenu&Id=1812. 06.10.2017.

87 Cf. Fevzi, 195-201

88 Cf. TC. Zonguldak Valiliği, 2017, 9

1996

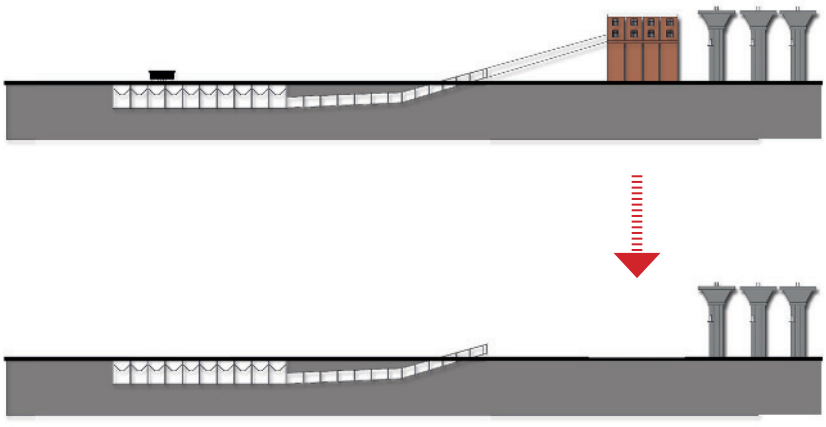
The most remarkable neighborhood of labor and employee that was built in 20th century, called Fener Settlement, assigned as 3rd grade protected site by Ankara Cultural & Natural Heritage Conservation Board. Site contains several house complexes (are built by not only French Administrations but also Turkish Republic Administrations), social facility units and trees that contribute positively to either ecological balance or urban silhouette.[89]

2005

Central Coal Preparation Plant area, which was located in city center and was built in 1950 by Simon-Carves (English Company) and operated since in 1957, was assigned as Immovable Cultural Property with 3 washing plant tower and storage unit (silo). Area began to be shut down partly in 1991 due the new built filtration area. It began to be demolished in 2002.[90]

2012

Preservation on Wash Plant Building was removed. Building was destructed.[91]



[Figure 54] Zonguldak Fener Settlement, remarkable neighborhood of labor and employee.

[Figure 55] Central Coal Preparation Area along the port.

[Figure 56] (left above) Before 2012 preserved buildings.

[Figure 57] (left below) In 2012 destruction of Wash Plant Building.

89 Cf. Archive Zonguldak Municapility: Zonguldak Yarışma. Genel bilgi ve tarihce.

90 Cf. Archive Zonguldak Municapility: Zonguldak Yarışma. Genel bilgi ve tarihce.

91 Cf. Gürsel, Derya: Koruma kararı kaldırılan binanın yıkımına baslandı,

Until 2017

New strategies to enable fundamental changes in Zonguldak central activities are initiated. New development plans are being generated to create alternative path for a higher economical growth of the city. Domestic tourism is planned to be benefited by constructing new transportation hubs (seaway, road, railway) hence the geographical closeness to main cities such as Istanbul and Ankara will be further exploited. Similarly projects for a new port and industrial region in Filyos have been initiated. The new industrial area is planned to be opened in 2019. Zonguldak city port has been planning to be modified to provide new economic contributions. Although, the port will still serve as main connection hub of the city, its capacity is planned to shift to tourism sector (port for cruise ships) as part of new development plans to make the city a touristic attraction point.

ECONOMIC CONDITIONS

Mining & Side Sectors

Zonguldak City has leaded its economy with a mono-sectoral focus, based on coal mining, which had dominantly been operated by state owned enterprise (TTK, Turkish Hard Coal Enterprise Institution) for a long time. City, with the most efficient hard coal reserves of the whole country and thermal power plants, had been introduced as an industrial region with a collaboration of neighborhood cities. Bartın and Karabük (were before sub provinces of Zonguldak) with Iron & Steel Factories, were supplied by the coal extracted from Zonguldak.[92] The other establishments, which help to lead the economy of the city are, ERDEMIR (Eregli/ Iron–Steel Industry), Çatalağzı Coal Fired Thermal Power Plant (Energy), recently developed forestry products and marble industry, shipyards, agriculture, livestock breeding, fishing, woodcraft and tourism (nature & beaches).[93]

Fishing

City was originally a fishing village and its economy was based partly on forestry, with the trade of woodcraft through its small wooden pier. With the 80 km coastal line, fishing is part of the important economical activity in Zonguldak.[94] Fishing boats located along the central port and spread all along the coast. City

[Figure 58] Being a coastal city brings an advantage of fishing sector.

09.02.2012 http://www.arkitera.com/haber/6571/koruma-karari-kaldirilan-binanin-yikimina-baslandi, 05.01.2018

92 Cf. Işın, 2009, 7-9.

93 Cf. TC. Zonguldak Valiliği, 2017, 5.

94 Cf. Country note on national fisheries management systems Turkey. Fisheries Sector in Turkey, https://www.oecd.org/turkey/34431494.pdf, 05.01.2018.

has always had the advantage of being a coastal city, once used as a transportation opportunity, now other opportunities have to be considered.

Wooden Production

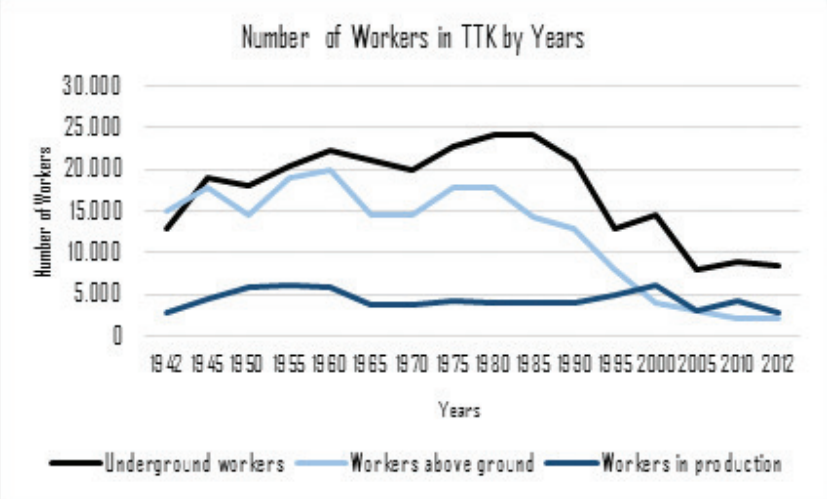
Wooden production including, round wood, mine load bearers, industrial wooden, wooden for paper, fiber-chip wood, poles, firewood are produced in the city.

City has also been famous with its woodcraft especially with the special design of walking sticks produced in Devrek.

Condition Today

Although the city still leads its civic economy by the coal mines, it strongly suffers from economic decline. In 2000, mining sectors participated among other sectors with 49% share while in 2013, this participation decreased to 25%.

The national systems replaced with the investments from global actors by the influence of the new neoliberal wave, causing new policies and privatization



with the global restructuring process. Economic models have been reconstructed with the new actors; many relevant sectors changed their dependencies from internal sources to imported ones due financial competition in free markets, which resulted a strong decline of state-owned coal source and exportation capacities. Consequently, TTK decided to decrease the number of its employees and shut down some parts of its facilities. Consecutively, the production facilities are abandoned as brownfield areas and caused a negative impact on the appearance of the city and its economic conditions. City has been losing its population since then.

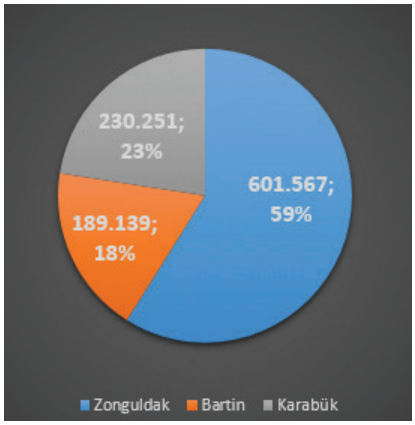
In 2006 during the European Union harmonization process, new regional

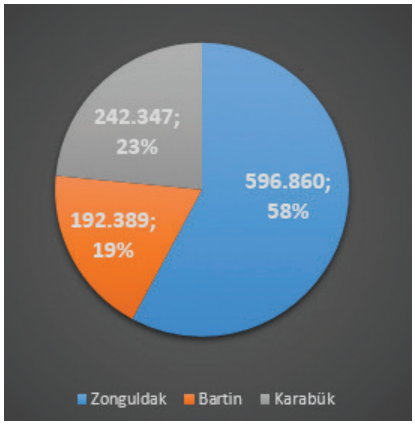
[Figure 59] Collaboration of West Black Sea Region.

[Figure 60] Number of Workers in TTK by years..Statistics according to West Black Sea Development Agent

development agencies are planned to be established to close the gaps difference in revenue and development trends among the cities of the region. Therefore, Western Black Sea Development Agency was established in 2009 to provide consultancy service for Investment Support Offices in order to expand its current market and increase competitive power. Western Black Sea Development Agency has been responsible for 3 cities, Zonguldak, Bartın and Karabük since then.[95]

As a comparison between the years 2013-2017, Zonguldak lost its population while other 2 cities continued growing because of the side sectors like iron industry and moreover both cities promote tourism which Zonguldak city has never focused on. Being an industrial city since the first years of Republic Period kept this tourism potential in background and distribute the roles to Safranbolu in Karabük (Unesco World Heritage Site-Architecture) and Amasra in Bartin (coastal





[Figure 61] (left) 2013 population distribution in West Black Sea Region

[Figure 62] (right) 2016 population distribution in West Black Sea Region. Zonguldak central population decreased in 3 years while other cities increased..

tourism-fish restaurants, etc.) in the West Black Sea Region.[96] [97]

Zonguldak provides an opportunity as one of the first example of industrial heritage tourism and the museum within this restructuring process.[98] As a target for 2023 Turkish Tourism Strategies, Zonguldak is planned to be developed by its cultural, coastal and ecotourism potential.[99] [100]

Former conglomerated mining industry sectors in central province Zongul-

95 Cf. 2014-2013 Batı Karadeniz Bölge Planı, Cilt 1, Mevcut Durum Analizi 2013 ,13.

96 Cf. 2014-2013 Batı Karadeniz Bölge Planı, Cilt 1, Mevcut Durum Analizi 2013 ,13.

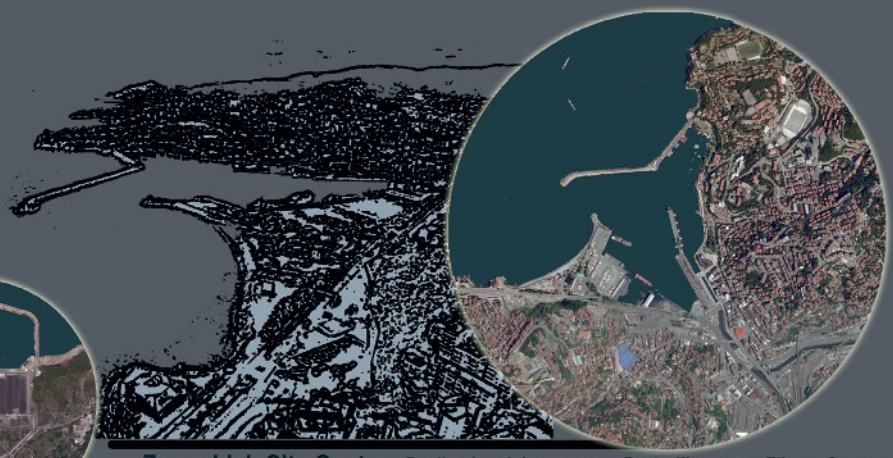
97 Cf. Zonguldak Nüfusu, https://www.nufusu.com/il/zonguldak-nufusu, 05.01.2018.

98 CF. Ergen, 2013, 136.

99 Cf. 2014-2013 Batı Karadeniz Bölge Planı, Cilt 1, Mevcut Durum Analizi 2013 ,171.

100 Cf. TC. Zonguldak Valiliği, 2017, 12.

[Figure 63] (right page) Projects in Zonguldak.



Zonguldak City Centre - Decline in mining sectors. Port will move to Filyos. Government develops a new plan for tourism opportunities.

Çatalağzı- Currently Thermal Power Plant & Port / importing coal from its own harbour

Filyos- New industrial region project. Zonguldak port will move partly to this region

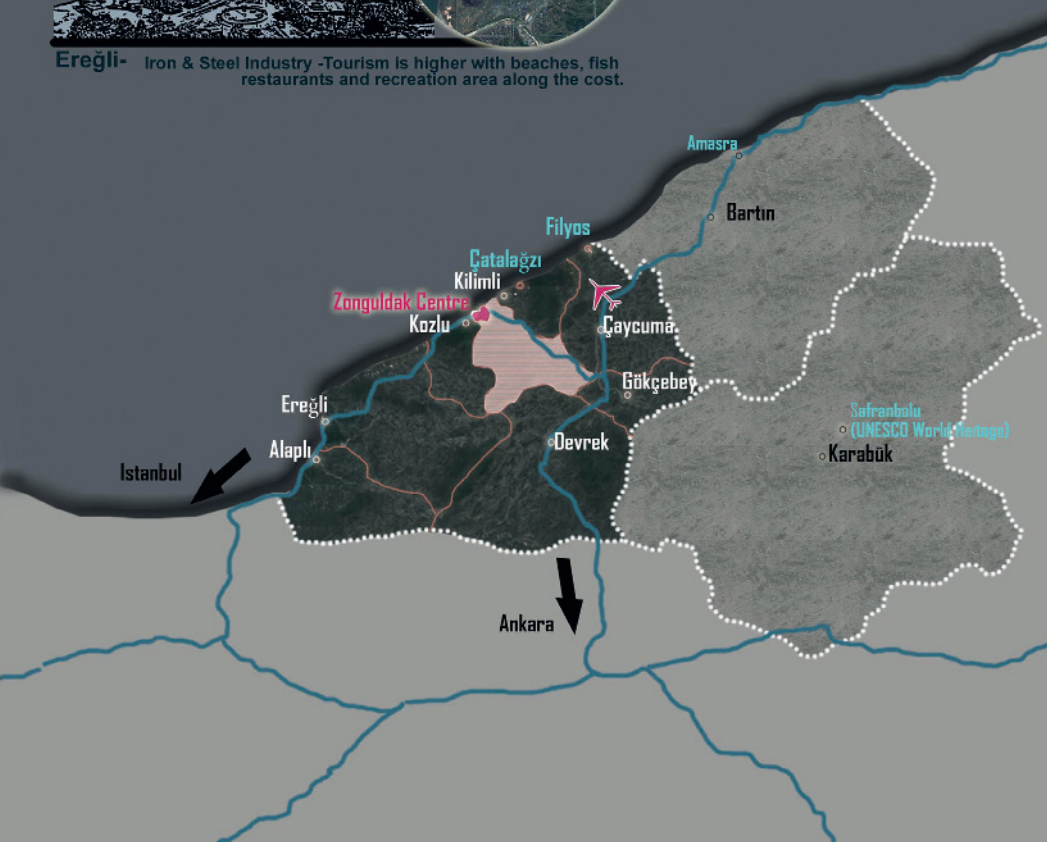
Kilimli- Currently Port for fish boats / new plans for increasing fish products

Amasra- Coal Mine Industry / Tourism is high due historical and natural heritages, beaches and fish restaurants

Kozlu- Currently Port for fish boats / new plans for an harbour for yachts which will bring tourists to the city

Safranbolu- Unesco World Heritage. Typical Ottoman settlement over a caravan tradeway / preindustrial Turkey/ tourism is high. Located in Karabük / iron and steel factories in the city.

Ereğli- Iron & Steel Industry -Tourism is higher with beaches, fish restaurants and recreation area along the cost.



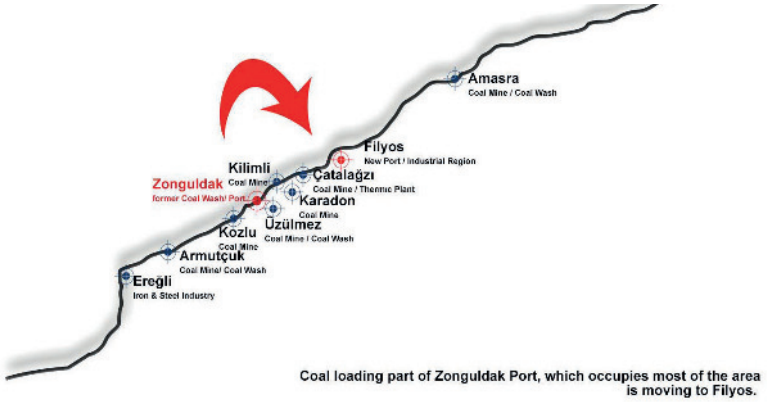
dak lost the attention. Central port is not efficient enough, causes difficulties for the capacity despite its large scale. Therefore, government prepared a new development plan not only for Zonguldak center but also for whole West Black Sea Region, including a new port, new industrial region, thermal plant, logistic facilities and a new free zone in a lowland area named Filyos Valley Project, which is

[Figure 64] New Filyos Valley Project.

located in Caycuma, sub province of Zonguldak.

Filyos Valley Project

With that project Zonguldak central port, will be downsized and be partly moved to Filyos, by providing new employment opportunities.[101] Despite all the



[Figure 65] Beside Zonguldak center, there are other coastal towns within the boundaries of province: Eregli, Armutcuk, Kozlu, Kilimli and Filyos. The next coastal town, Amasra is within the boundary of neighbor province, Bartin, is the main touristic spot of the coastal region.The new industrial area is moving to Filyos, to a low land area.

101 Cf. 2014-2013 Batı Karadeniz Bölge Planı, Cilt 1, Mevcut Durum Analizi 2013 ,35.

protest of environmental organizations, Filyos Project was started up in 2014 and is planned to be finished in 2019. It is going to supply 12% of total need for sea transport of Turkey and will provide employment opportunities up to 20.000-30.000 people. It is expected to bring new migration waves to region.[102]

Impacts in Zonguldak Port:

According to 2015, Chamber of Commerce and Industry Report, government developed and published a new transformation plan for Zonguldak. It is planned to bring new opportunities by using the coastal city advantage covering also the future of central port of Zonguldak upon the completion of Filyos Project.

The main principles of this development plan are:

- Utilize even more the potential of being a coastal city by emphasizing the fish sector, hence increasing the fishing capacity, supplying more fish products.
- Open the city to tourism with new promotions (the potential could not be exploited until today and neighborhood cities like Safranbolu and Amasra are considered more as attraction point in the region.
- Establishing a first tourism office in the city.
- Organizing cruise ferries to the city.
- Transforming Kozlu port to marina to benefit further from yacht tourism. (Kozlu is the closest neighborhood and located on the coastal line of city.
- Opening refrigerant units in Kilimli port, which is another neighborhood in the center on the coastal line.
- Designing touristic activities by industrial and natural heritage potential, (hosting already Turkish Coal Congresses)
- Promote 7 caves, officially certified as cultural heritage and Gökgöl Cave (in center) and Cehennem Agzi Cave (in Eregli), which have already been opened for tourism.
- Promote Zonguldak Mining Museum, which is the first mining museum

[Figure 66] New development plans. Promotion of tourism and fish sector by using the advantage of being a coastal city.

[Figure 67] Zonguldak Mining Museum. Industrial heritage identity of the city is an effective way of promoting tourism. First and only coal mining museum in country located in Zonguldak.

[Figure 68] Photo from Zonguldak Mining Museum.(left) model of former Zonguldak coal production facilities.

[Figure 69] Photo from Zonguldak Mining Museum. Simulation of coal extraction and production.

102 Cf. TC. Zonguldak Valiliği, 2017, 19-20.

[Figure 70] (larger photo above) Zonguldak Mining Museum, foyer.

[Figure 71] (below) Photo from Zonguldak Mining Museum, Wash Plant models. One of the towers of the project site is visible.

[Figure 72] (left below) Photo from Zonguldak Mining Museum. (right below) Presentation of extraction of coal.

[Figure 73] (right below) Photo from Zonguldak Mining Museum, foyer.

of Turkey, has also opened in former Üzülmez Training Area of the TTK in December 2016.

- Creation more synergies between students and city life. University

region is today quite isolated from the center. New areas could be designed in the center that can partially shift the campus life towards city center.[103]

SOCIAL CONDITIONS

According to results of 2016 Population Census, population of the city is 597.524. 38, 4% of the total population live in rural areas whereas 61, 6% live in urban areas.[104] 86% of whole population, 126.404 people, live in central province, Zonguldak Merkez. 18.224 people in central province live in rural areas whereas 108.180 people live in urban areas. Population density is 181 person per km² and population growth rate is 0,027% and is under Turkish cities average accord-

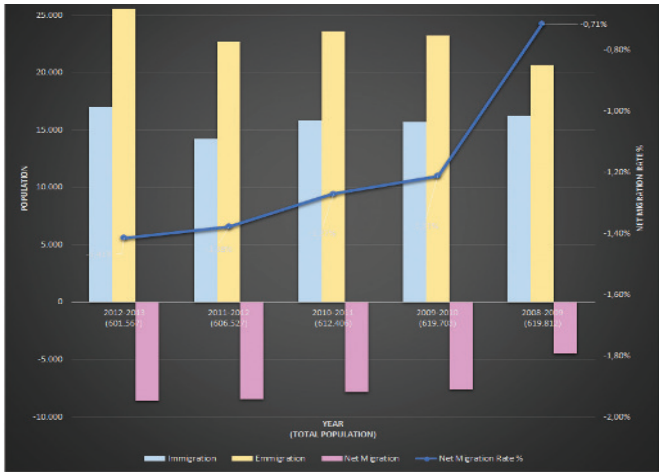
103 Cf. 2014-2013 Batı Karadeniz Bölge Planı, Cilt 1, Mevcut Durum Analizi 2013 ,43.

104 Cf. TC. Zonguldak Valiliği, 2017, 4.

ing to TUIK (Turkish Statistical Data Institute). It is mainly because of emigration. Domestic gross product per capita for the employees in industrial sectors and agricultural sector are higher than the average when compared to other cities. [105]

As seen on the diagram, most of the population live in Eregli sub province, which also uses its opportunity as coastal region for touristic facilities.[106]

According to TUIK (Turkish Statistical Data Institute) data unemployment rate is %7,6 where employee rate is %51,2. Total number of unemployed people is 21.900 including disable persons and prisoners. Number of unemployed women are 12.065; men are 9.835. There are currently 132.339 insured people. According to data gathered for living standards of entire country (among all 81 cities), Zonguldak was listed in: 29th place for Housing, 1st place for Business Life, 52nd place for Health, 60th place for Education, 42nd place for Environment, 32nd place for Security, 16th place for Civil Participation, 44th place for Access for Infrastructure Services, 51st place for Social Life, 76th place for pleasure of living. That makes the city listed on 41st row in general average.[107]



According to TÜIK Data cumulation in younger generations for each gender, city has to respond them with new opportunities so as to prevent emigration.

It is seen on diagram that young generation who are in more productive employee age are tended to migrate due economic reasons. 59,32 % of emigrants and 66,44 % of immigrants are between the age group 15-34.[108]

City has been facing an increasing rate in emigration because of the employment problems due lack of variety of sectors and being dependent to mono-sectoral opportunities. [109] [110]

105 Cf. TÜİK, 2010.

106 Cf. TC. Zonguldak Valiliği, 2017, 8-9.

107 Cf. TC. Zonguldak Valiliği, 2017, 2-6.

108 Cf. 2014-2013 Batı Bölge Planı, Cilt 1, Mevcut Durum Analizi 2013 ,109.

109 Cf. TÜİK, 2013, 90.

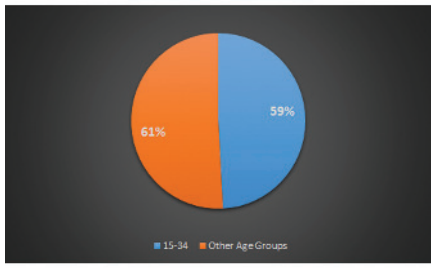
110 Cf. 2014-2013 Batı Karadeniz Bölge Planı, Cilt 1, Mevcut Durum Analizi 2013, 27.

SUB PROVINCE	TOTAL POPULATION	URBAN POPULATION	RATIO (%)	RURAL POPULATION	RATIO (%)
Zonguldak (Central Province)	126.404	108.180	86	18.224	14
Alaplı	43.966	20.287	46	23.679	54
Çaycuma	91.099	27.062	30	64.037	70
Devrek	56.886	26.608	47	30.278	53
Ereğli	174.619	115.987	66	58.632	34
Gökçebey	21.133	8.302	39	12.831	61
Kilimli	37.213	21.867	59	15.346	41
Kozlu	46.204	39.335	85	6.869	15
TOTAL	597.524	367.628	61	229.896	39

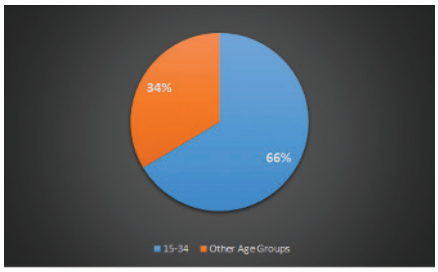
[Figure 74] Urban and rural population by sub-provinces.

[Figure 75] Zonguldak migration analysis based on address based population to TUIK data 2012-2013.

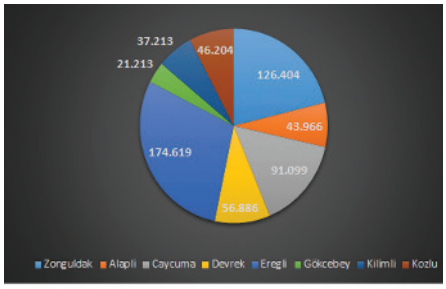
[Figure 76] Zonguldak emigrant distribution by age groups (15-34 and others). Both groups are are almost equal.



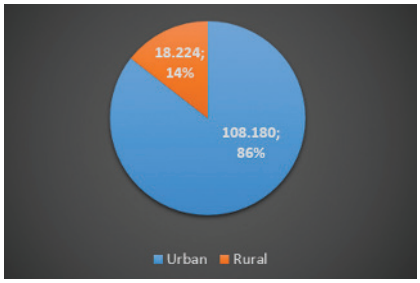
[Figure 77] Zonguldak Immigrant distribution by age groups (15-34 and others). It is seen clearly that population among 15-34 prefer to immigrate to other cities.



[Figure 78] (right) Zonguldak 2016 population by sub-provinces.



[Figure 79] (left) Zonguldak 2016 population by urban 86% /rural 14% distribution.



Expense types are mainly cumulated around food, health and transportation.

Only Atatürk Culture Center (AKM) in the city serves for cultural activities. Other buildings in the city are multi-purpose spaces, which belongs to schools or public institutions and are not technically sufficient. AKM cannot cover all the demands. Building contains 1 city library, 1 library for kids, exhibition hall, theatre (366 person capacity), meeting room (100 person capacity). [111]

Bülent Ecevit University

There are 99.261 students in primary-high schools and 34.183 students in university. After the economic crisis city has been facing, it has overcome emigration and decline of the population by the help of the establishment of Bülent Ecevit University in 1992. Number of students increased rapidly up to date and university continues growing with further investments. There were only 10.042 students in 2002-2003 Education period.[112]

There are 8 State Hospital, 2 Mouth and Dental Center, 1 Medical Faculty, 3

[Figure 80] Bülent Ecevit University.

Private Hospital, 7 Medical Center.

111 Cf. Archive Zonguldak Municapility: Zonguldak Yarışma. Yarışma sorular.

112 Cf. Archive Zonguldak Municapility: Zonguldak Yarışma. Yarışma sorular.

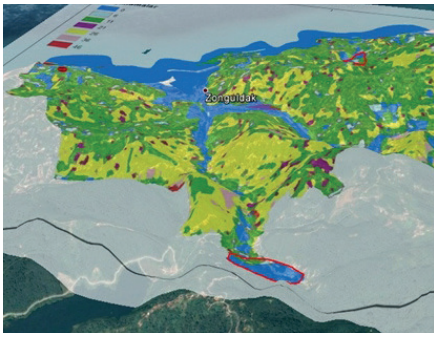
ENVIRONMENTAL CONDITIONS

Geographical

City comprises of 31% plateau area, 13% lowland area and 56% mountainous area. Mountains lies parallel along Black Sea coast and 29,17% of mountains are under the degree of %20 obliquity which is feasible for urban settlement and agricultural areas.[113] Mountains, in the northern part are lower than 1000m, in the central part are max. 1200m and in the southern part they reach the max. Height of 2000m. Coal mines are located under the first row of the mountains, which stretched along the coast. Despite the valleys between mountains, there are not any feasible lowlands. Only the coastal line between Kozlu and City center is an uninterrupted lowland area.

Natural beaches that are spread along the coast are magnet points in summer and visited by locals and tourists. There are several rivers and streams located in the city, the longest is Filyos Çayı, however only Akgüney stream flows through the city center and ends in marine.

Because of the mountainous character, there are not many flat terrains, which is a disadvantage for whole settlements in the city and is another reason for urban sprawl. Approximately 30% of the city is located on north and north-west side where the city center is located.[114] The topography of the city does not allow the settlements to be exposed by sunlight efficiently because of the mountainous character, which faces seacoast and inefficient sun direction. All residents prefer to have a sea view rather than efficient sun direction.



[Figure 81] 56% of the city comprises of mountains.

Climate

It has the specific characteristics of Black Sea Temperate Climate; all seasons have an average rainfall. Precipitation is heaviest in autumn and winter. Summers are warm and humid. Temperature is not higher than 35°C. Winters are mild. There is no significant temperature difference between day and night. In some areas, there is the risk for flood and landslide due the mountainous structure.[115]

[Figure 82] Kapuz Beach.

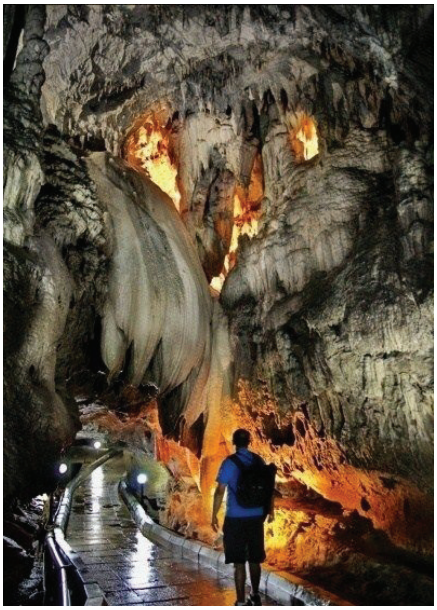
Air Pollution

Air pollution in the city is mostly caused by the densely use of coal to provide energy for the industries and thermal plants and measured with high dust, carbon

[Figure 83] Sea Club.

113 Cf. TC. Çevre ve Şehircilik Bakanlığı, 2011, 17-18.
114 Cf. TC. Çevre ve Şehircilik Bakanlığı, 2011, 21-22
115 Cf. Archive Zonguldak Municapility: Zonguldak Yarışma. Etüt rapor.

[Figure 84] Gokgol Cave



monoxide, sulfur dioxide and nitrogen oxide emissions.[116] Until 2014 city (dwellings) had also been heating up by coal source however today transformation period to natural gas has been completed which is expected to partly overcome the pollution problems. Despite Turkey has directed its energy policies toward heating and electricity production that relies on imported natural gas, it is difficult to provide a complete transition process in coal based cities.[117]

Natural Sources

Beside coal source, there are researches for possible use of sustainable energy sources like solar, water, wind, geothermal, biomass, fossil fuel and natural gas.

City has several national parks, natural monuments & caves natural conservation areas, beaches that leads a touristic potential.[118]

Biological Diversity

City has a large diversity of plants and animals. 56, 8% of general land area comprises of forests with different type of trees (pine, oak, beech, fir). In region, around 521 type of different plants, 245 different species of birds, 120 type of fishes, 19 different type of reptiles, 77 type of mammals are confirmed.[119]

Agriculture

Main agricultural products are cereals (wheat, barley, corn, etc.), fruits (nut, strawberry, apple, etc.), vegetables (summer-winter), potatoes, sunflower. Greenhouse products has been increasing day by day.

Infrastructure

City has been struggling with urban sprawl since beginning. Although the settlement areas and industrial areas segregated and planned, it was unavoidable to control illegal constructions, which are called "Squatter Houses" (Gecekondu). Because of the huge immigration wave and needed labor force, those illegal constructions are tolerated. Therefore, city has suffered from ownership and infrastructural problems. Ownership certificate to those unlicensed constructions were recently provided to habitants according to the law of The Squatter Amnes-

116 Cf. TC. Çevre ve Şehircilik Bakanlığı, 2014, 14-19.

117 CF. Işın, 2009, 67.

118 Cf. TC. Çevre ve Şehircilik Bakanlığı, 2014, 63-70.

119 Ibid.

[Figure 85] (Above) Figure-ground plan of city.

ty.[120]

City is located on an attractive location, by being approximately 360 km east of Istanbul and 270 km north of Ankara. It is connected to large cities via railway (Zonguldak-Ankara), highway (Ankara-Istanbul), seaway (to East Europe, Russia, Black Sea Coast, Mediterranean cities through Bosphorus) and airway (Saltukova Airport - 45 km away from Caycuma) connections.

STRUCTURAL CONDITIONS

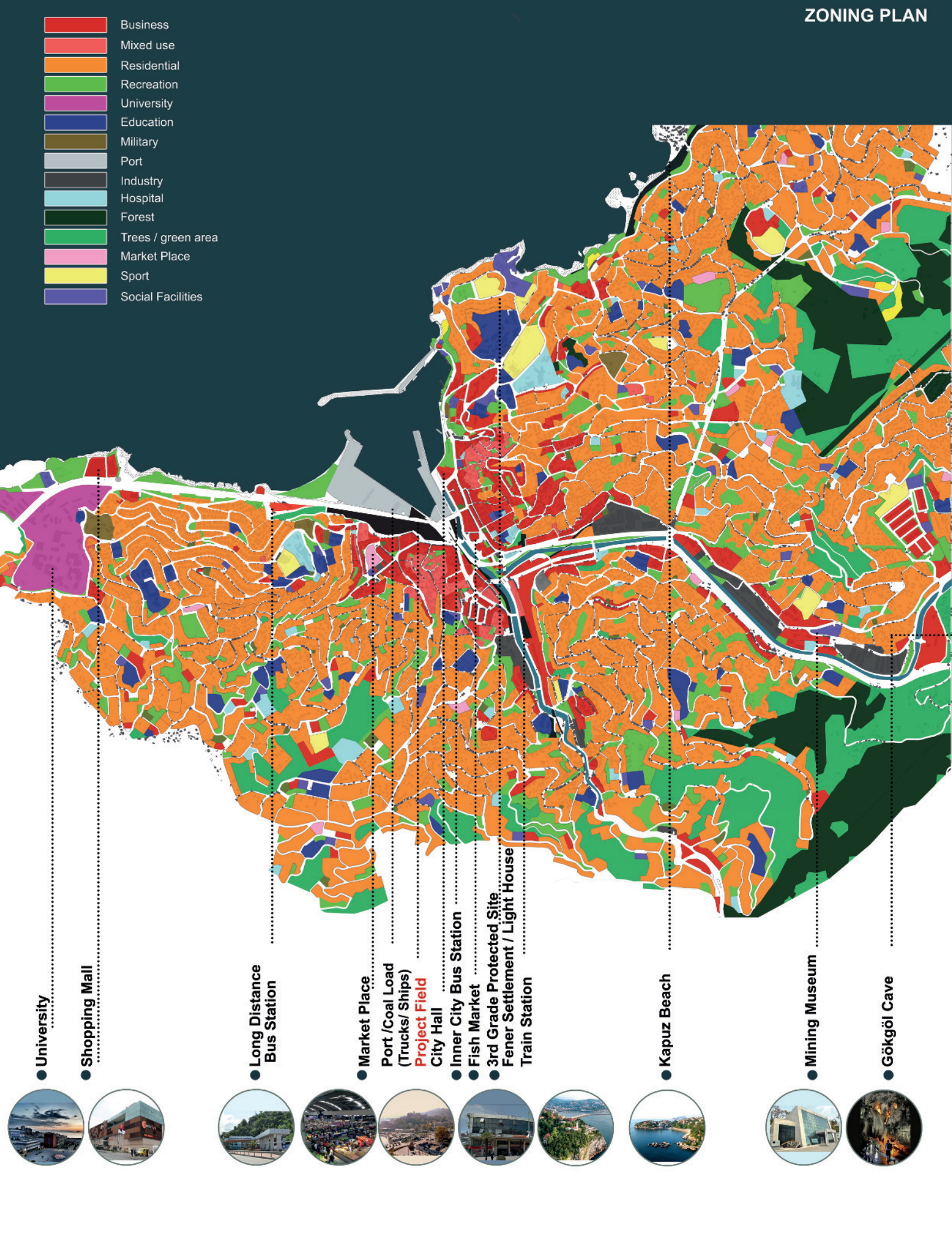
Main business district is located in city center near the port which was served for coal transportation and fishing boats until today. City hall is located on the east side of the port. Residential areas located around the city center. Mountainous character shows up in residential areas and riverside and city center have more flat topology. East side of the port is known as old town center. University region located on the west of city center. Between University and port, a bus station for long distance is located.

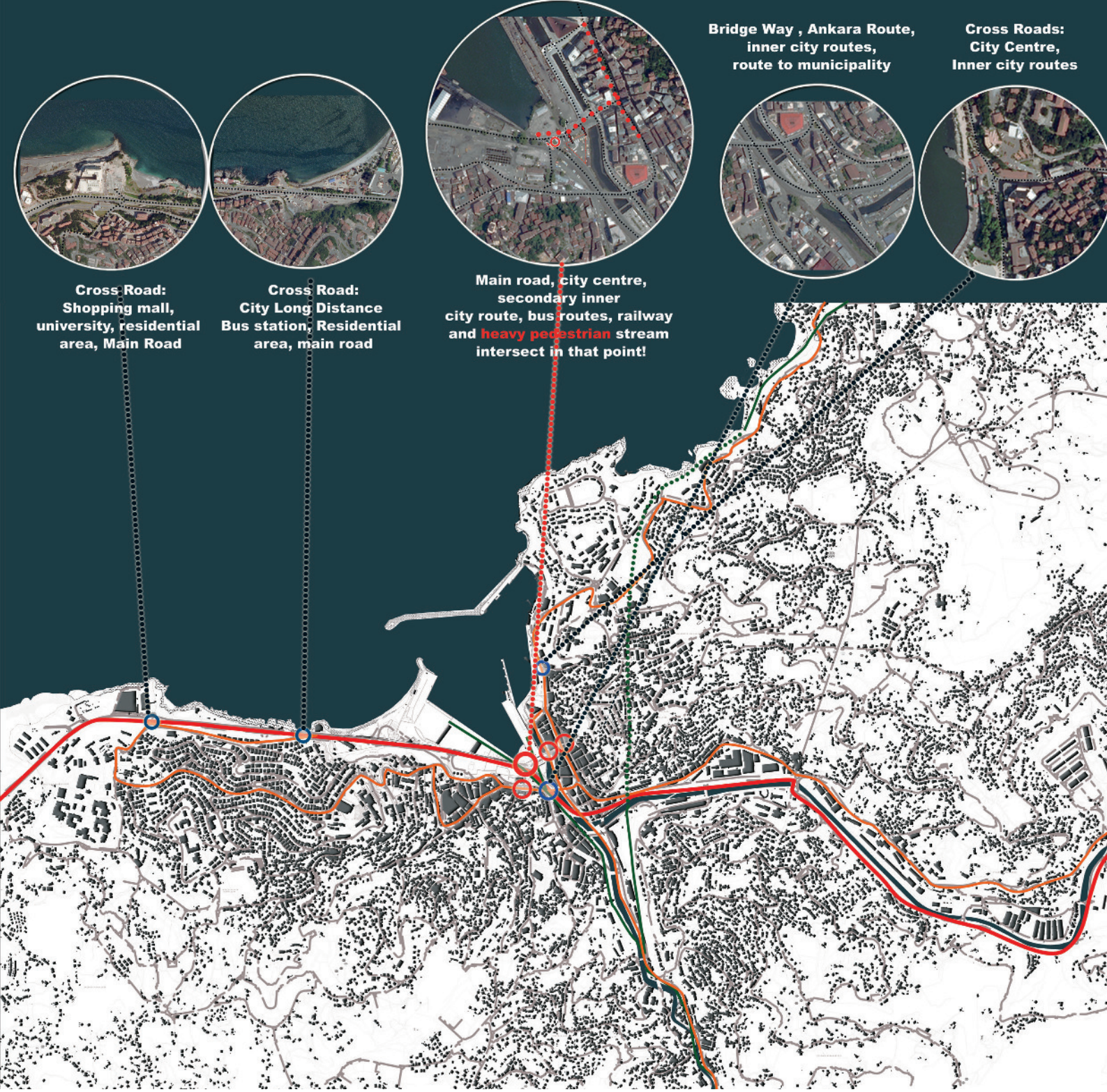
City had been structured dependent upon the coal industry in the center around the port and along river. Today, business district is conglomerated around the port, industrial facilities are excluded from city center.

Old town and business district cause heavy pedestrian and vehicle traffic.

120 CF. Ergen, 2013, 89.

[Figure 86] Zoning Plan of Zonguldak



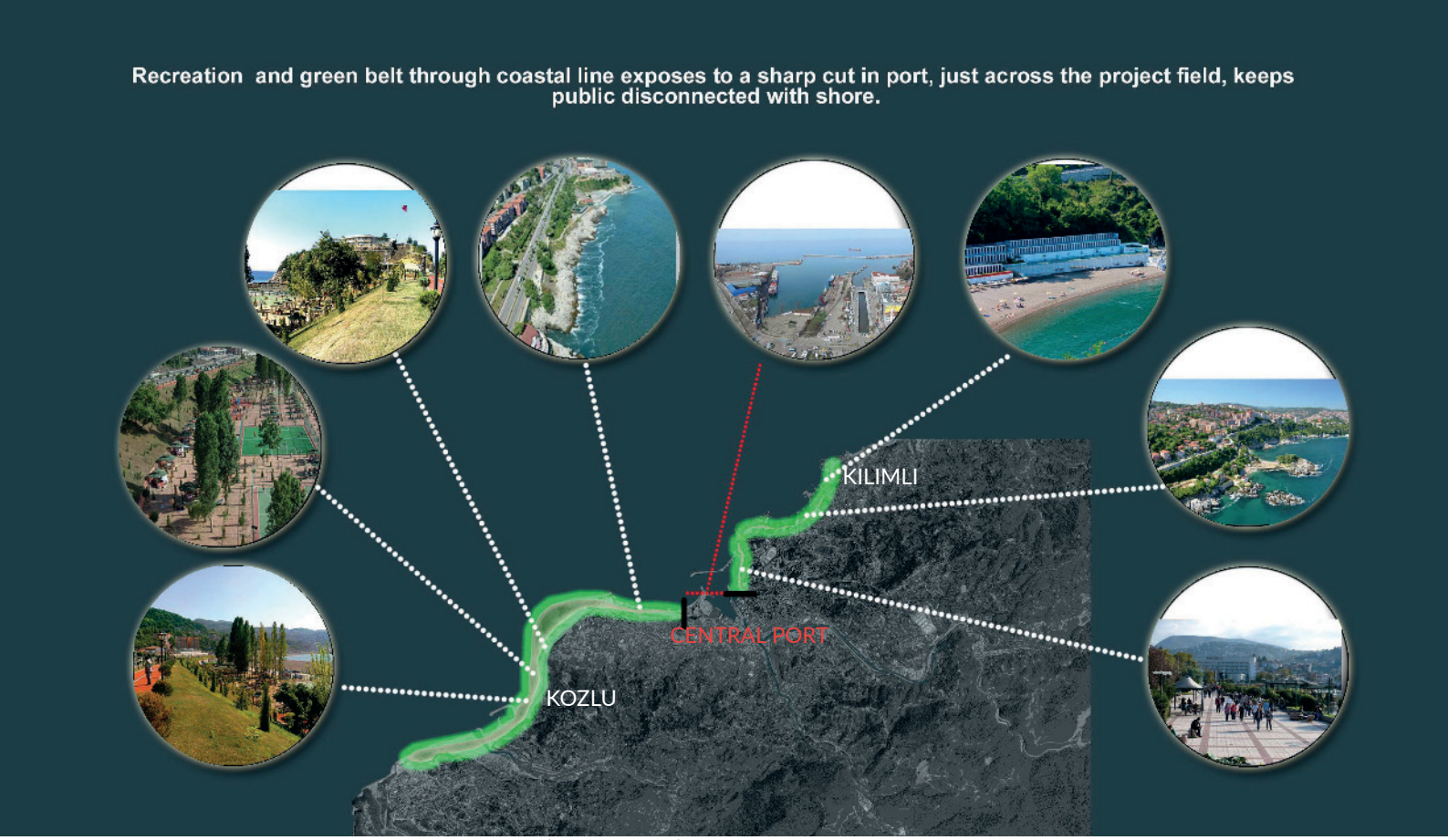


[Figure 87] Overview Zonguldak city center and road junctions

Main roads, railway, pedestrian, public transport intersect at the same point. One of the main problem is highway connection pass through city center. The inner city bus station is also located in a critical point and buses increases further the traffic load. Despite the several crossroads, roundabouts around the city center, most problematic junction point is located across the port and former wash plant area.

As seen on the plan red route represents the transit way connection, orange route is a secondary inner city route and green route represents the railway connections. Big red circle is the intersection point of inner city bus station, main road, secondary road and railway. Blue point on right is the cantilevered bridge

[Figure 88] Overview of Zonguldak Fevkani Bridge, cantilevered bridge.



[Figure 89] (Above) Green & Recreation Belt.

[Figure 90] Connection road from Kozlu to central port.

[Figure 91] (Right below larger image) Junction point of bus, car, pedestrian, transit and rail way.

[Figure 92] Overview of Zonguldak bus station area.

road as seen on photo.

For several years, city has been expanded towards west side, to Kozlu direction and there have been developed new urban plans. Kozlu coastal line has been improved for recreational areas. Although this coastal line continues from west to east, towards Kilimli district passing by the city center, it is interrupted in the port area because of the coal transportation and preparation activities. Moreover, to avoid dust and noise pollution port was separated by walls, which block the public sea connection and view. Thus, pedestrian way along the seacoast has lost its attractiveness.

Most important target for the city is to optimizes the connection and junction points, complete the disconnected recreational coastal line and overcome the traffic problem by considering pedestrians, separating transit route from city access, considering the flat space advantage extending the bike route, already made in Kozlu coast, until city center.

3.2 – MACRO ANALYSIS – LOCAL CONDITIONS IN PROJECT FIELD

The large flat field covering port and abandoned coal washery , which is rarely seen in city´s harsh topography, has strategically an important location in the center and has to be evaluated in detail. Keeping it idle breaks down the recreation axis in coastal line and blocks the connection with city center. It can play a big role to overcome urban space problems in the city. Moreover, it effects the traffic access negatively. Access to city center is blocked by the railway and level crossings relevantly to the field.[121]

[Figure 93] Project located field in low land area just across the port and lies along the coastal recreation line.

GENERAL INFORMATION ABOUT FIELD

History of the field, abandonment, functions:

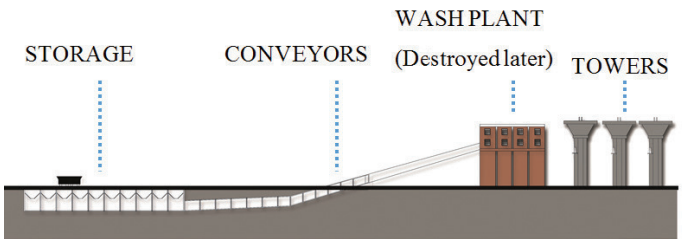
Zonguldak Central Coal Washery (Zonguldak Merkez Lavuar). Plant was constructed and began its first operations in 1957. It was designed by an English Company, Simon-Carves, together with the new port project to transport the coal more efficiently to consumption regions by seaway. The new port was constructed by Eregli Kömür Isletmesi, in the place of old port, which was used since 1900´ s.

Coal preparation, beneficiation or washing is as mentioned before, the definition of separating the coal from dirt and others stones which are extracted together with the coal. Vibrated screening and flotation methods are used to prepare the clean coal by using a vertical system. Coal has a lower density than other particulars, therefore coal floats in water while other wastes sink.[122]

[Figure 94] Sea view of abandoned coal washery.

[Figure 95] (left) Photos for former Wash plant conveyors.

[Figure 96] Towers before the demolition of the area.



[Figure 97] Wash Plant preserved buildings. Storage Unit, towers, wash plant building.

121 Cf. Akçadogan, 2014, 73.

122 Cf. http://www.pleasley-colliery.org.uk/html/washery.htm.

1957
Wash Plant was constructed

2005
Due technical incompetence new wash plant in Üzülmez Region was abandoned

2006
Storage units (silo alti), Wash Plant (kriblaj), 3 concrete towers are assigned as industrial heritage

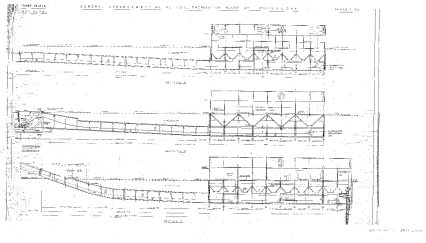
2008
1st competition for students to evoke the awareness

2010
2nd competition was organized by municipality based on city council data, consisting of 130 non-governmental organizations

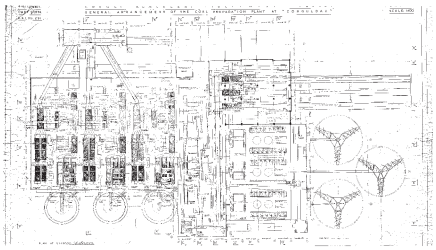
2012
Industrial Heritage assignment on wash plant (kriblaj) building was removed. Building was also destructed.

2015
New industrial and port area assigned to Filyos. Zonguldak central port will move to Filyos. Chamber of Commerce and Industry published a new development plan for tourism and fish sector.

[Figure 98] History of coal wash plant (preparation) area.



[Figure 99] Project of Storage Unit.



[Figure 100] Project for wash plant building and concrete towers.

Function of Storage Unit (silo alti): Coal extracted in Üzülmez and Kozlu mines came to coal washery storages (silo alti) with wagons by using railway. That storage unit has been under preservation with the decision of Cultural & Natural Heritage Conservation Board as industrial heritage since 08.12.2006. They are composed of concrete grid units below ground level and have the capacity of 3000 ton.

Function of Wash Plant (Kriblaj): They were sent to top level of Wash Plant (Kriblaj Building) with conveyors for segregation and separation process. Kriblaj Unit went under preservation with the decision of Cultural & Natural Heritage Conservation Board as industrial heritage in 08.12.2006, however the preservation decision was removed later after all development plans and competition. From top to lowest level of the building coal repeated the process of separation by flotation methods in water with the help of vibrated screening. At the end, cleaned coal sent to port storages area to be sent by railway or seaway. Waste coal and water sent for a last segregation process to the concrete towers.

Function of 3 concrete towers: Towers has been under preservation with the decision of Cultural & Natural Heritage Conservation Board as industrial heritage since 08.12.2006. There, waste separated from water and clean water piped back to wash plant. Waste sent to Kozlu Balkaya disposal area by conveyors. Because of the technical incompetence, to date in 2006, new washeries were constructed (using filtration instead of flotation) directly in Üzülmez and Kozlu Regions and operations are ceased. Rapidly destruction was started. After the initial destruction, attractiveness of the location brought to many discussions to foreground.

During the stage of destroying last units, Cultural & Natural Heritage Conser-

vation Board had the decision to assign the area as a heritage.[123] Area has stayed idle since then.

[Figure 101] Project field and surrounding area.

[Figure 102] (left above) active times of the project field. All the buildings has been demolished. Separation and isolation with walls.

[Figure 103] (right above) conveyors towards port area above the road. Separation and isolation with walls.

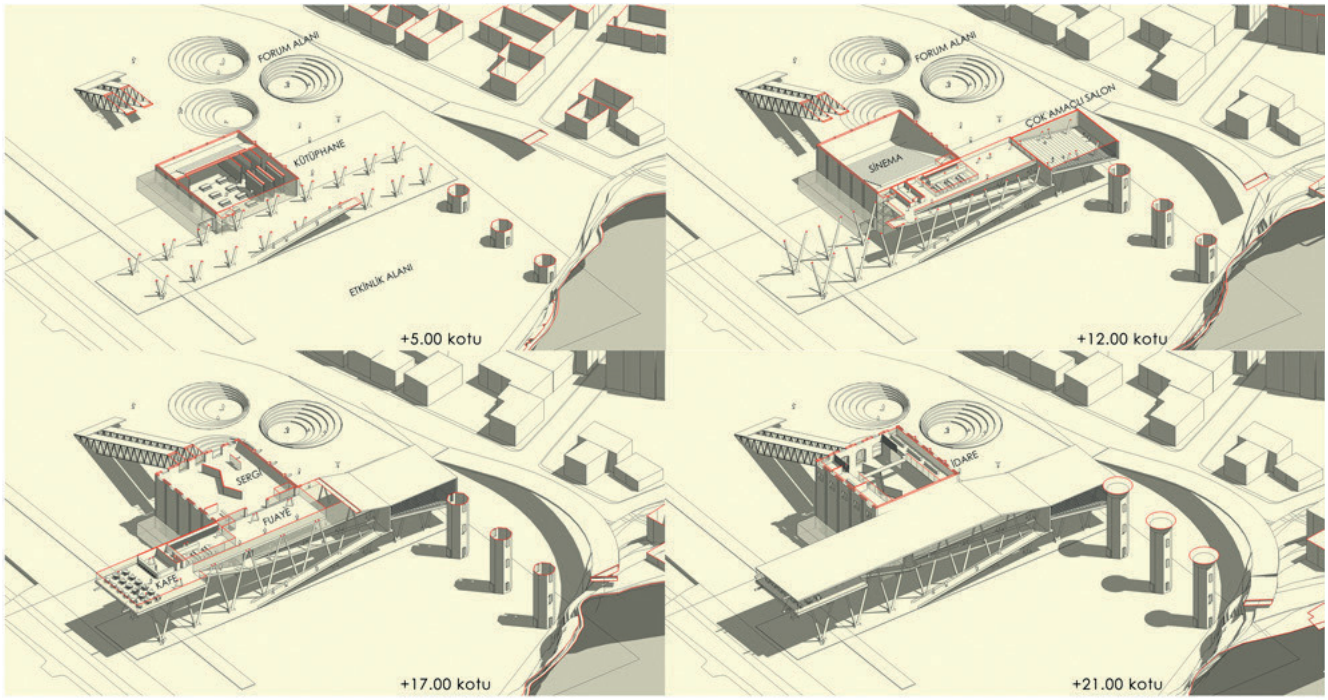
[Figure 104] (left below)project field in active times. Separation and isolation with walls.

[Figure 105] (right below) conveyors towards port area above the road. Separation and isolation with walls.

123 Cf. Kızgut, et all, 2004.

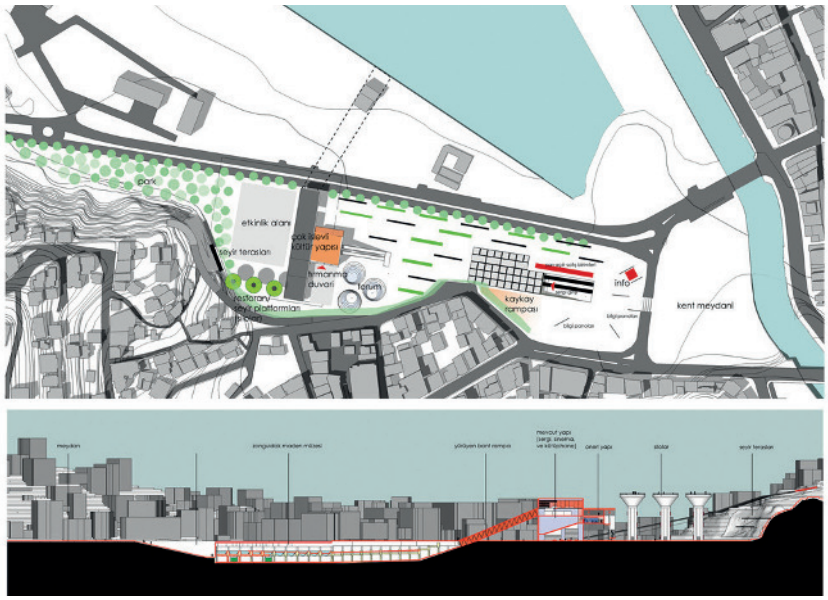
1ST COMPETITION IN 2008

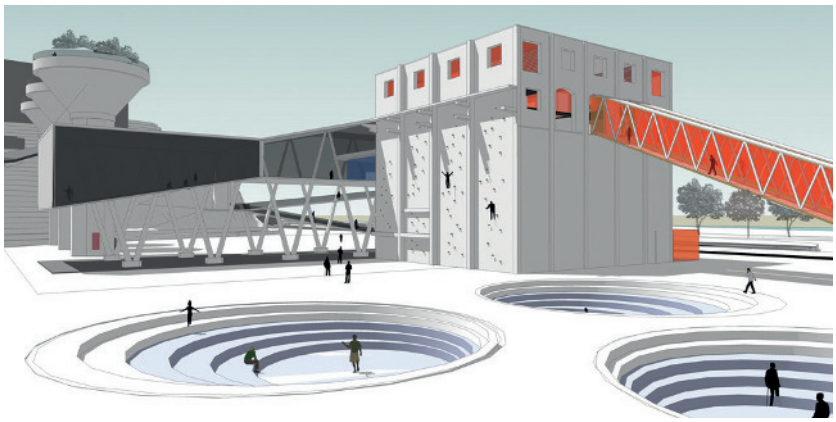
[Figure 106] 1st competition project.



Chamber of Architecture Ankara organized several competitions all over the country under the name of Urban Dreams to evoke attention for developing

[Figure 107] 1st competition project.



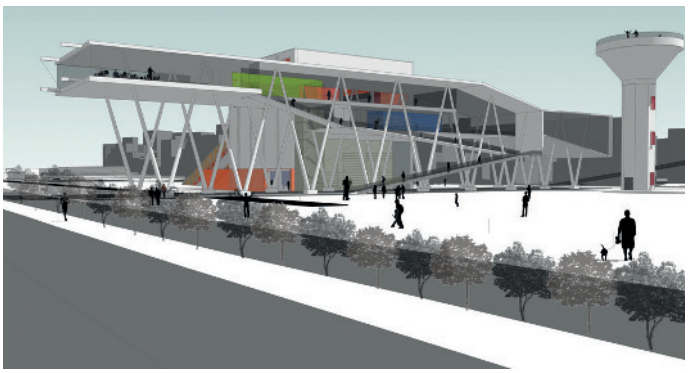


[Figure 108] 1st competition project.

[Figure 109] 1st competition project.

cities. 1st competition in 2008 for Zonguldak Coal Plant Field was one of them, which was only open for students in national architecture faculties.

In fact, it was a propaganda to evoke the attention of municipality, raise the awareness and to gather the ideas about the prospective possibilities. As mentioned before Chamber of Architecture leads up those responsibilities all over the country. Student were free during the project. First prize went to the project who designed a youth center and recreation areas to the field. The walls of the wash plant building (kriblaj) was used as a climbing wall in the project.



[Figure 110] 1st competition project.

2ND COMPETITION IN 2010

Name of the Competition: Architecture, landscape, urban design project for preserving of former coal preparation area and planning its surrounding.

Organizer: Zonguldak Municipality in 2010.

Project Field: Approximately 8.3 ha total area including former coal plant area and its surrounding, which is located in the address of Merkez Terakki neighborhood, Milli Egemenlik Street. Field mainly composed of 3 parts:

1. The former coal plant area which was registered in 08.12.2006 as industrial heritage with the decision of Cultural & Natural Heritage Conservation Board (approximately 2.2 ha).
2. Immediate surroundings of the coal plant area, which will help as a complementary area to get integrated to the city structure. (Approximately 5.6 ha)
3. One part of the filled area of port, which is across the coal plant area and highway road. (Approximately 0.5 ha)

Main Properties of Area: Area is an important symbolic, historical and cultural focal spot, which is a part of an inner city zone and has the role of an urban public space, potential recreation area. The field lies along the main arterial road, Milli Egemenlik Street, at the entrance of Istanbul route. This route, which is an important axis along the coast, contains several recreational functions and social activities. Being at the center of main transportation axis, close to the city center and in connection with the railway line and port increases importance of the brownfield. Old town situated in the north and east part of the area which is currently the city center. Soguksu Region, which is a secondary center, lies along west part of the area, behind Mimar Kemal Street. West and southwest of the area, as a sub center, composed of the old settlements, which are perceived as prestigious and scenic. Bülent Ecevit University, Main Long Distance Bus Station, and City Police Headquarters are also located in that area. Urban renewal in this area has been developing faster with the lack of official preservation interventions. The pressure of public opinion shows the signal of the demand for creating a transformation to a social, cultural, recreational, touristic and commercial axis. It is important for the participants to consider that approach to the region.

The crossroads, pedestrian - vehicle transportation system and recreation zone are the main elements in the area. Participants are expected to approach with implementation of green areas and coast access.

Aim of Competition: Not only to design a development project considering the urban requirements and connections within the pursuit of a sustainable, applicable, functional, economic, hygienic, contemporary, democratic solution but also to preserve and carry out the mentioned area to next generations, which was once the first industrial plant of Turkish Republic Period and now a documentation of an urban culture.

After all evaluations, workshops and meetings, data gathered by Zongul-

dak City Council, which is composed of 130 non-governmental organizations and public representatives. Beside reflecting and symbolizing the former culture of the area, it is determined to implement new functions, which requires to bring new identity to the city, in the frame of culture, daily tourism, green areas, public spaces, service and commercial units (partly), and accordingly technical and social infrastructures. Projects are expected to emphasize the character of the city square due the central location of the existing preserved structures. Moreover, within the quality of new unique spaces it is aimed to gather different layers of society, to enrich social and cultural activities, to increase the spatial and visual quality of the city, to evoke the consciousness of preservation and as a long-term plan to create a new attraction point. It is also expected to design a reconnection with the city by dealing with the preserved area and its surrounding together. Due sheltering an industrial facility and being next to a port mainly, serves for bulk cargo, environmental problems and remediation and transformation proposals have to be considered. It is expected to bring new solutions for the traffic problems due increased number of vehicles and pedestrians, which has been occurred because of the rapid growth of the city. The pavement between city center and long distance bus station should be widened and redeveloped. Day and night functions have to be considered to increase the urban living conditions. Spaces for disabled people have to be designed. The perception of the city silhouette needs to be conceived with the preserved area, 3 towers, washing plant and storage unit. Underground planning is welcomed if required. A place for a remembrance model is required to remind the story of the field.

TTK, government and municipality deals the situation with an approach of new investment opportunity and expects proposals for application phases.

Requirements: Following requirement are stated:

• Social cultural units. (Exhibitions, concerts, congress, cinema, theatre, shows, weddings, library, youth center, workshop studios.

• Commercial units (restaurants, cafes, stores with different sizes.)

Those units could be designed separately or together.

Total constructed area should not be more than 25.000 m². Because of the new project of the Mining museum, an additional museum is not required in the competition.

• Open areas, City square (multipurpose – meetings, etc.) green areas, recreational areas, pathways, park lots for 500 vehicle (closed and open), new inner-city bus terminal for the capacity of 100 buses, observation deck, terraces, playgrounds.

However, most of the area is conceived for social, cultural and recreational functions, participants are free to bring new proposals. Commercial units considered to serve for culture-tourism and recreation areas. They should not designed as playing the first role by keeping the preserved tower in background. Tower silhouettes should be in foreground and there should be low dense of

[Figure 111] 2nd competition 1st prize project site plan.

the construction especially on the area towards the long-distance bus station. Disconnection between public and seaside is an issue to overcome. Connections should be strengthened.

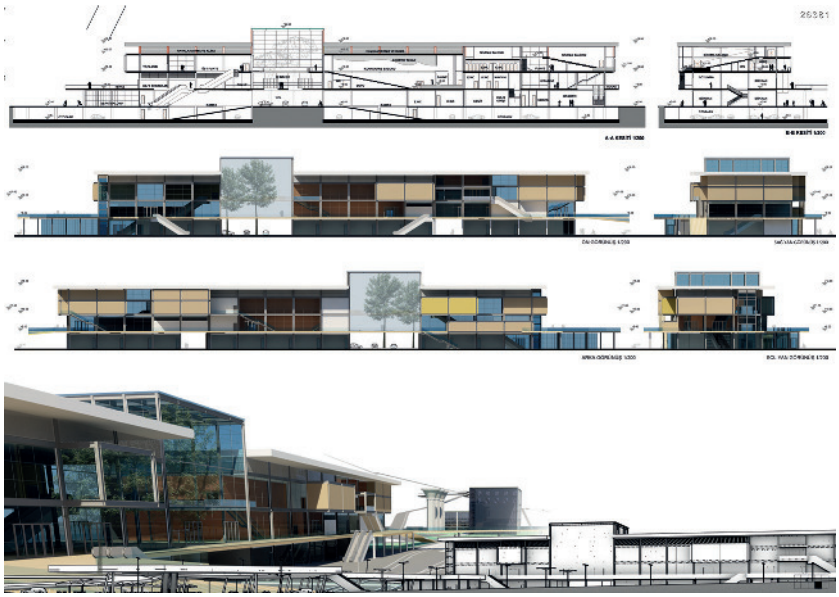
Principles of Participation: A collaboration of at least one architect, one landscape designer, one urban designer who have been registered to TMMOB (Union of Chambers of Turkish Engineers and Architects).

Consultant jury members:

Governor of Zonguldak - Erdal Ata

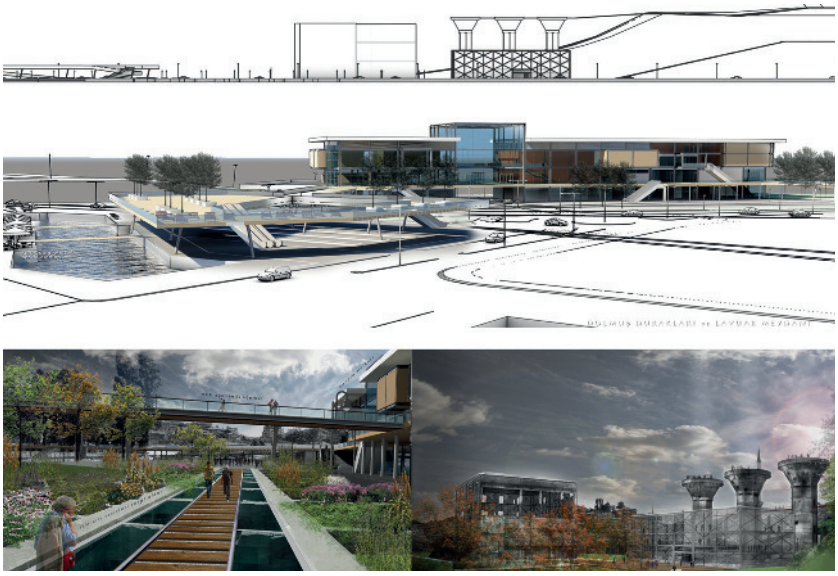
Mayor of Zonguldak - Ismail Esref

[Figure 112] 2nd competition 1st prize project elevations.



[Figure 113] 2nd competition 1st prize project-plans.

Rector of Zonguldak Bulent Ecevit University - Prof. Dr. Bektas Acikgöz
General Manager of TTK (Turkish Hard Coal Institute) - Burhan Inan)
Zonguldak City Council President - M. Yesari Sezgin
Representative of TMMOB Zonguldak city coordination council - Erdogan Kaymakci



[Figure 114] 2nd competition 1st prize project visualizations.

Representative of Zonguldak TMMOB Chamber of Architects - Turhan Demirtas

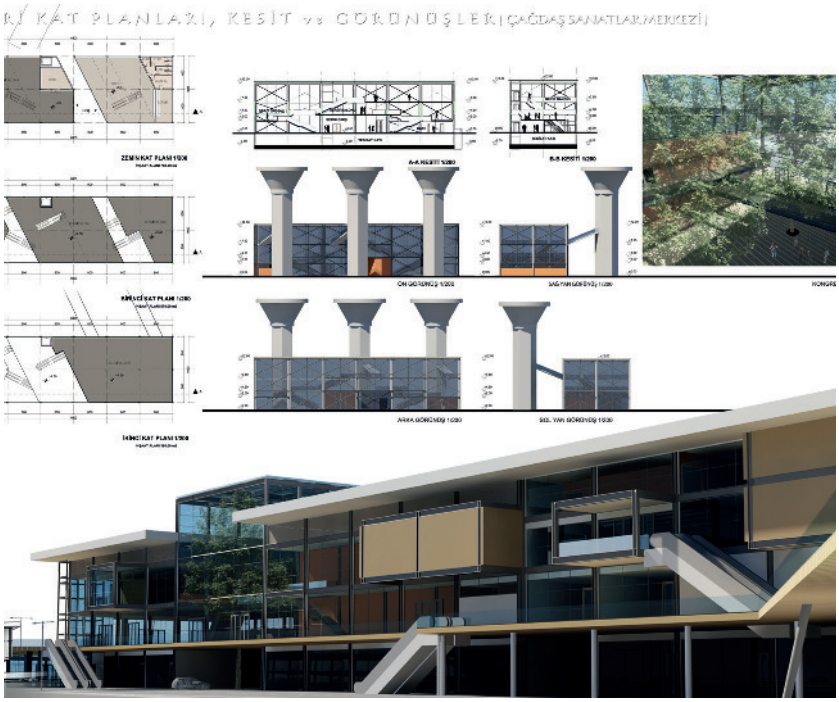
Main Jury Members:

Architect, Urban designer and Member of Mimar Sinan Fine Arts University,

Faculty of Architecture, Institute of Urbanism - Prof. Dr. Gülşen ÖZAYDIN (President of the jury)
Architect and Lecturer in Middle East Technical University, Faculty of Architecture, Institute of Restoration - Doç. Dr. Emre MADRAN
Arcitect, Urban Planner and President of Karabük University, Faculty of Fethi Toker Fine Arts and Design, Department of Architecture, institute of Restoration.- Doç. Dr. Aysun ÖZKÖSE
Architect, Urban Planner and Lecturer in Yildiz Technical University, Faculty of Architecture, Department of Urban Planning, Institute of Urban Renewal and Preservation - Doç. Dr. İclal Sema DİNÇER
Urban Planner, Landscape Designer and Lecturer in Istanbul Technicak University, Faculty of Science and Literature, Department of Human and Social Sciences - Yrd. Doç. Dr. Aslı ÖĞÜT ERBİL
Msc. Urban Designer in TMMOB Chamber of Urban Design and in Ministry of Public Works and Settlement - Mehmet Nazım ÖZER
Landscape Designer in TMMOB – Chamber of Landscape Designers - Kemal ÖZGÜR

Answers according to the questions later: Railway has to be kept. It is not possible to intervene the rest of the port except indicated area, which serves for the storage of the coal and trucks, due today's usage purpose.

Underground water level is not an obstacle designing the roads underground.



[Figure 115] 2nd competition 1st prize project visualizations.

Eliminations and First Prize: Projects, which are lack of spatial and infrastructural integrity to the city, are lack of connection between the field, shore and center, which are not respectful to the preserved buildings and which are difficult to apply, have been eliminated. A different proposal for an organic farm using renewable energies, which converts the area from a brownfield to green field, was found original and innovative but the design found lack of connection and integration to the city. Total use of underground area are eliminated because of the connection need with over surface.

First Prize: First prize was given to the project, which was found realistic to apply, clear in schemes, consistent in concept, balance in green area, used area and connections. To strengthening the seashore connection, and panoramic view, bringing pedestrians to an upper level and using underneath as a bus station area was found original. It is composed of one large linear unit (on the east side for congress, cinema, library, café, restaurants) and another lighter unit (for modern art center) which is connected to preserved coal plant building. Larger unit cantilevered above the main road. Level connections inside and outside of the building supplied by escalators, which refer to former conveyors. For all additions to the preserved buildings steel and glass are used as materials.[124]

EVALUATING COMPETITION PROJECTS UNDER CURRENT CONDITIONS

In 2008, the 1st competition evoked the attentions as it primarily aimed to do. Although the 1st prize project was not so realistic to apply due the lack of comprehensive analysis and not being compatible with city´s pattern and identity, it clearly argues to bring vitality to the area and to gain the sea view connectivity with a new structure.

In 2010, it was planned to apply the 2nd competition project to the area with small modifications. Municipality made an agreement with TTK, which was originally the owner of the area, by offering another equivalent land in Üzülmez region in return for transferring the ownership. However, there were no progress in the realization of the project and the administration has been changed. New administration reconsidered the application of the project and offered alternative solutions in completely different directions. Most importantly, boundary conditions of the subjected area has drastically changed. The decision of the preservation over the wash plant building was removed and it was demolished. The functionality of existing port area is re-planned and the current capacity of the port is being moved to Filyos. Central coal mining process has been over and city has a strong decline in this sector. Therefore, new economic development plans for the city have been planning. Chamber of Commerce and Industry published a new devel-

124 Archive Zonguldak Municapility: Zonguldak Yarışma. Şartname.

opment plan in 2015 about opening the city for tourism and fish sector.

Considering these new development plans, the projects requirements need to be reevaluated with suitable adaptations, primarily by taking into account in project functions these new business sectors.

Critics:

The project to be applied, claims to bring connections to the seashore, although these links were provided only by a cantilevered bridge way. This forces people to climb up an extra level to connect to the city shore. It also argues to be pedestrian friendly through a second cantilevered level. This would connect two separated city center and hides the bus station under this cantilevered level, which would hypothetically improve the traffic flow.

In my opinion, instead of adding one more level to surface, an alternative solution with underground road connections would provide additional advantages. On one hand, pedestrian roads will be flawlessly connected between two sides of the city as well as the seashore. On the other hand, moving the road connection underground will enable an optimal traffic flow (no interruption of pedestrian crosses). Furthermore, underground spaces will bring new parking opportunities, which is also a crucial problem of the city center. Finally yet importantly, the project's internal road and pedestrian paths are not in harmony with the city's connection pattern. Therefore, they should be more visible and complementary with additional modifications.

CHAPTER FOUR

PROJECT STEPS

4.1 - REFLECTING ON THE PROJECT

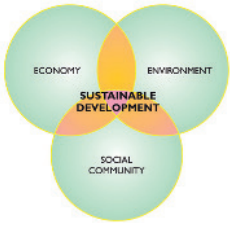
Sustainability

A sustainable development in this case study should embrace:

- spaces for every type of society, support public spaces and bring equity
- the economy by its new contribution and bring viability by evoking new opportunities in different sectors (industrial heritage tourism, fish sector) against lost ones
- the lost productive industrial function with a new productive use (fish market)
- connection to the existing structure and history (not only represent the history in the area, but also bring connections to the city pattern, seashore and destroy the barriers between different inner city parts.
- livable conditions by orienting from car oriented city to pedestrian friendly city.
- environmental conditions by creating new recreational areas, developing its unbearable isolated situation.

Considering those criteria and recent developments, area needs new modifications and improvements on competition project.

[Figure 116] Sustainability.

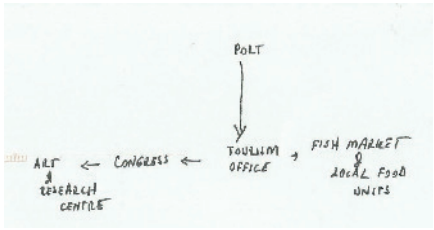


New functions

Main aim of the project is designing a new multi-functional area by not only keeping the competition requirements but also implementing new functions:

- tourism office (additional)
- fish market (additional)
- local food units (additional)
- stores (already exists in the competition project)
- congress center (already exists in the competition project)
- art and research center (already exists in the competition project)

[Figure 117] Functions.



[Figure 118] Current fish market.

[Figure 119] Current fish market.

New scenario

Seashore connection: With the modified new port connectivity with the shore will be strengthened and walls be removed.

Support tourism and fish sector: Tourists will be welcomed by the tourism office, enjoy the fish products and local fresh foods together with the inhabitants. The closeness of the local market area will be used as an advantage to serve for the fresh food units. Fishing activities would be in sight and foreground. As it was observed in Norway in lively fish market) and in Denmark in local food and market units, those areas are magnet point for the tourists.

[Figure 120] Zonguldak train station.

Current fish market is far away from seashore and almost hidden under the building because of the connection of cantilevered bridge way.

Congress center in the competition will be kept and served for meeting and touristic activities.

Additionally designing an art and research center on the university side will bring the students to a new connection to the city center. Their families could be considered as tourists.

Support public spaces and equity in society: Recreational areas serve to public, transparent ground floor planning avoids isolating the area and keeps each function open to public. New open street models are designed through the buildings.

Easiness in city access: Lost connection of the seashore could be integrated to city life by complementing the city pattern. Already existing streets continue without fractions, moreover new connections are implemented. Recreational belt could continue without any interruption through coastal line. New modified and extended pedestrian and bike route could bring a new refreshment. City will be modified from being car-oriented city to pedestrian friendly city.

Steps:

Despite the mountainous character of the city, coastal line is an advantage as a lowland to use alternative transportation methods, which could be effective to relieve the heavy traffic in city center and port area and change the city from being car oriented to pedestrian oriented.

In this sense, new crucial infrastructural modifications, which are already in government's agenda, are planned:

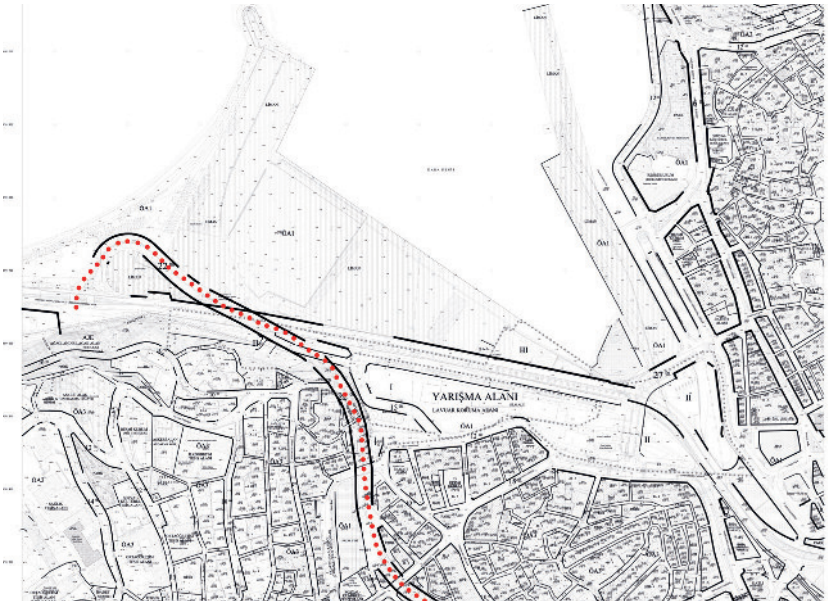
[Figure 121] (larger image) Photo of the railway at port.

[Figure 122] (right below) Photo of the railway at port area.

[Figure 123] Location of train station. Black is the train route, blue is the port route for coal transport.

- Keep the railway until the train station by removing port part, which was needed before only for coal transportation. (mentioned in competition)
- Removing the unstable cantilevered bridge access (Fevkani Köprüsü), which was built in 1955 to help to separate transit route. There are several statements about the deformations on the bridge that it is not possible to maintain its durability and it has to be demolished otherwise, it would be demolished by itself

[Figure 124] Fevkani Bridge. Location of the cantilevered bridge on map.
[Figure 125] Photo from Fevkani Bridge.
[Figure 126] (larger image below) Implementary Plan of Transit Road.



[Figure 127] Deformations on the Fevkani bridge.

[Figure 128] Deformations on Fevkani bridge.

[Figure 129] (larger image above)Map for underground access.

[Figure 130] (larger image below) Extension of recreation, pedestrian, bike route. Orange route is the current bike & pedestrian route. It will continue (as red dots)in port area until the other side of the port.

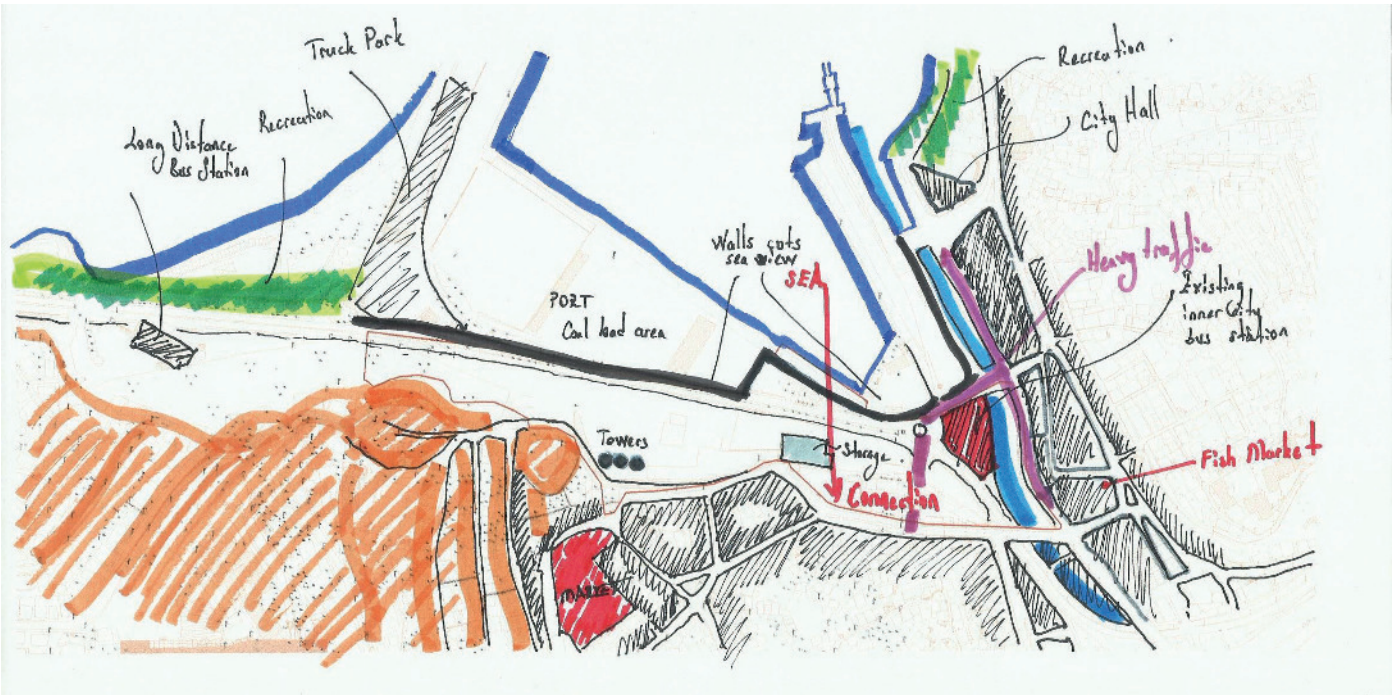
[Figure 131] View of point 1. Kozlu bike & recreation route.

[Figure 132] View of point 2.Beside transit road bike & recreation route.

[Figure 133] View of point 3. Recreation towards other side of port area.

and endanger human life. Today it is a big threat. With the new transit route, there is no need to use that bridge.

• Using the planned transit road for the new route separating the city car traffic, which is already exist in implementary development plans. (offered in

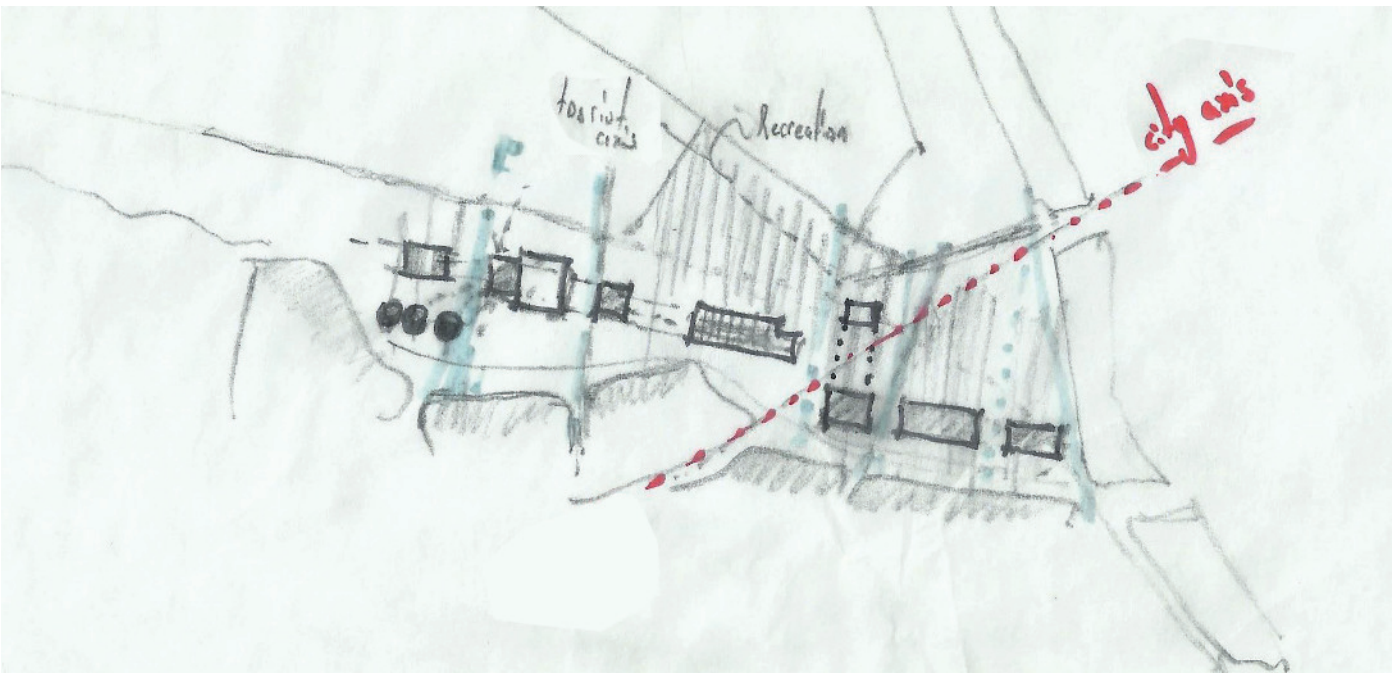


competition).

- Taking all car access and bus station area underground at the center and create a pedestrian friendly environment
- extending the already existing bike route and connect Kozlu to city center until the fishing boats dock, which contains many important functions along the route.

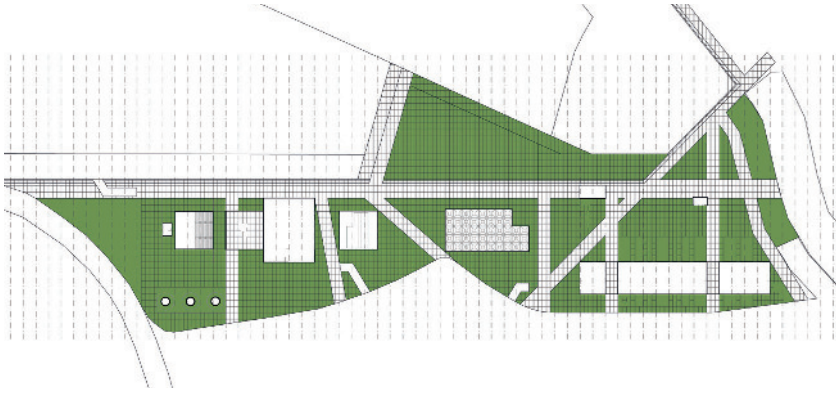
[Figure 134] First sketches.

[Figure 135] First sketches.

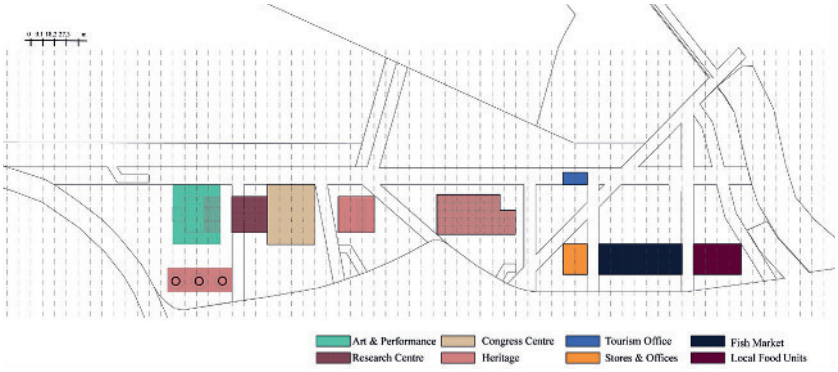


[Figure 136] Map for complementing existing pattern off the city.

- Creating seashore connections.
- Connecting the disconnected two different area of the city center.
- Continue the existing pattern of the city.
- Creating vertical lines help to orient people to the sea.
- Designing recreational areas in the vertical lines with different green areas and street furniture, which ends up wooden platforms at the seashore.
- Assigning axis in grid system. Dividing functions with access through buildings and designing transparent ground floor with additional streets through buildings or under roofs.



[Figure 137] Recreation map.



[Figure 138] Division of Functions.

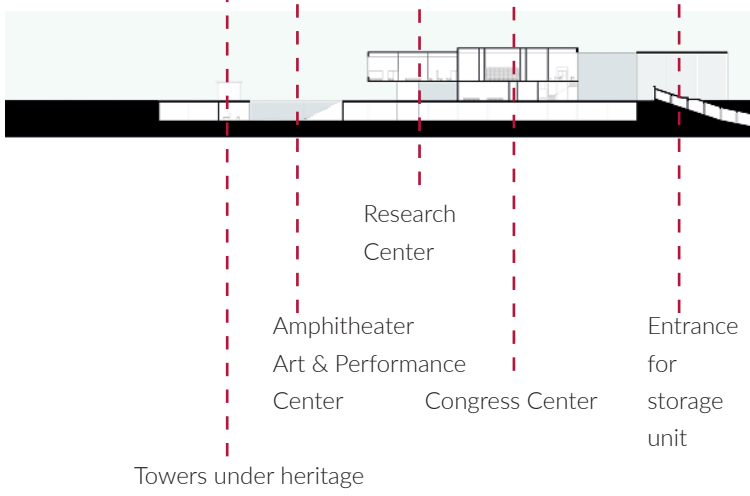
- Connecting the towers with a public recreational area and youth to bring the remembrance in life.
- Bringing the storage in use with a new function to bring the remembrance in life
- Using the new sectors (fish market and tourism office) for a remembrance of the coal mine sector. Square and remembrance model in front of the tourism center. Old photos from coal regions cover the walls of the fish market and local food units' streets. People come across with them every day in their life.
- Using a light structure, (composed of steel and glass) beside the concrete heritage buildings.
- Using transparent glass facade on the ground floor of the whole design, Sliding glass facade for the ground level of fish market and local food units, which brings extra connections in summer times.
- For wintertime, opening extra streets in the buildings with glass doors.
- Keeping first floor units semi-transparent by horizontally and asymmetrically distributed wood sunshade, painted in black.

[Figure 139] Facade element by architect Satoshi Kurosaki.

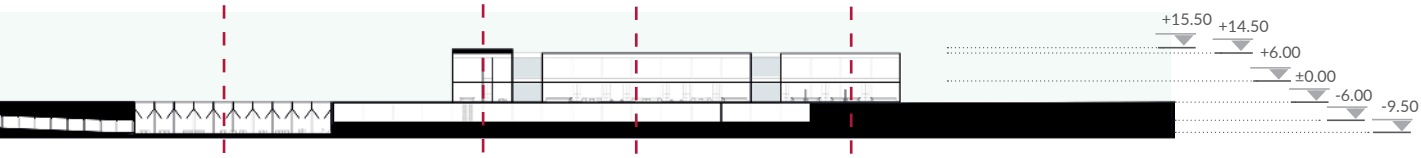
CHAPTER FIVE

PROJECT PLANS & SECTIONS

[Figure 140] Site Plan



[Figure 141] Section.



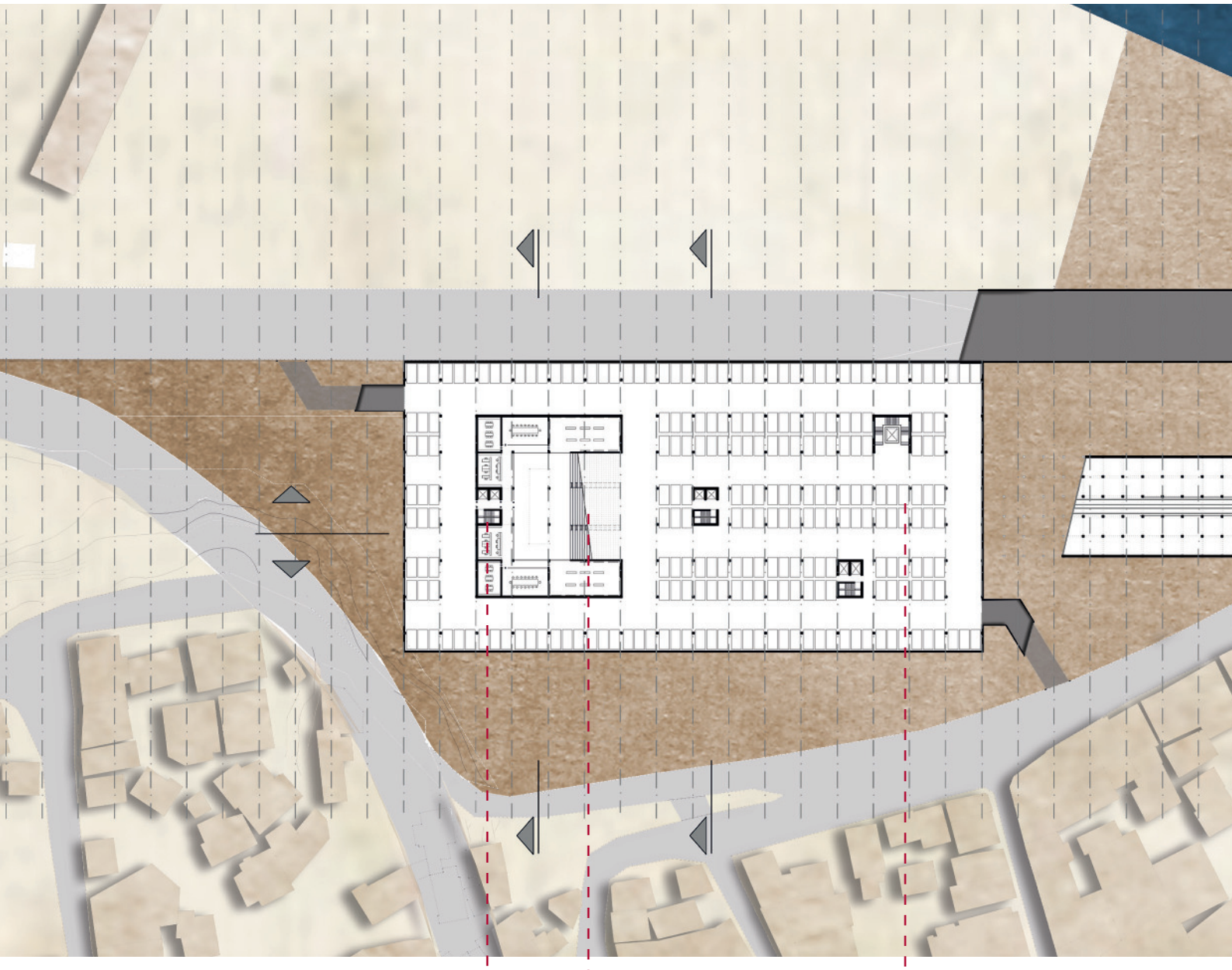
Storage unit under heritage

Tourism office & Stores

Fish Market & Stores

Local food units & Stores

[Figure 142] Site Plan



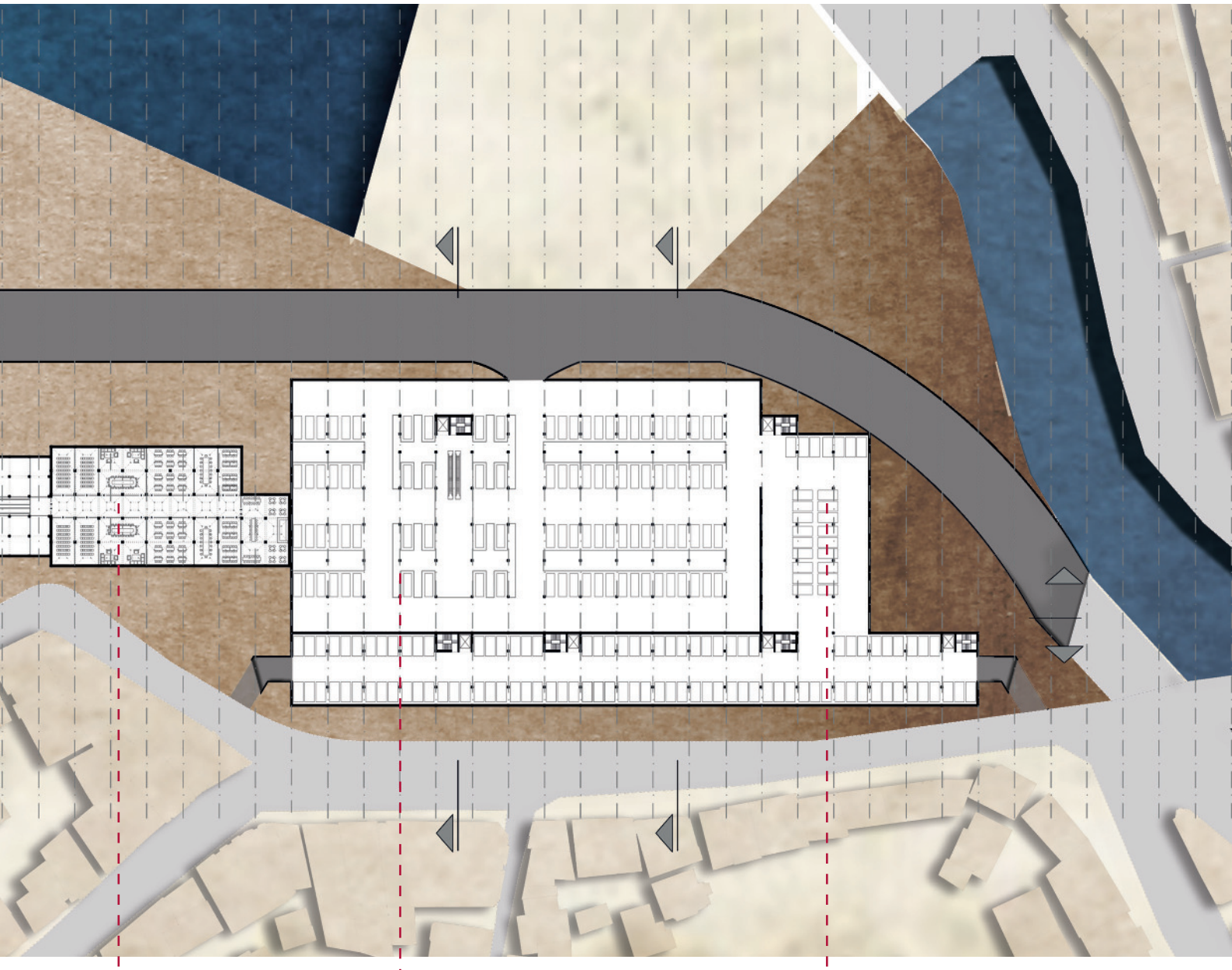
[Figure 143] -6.00 & -9.50 underground level plan.

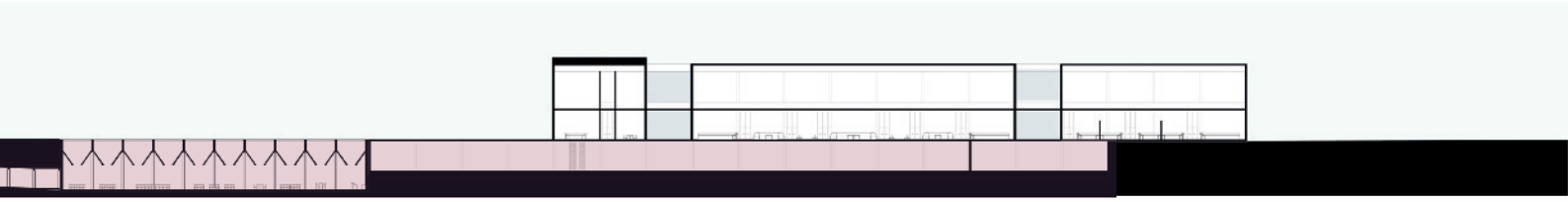
Amphitheater

Art and Performance Center
Exhibitions, Studios

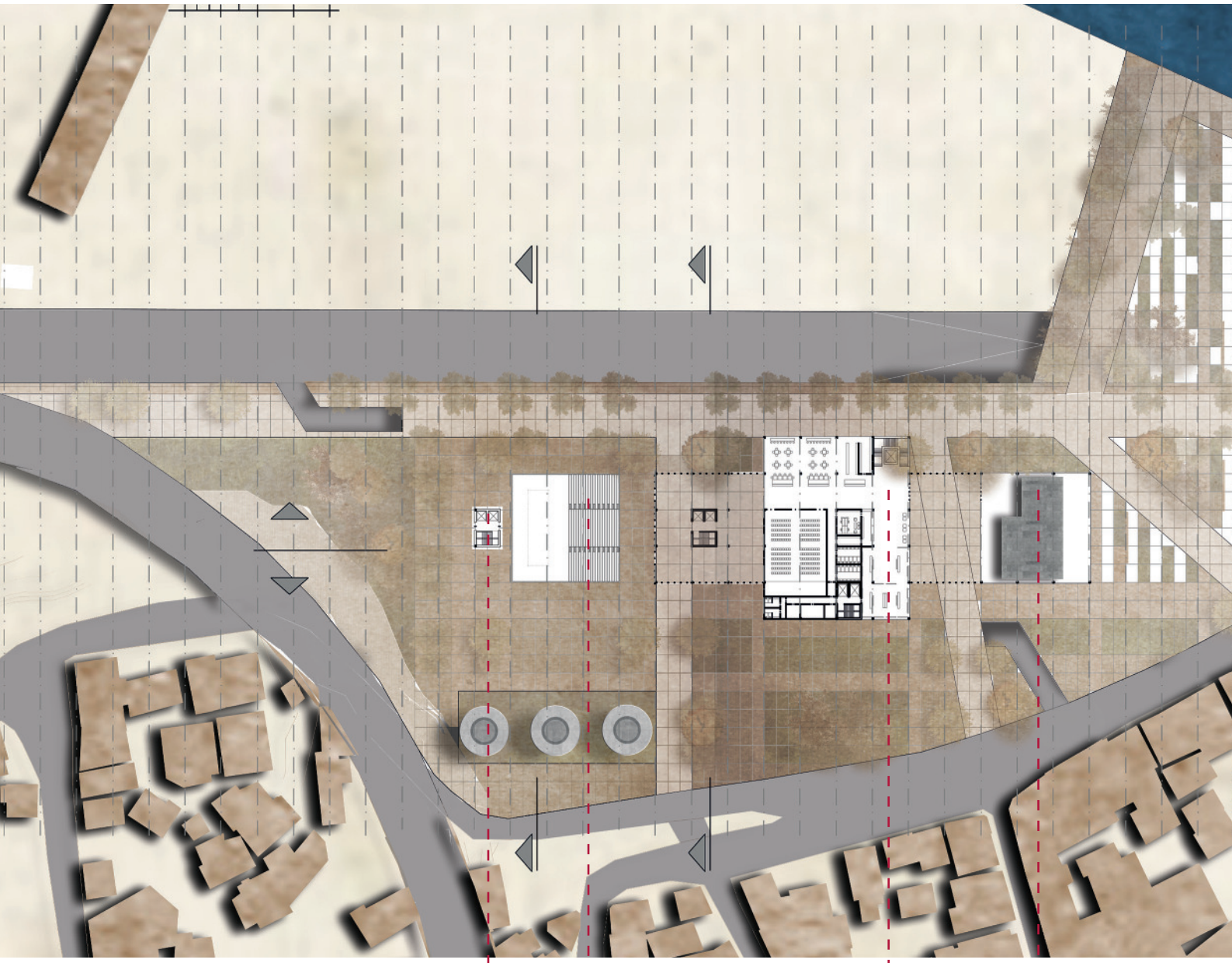
Underground Park Area

[Figure 144] Section.

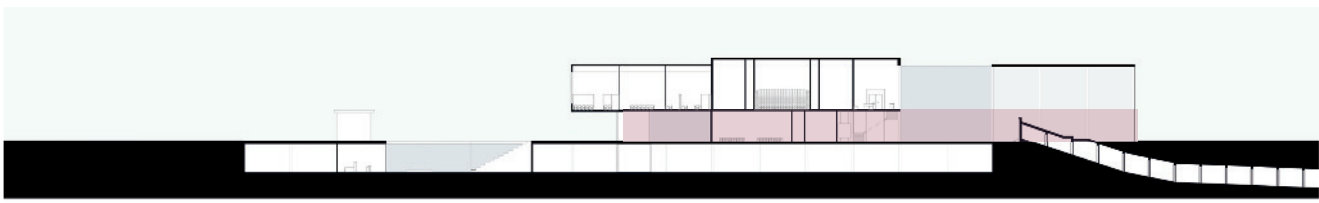

0 9.1 18.2 27.3 m
Meeting Rooms
Bus Station
Underground Parking Area



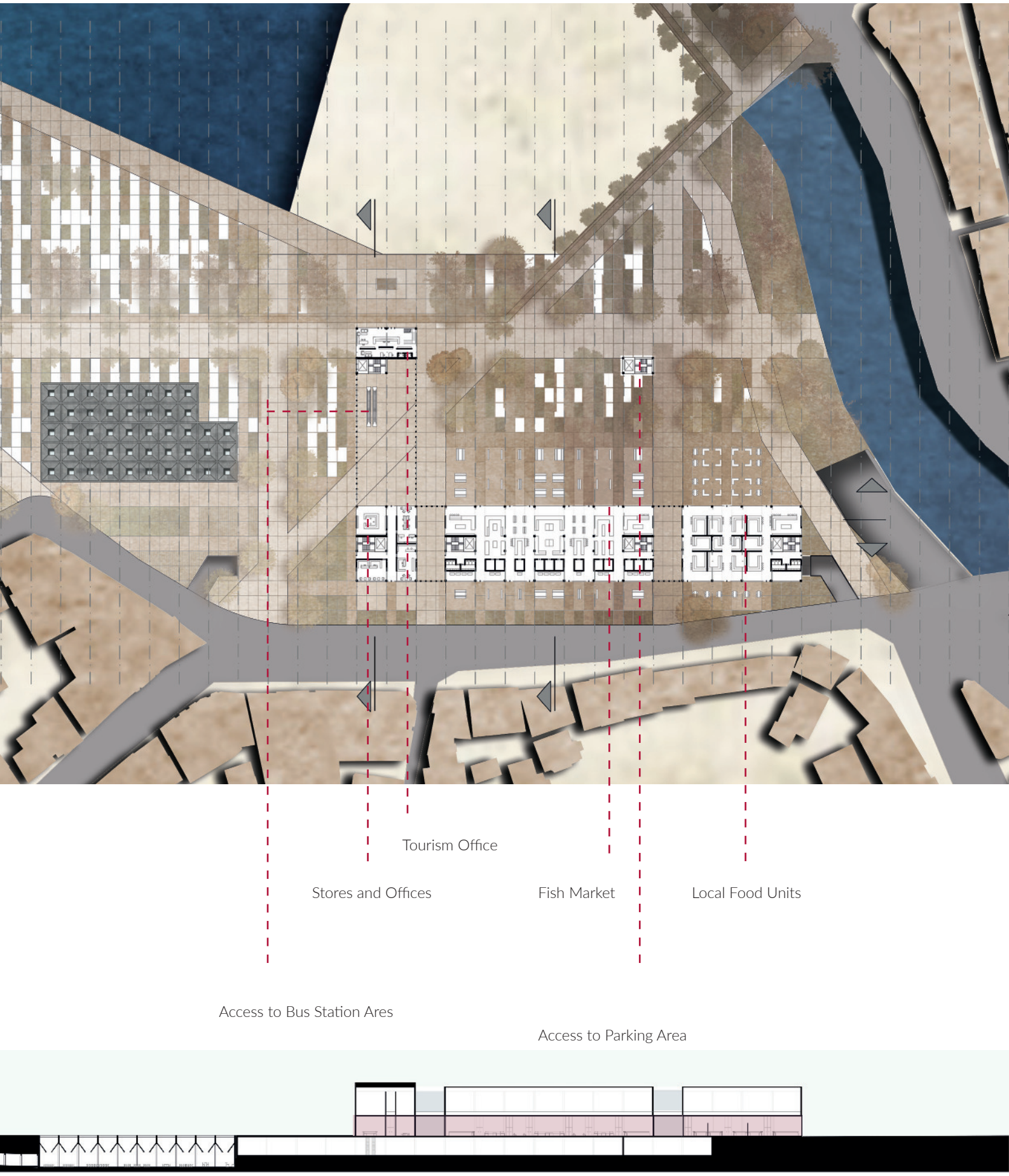
[Figure 145] -6.00 underground level plan.



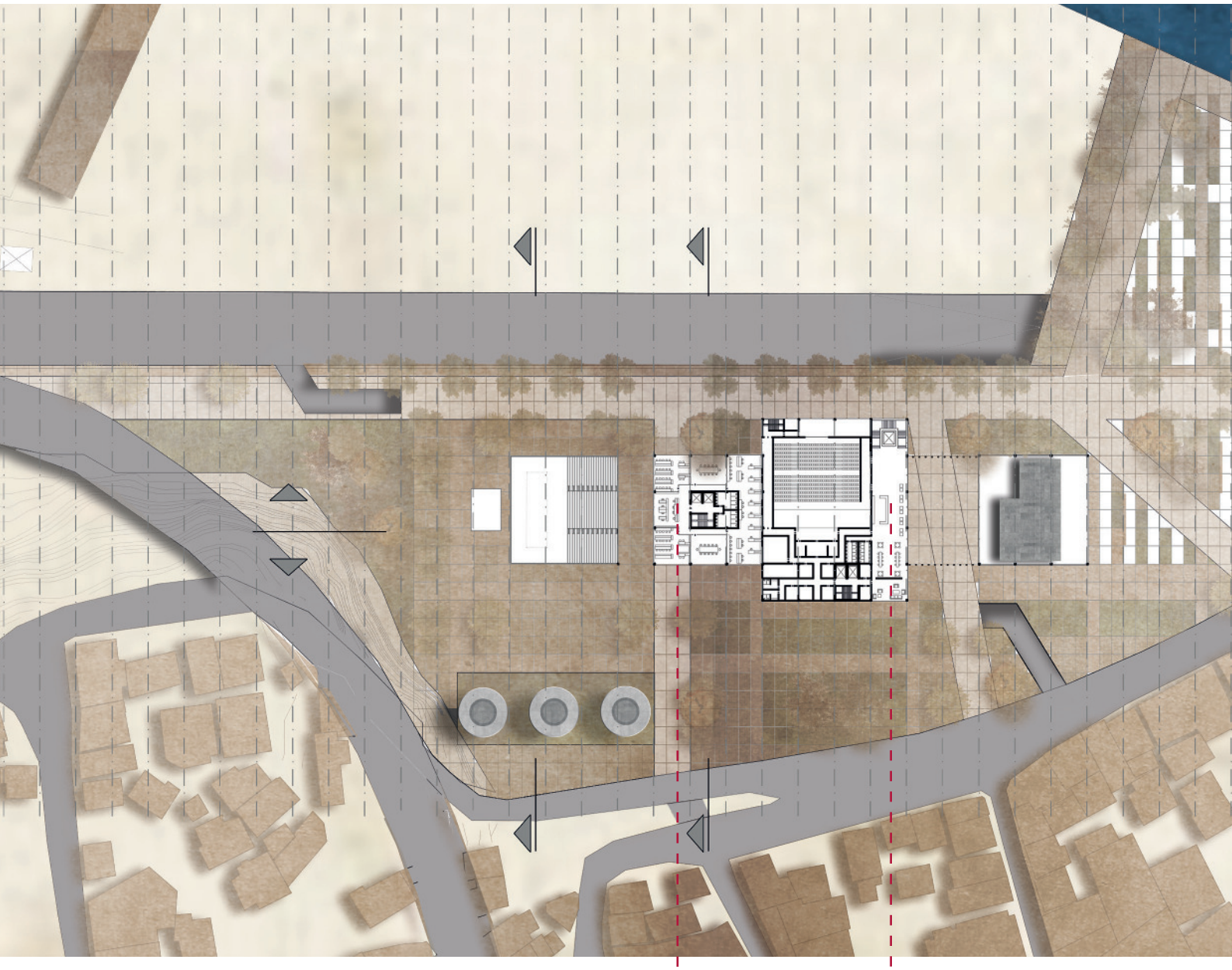
[Figure 146] ± 0.00 Ground floor plan.



[Figure 147] Section.


0 9.1 18.2 27.3 m
Tourism Office
Stores and Offices
Fish Market
Local Food Units
Access to Bus Station Ares
Access to Parking Area

[Figure 148] ± 0.00 Ground floor plan.

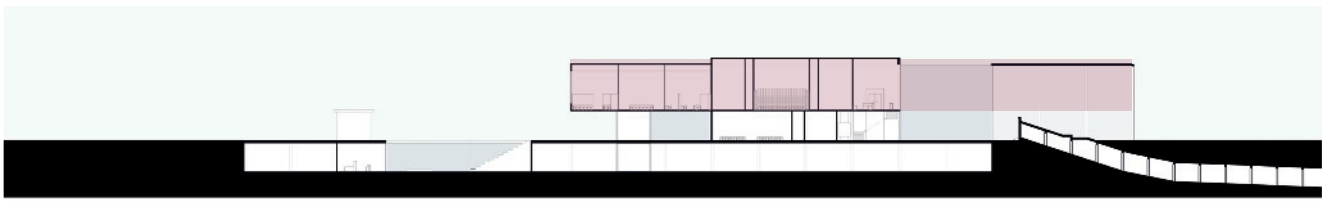


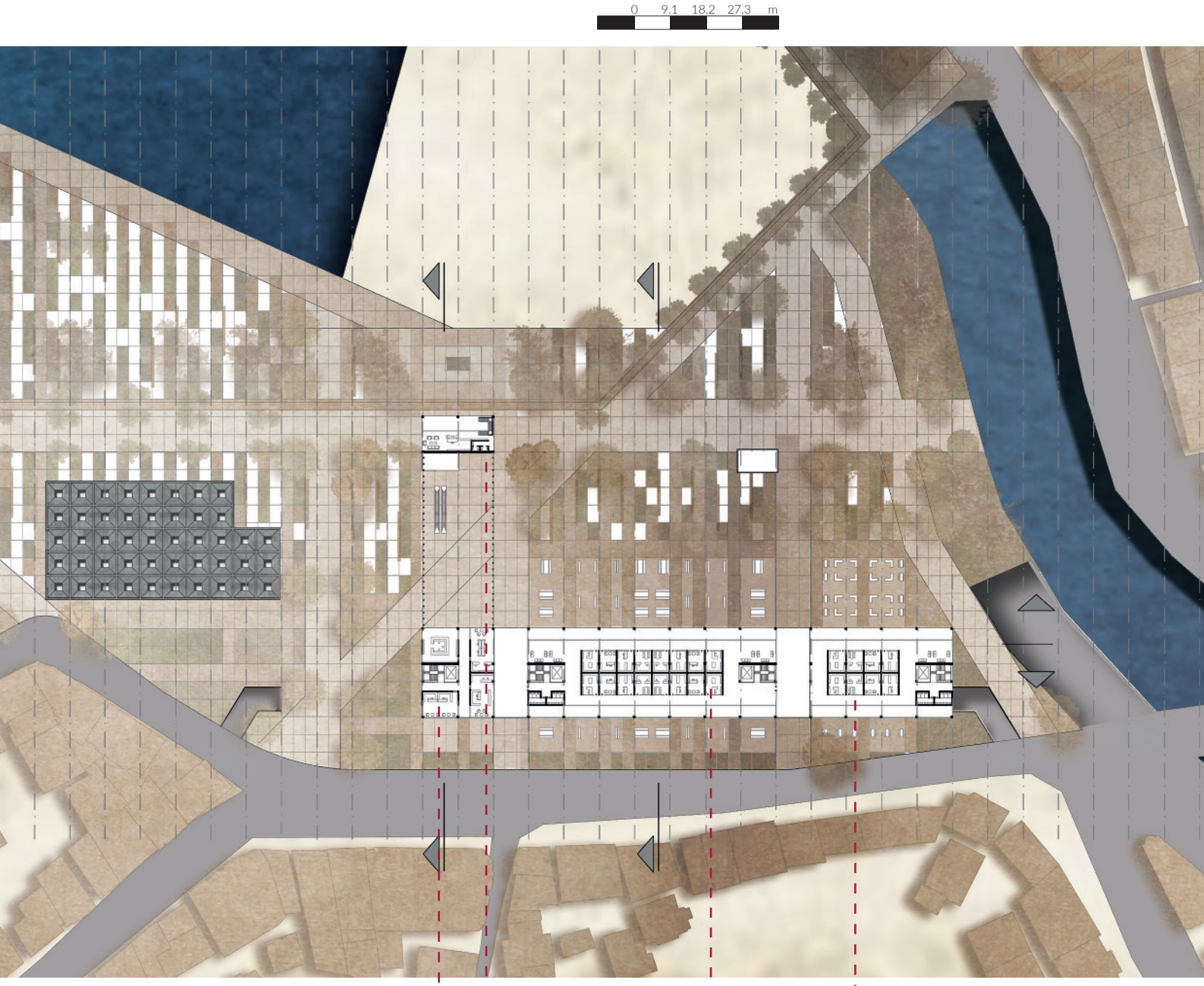
[Figure 149] +6.00 level 1st floor plan.

Research Center

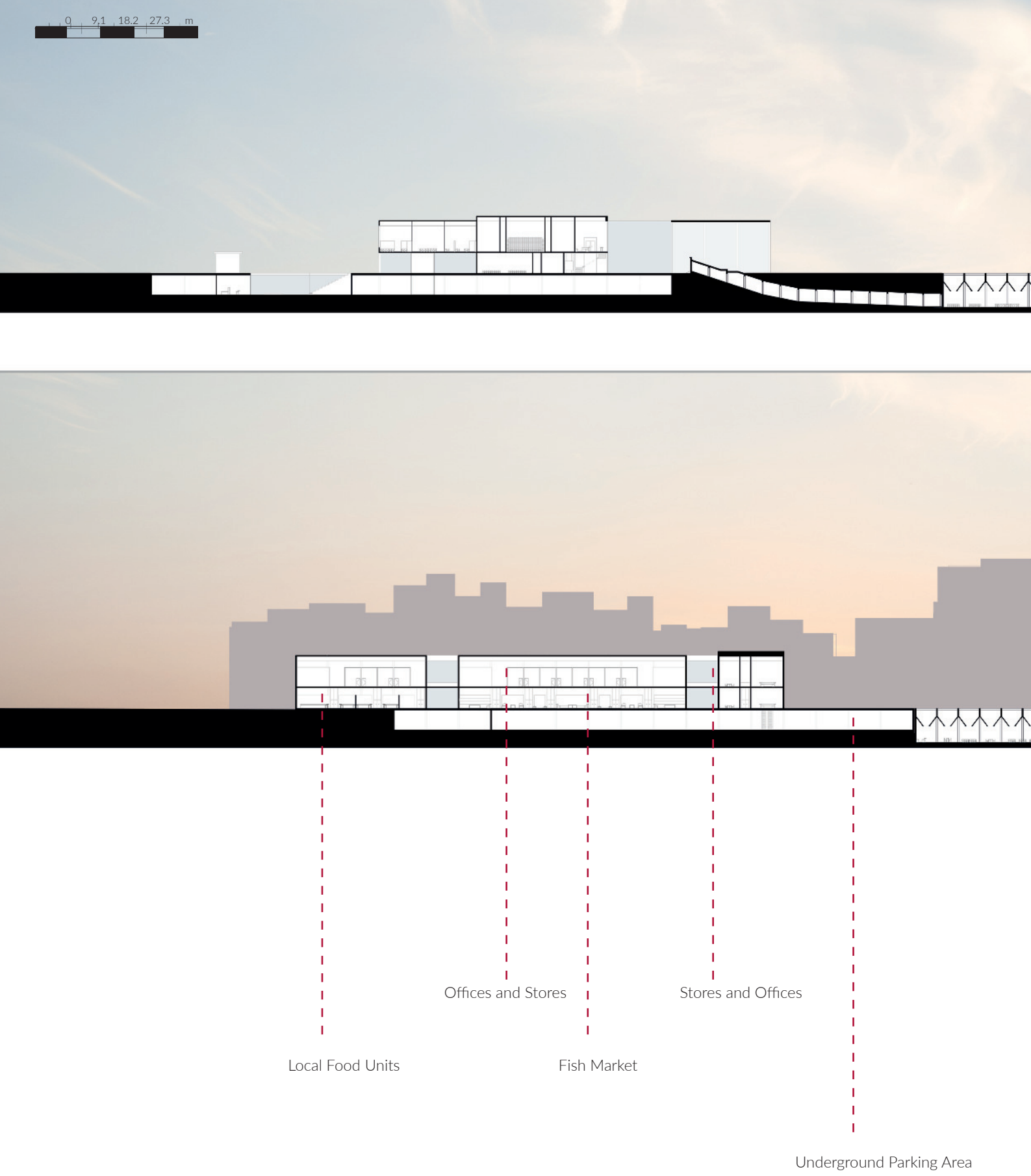
Congress Center

[Figure 150] Section.

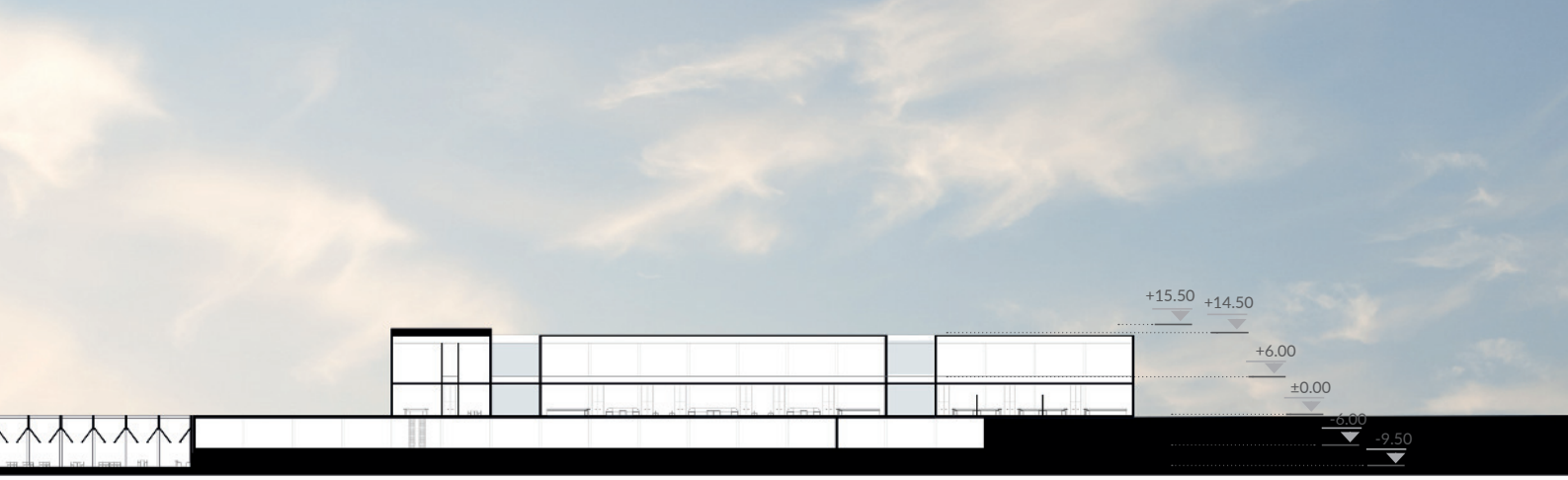


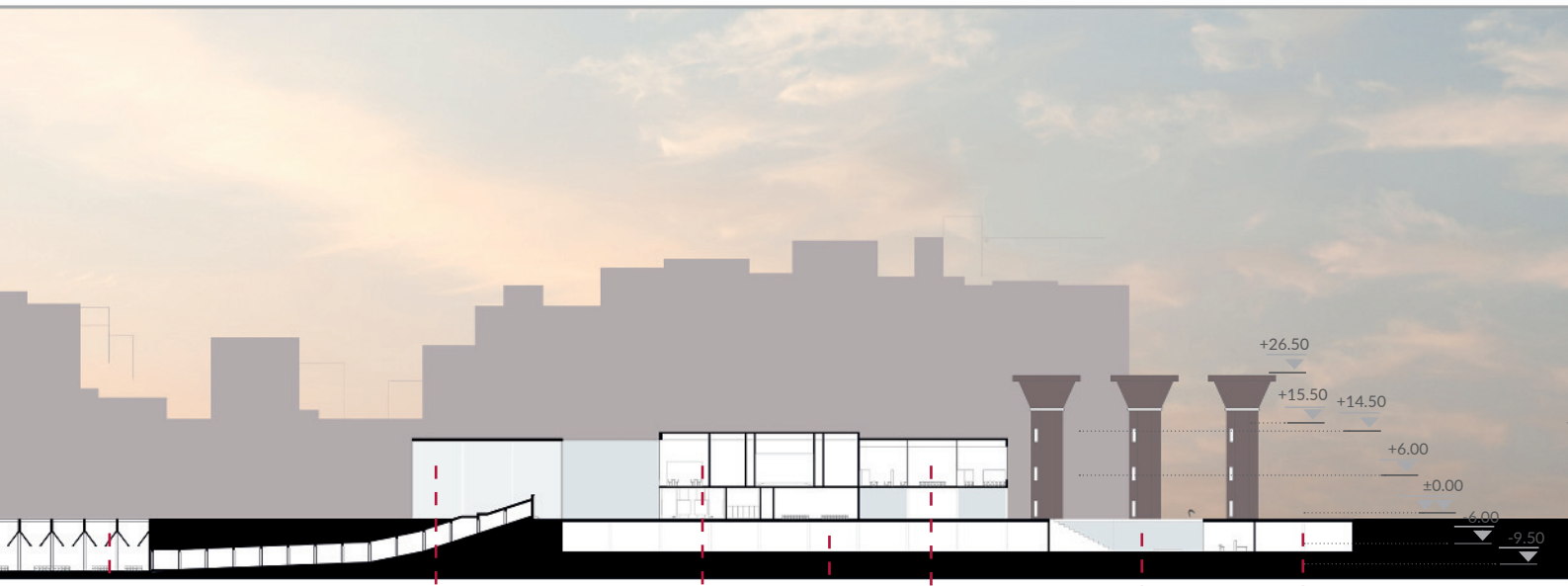

0 9.1 18.2 27.3 m
Tourism Office
Stores and Offices
Stores and Offices
Stores and Offices

[Figure 151] +6.00 1st floor plan



[Figure 152] Sections.





Meeting Rooms

Entrance for meeting rooms

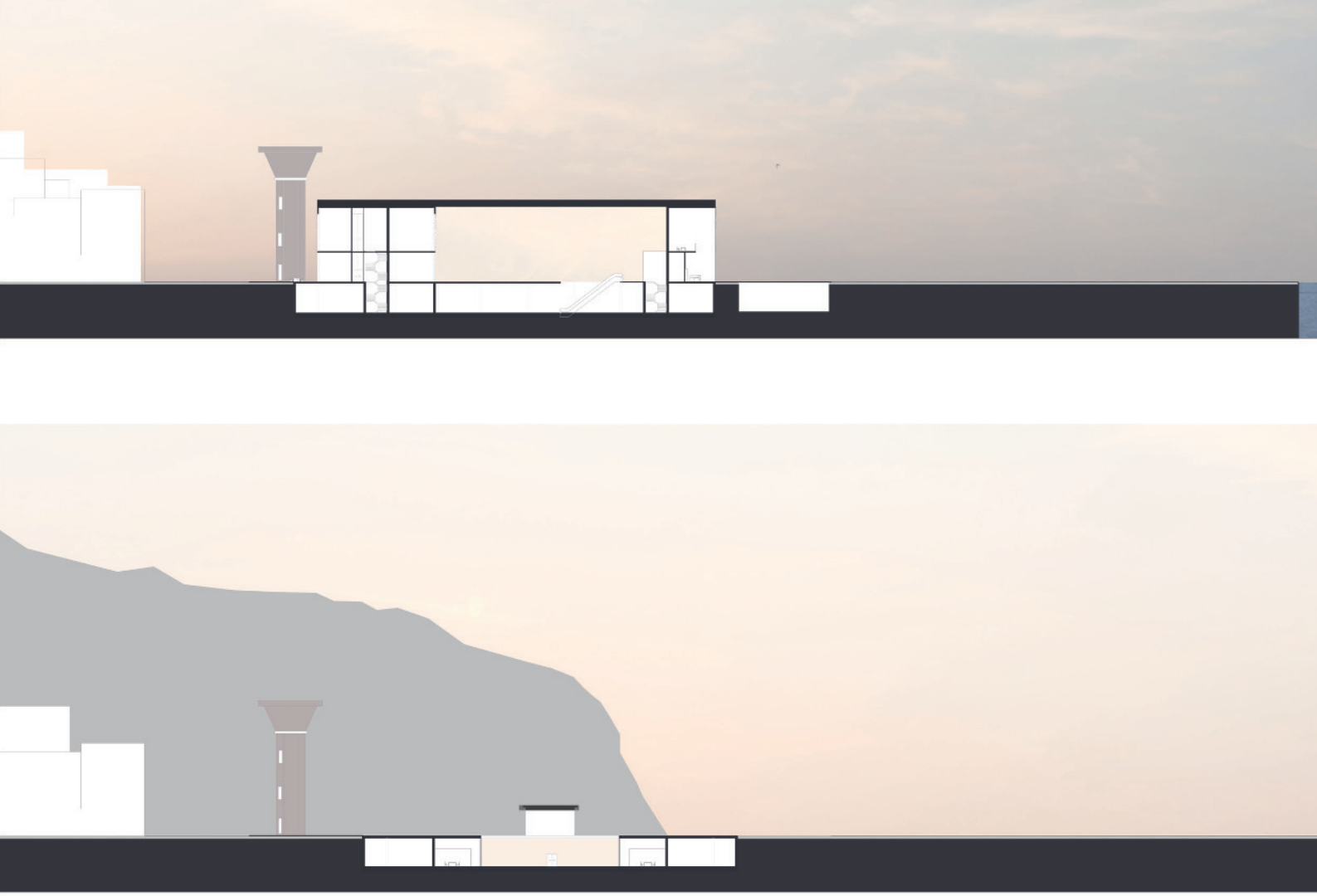
Congress Center

Research Center

Underground Parking Area

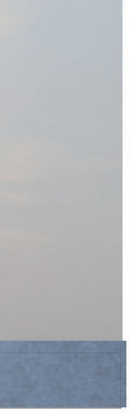
Amphitheater

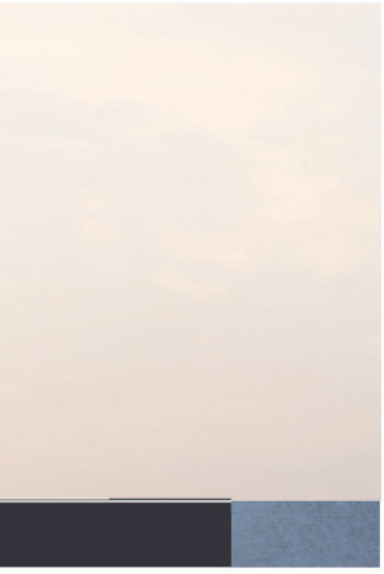
Art and Performance Center
Exhibitions, Studios



0 9.1 18.2 27.3 m

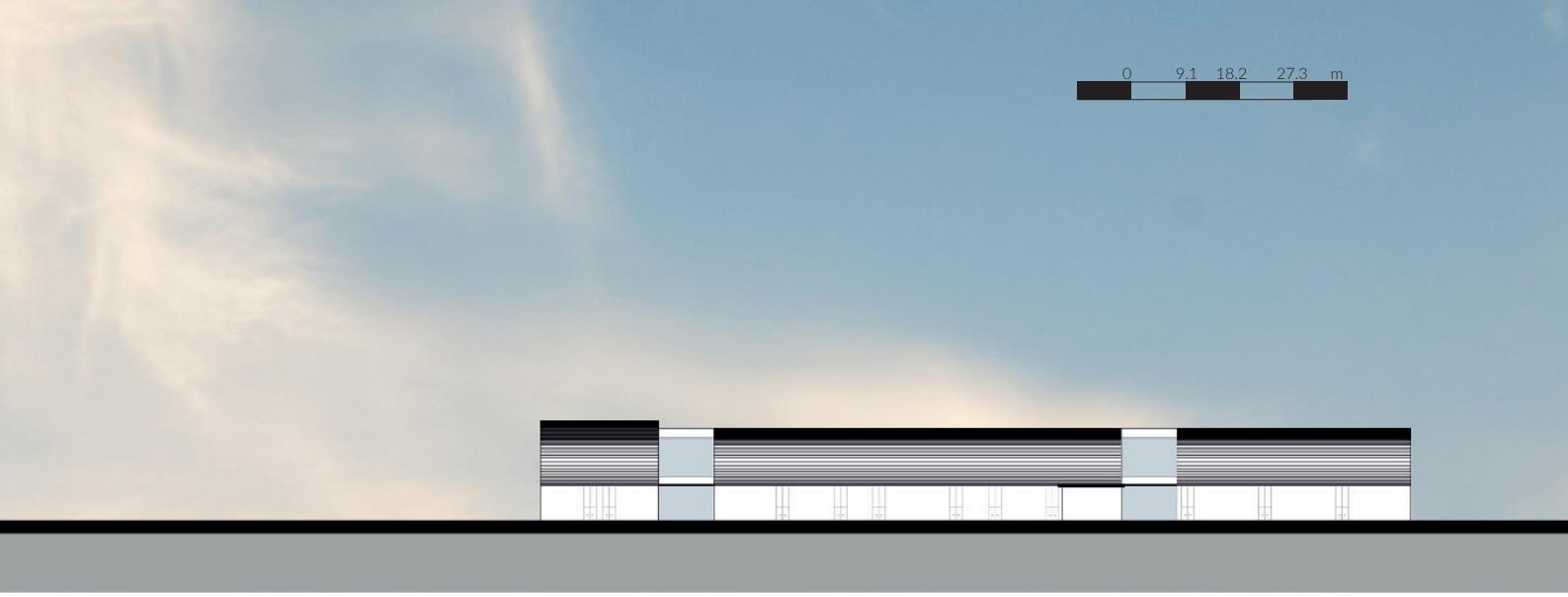
[Figure 153] Sections.

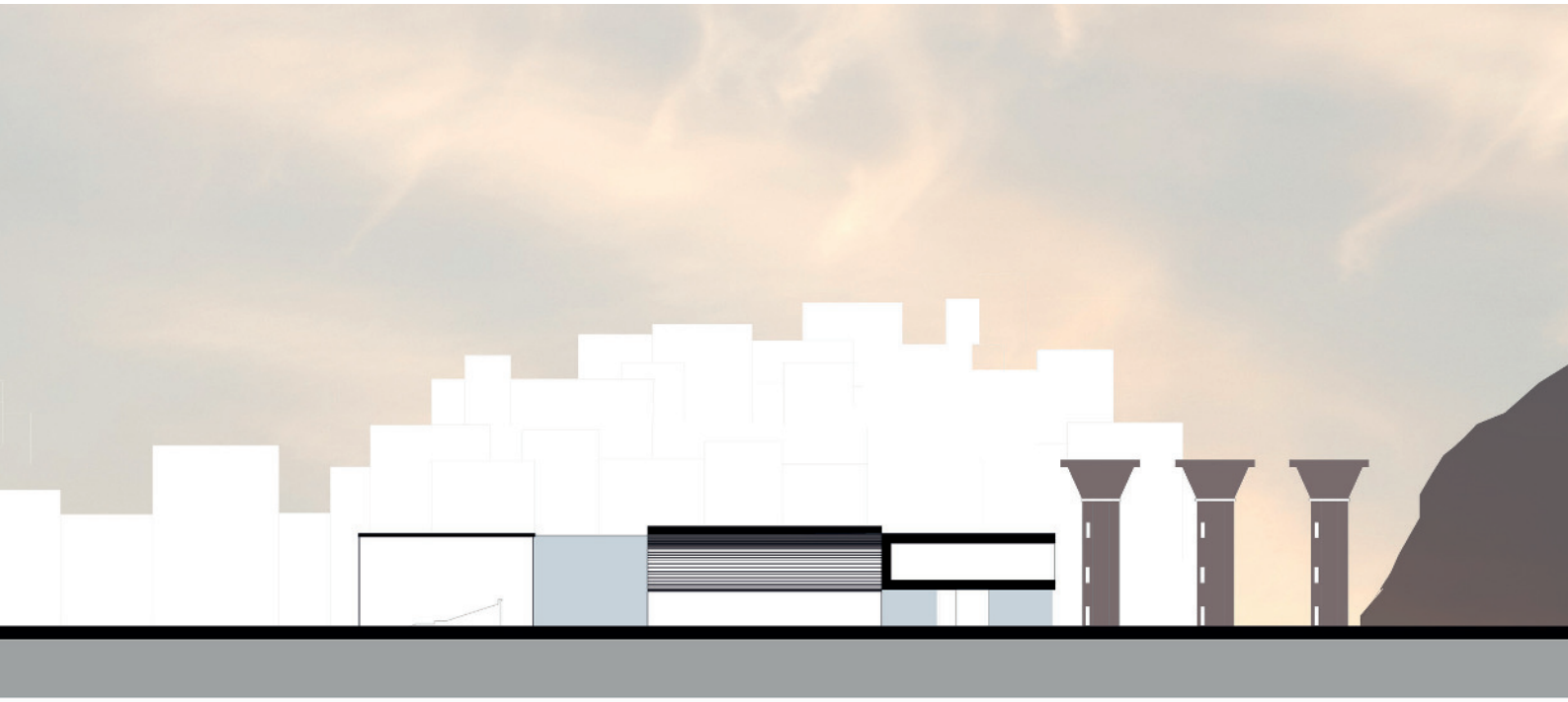





0
9.1
18.2
27.3
m

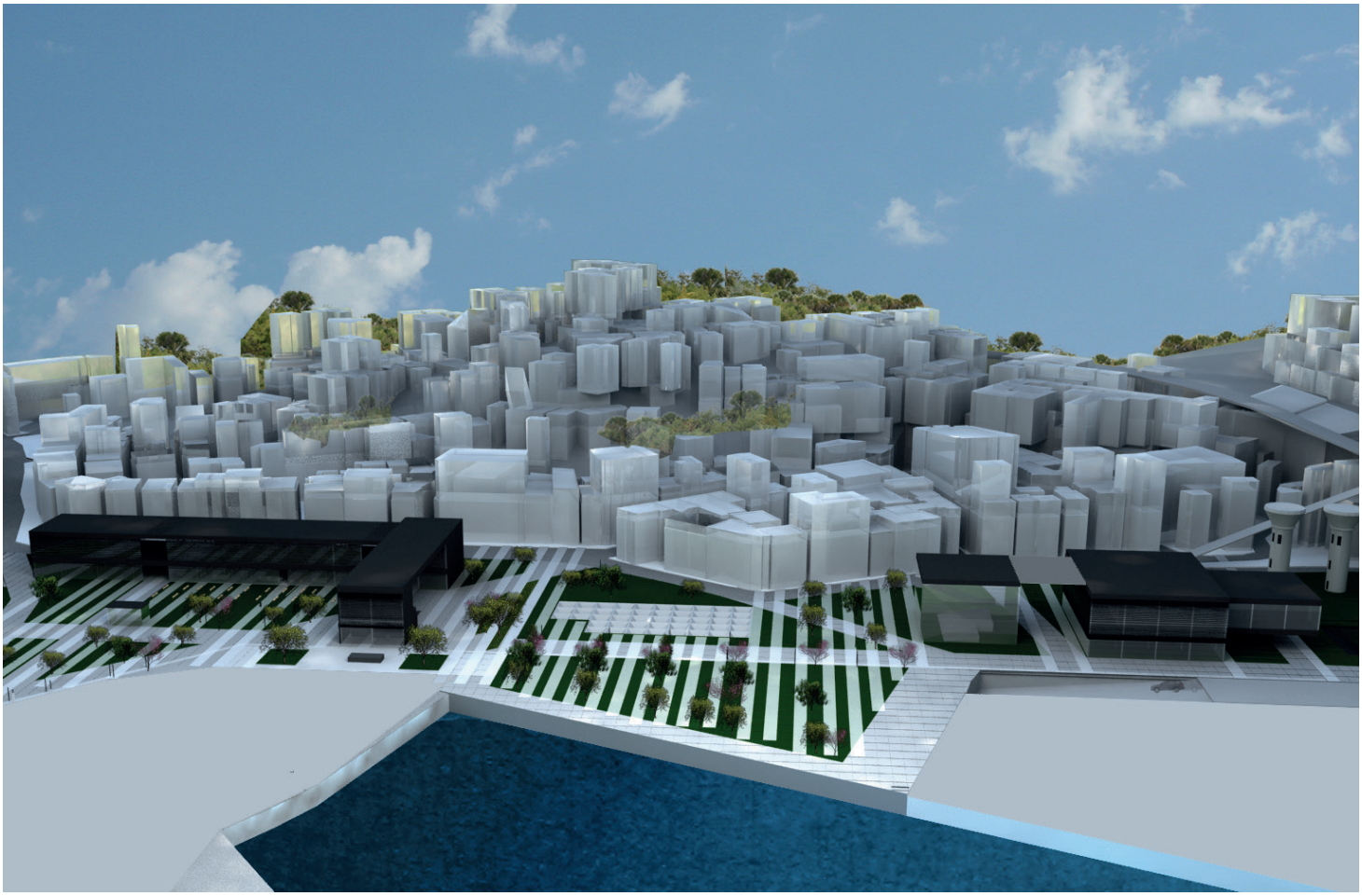
[**Figure 154**] Elevations.


0
9.1
18.2
27.3
m

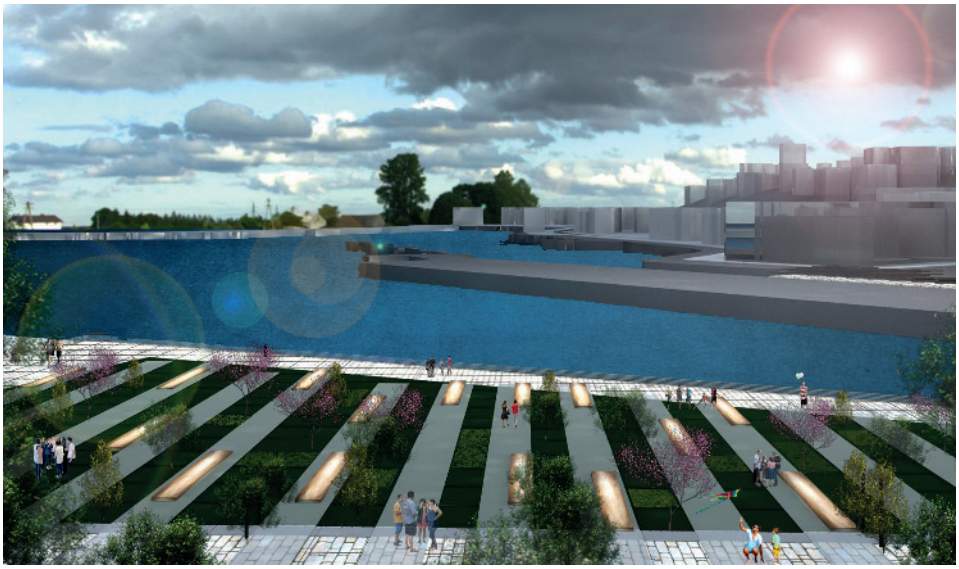


[Figure 155] Open inner street model for back side of fish market. On the walls are former photos from coal miners.

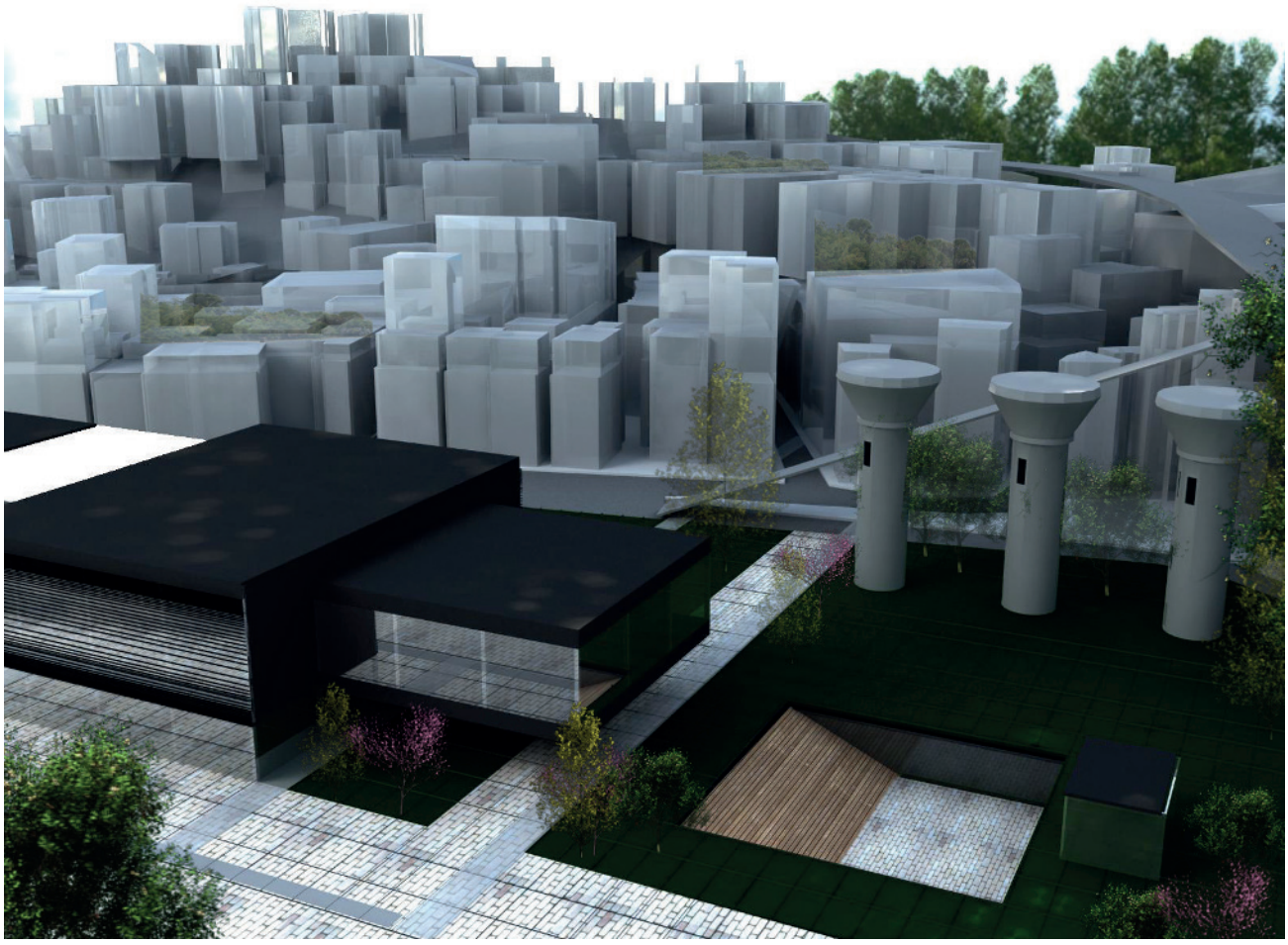
[Figure 156] Fish Market. Open street model.



[Figure 157] General View



[Figure 158] Seashoreview.



[Figure 159] Research Center, Tower, Amphitheater

[Figure 160] Main diagonal axis for the city center connection and vertical axis for seashore.

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Figure 1: https://blog.willis.com/2013/05/the-tip-of-the-iceberg-environmental-damages-fines/

Figure 2: Map by Sinem Papila Kural

Figure 3: https://brownfieldlistings.com/blog/post/intern-exits-joining-the-redevelopment-revolution-may-cause-highfives

Figure 4: Sketch by Sinem Papila Kural

Figure 5: Scheme by Sinem Papila Kural

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