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A tale of Aliaga: Transformation from a farm to an industrial hub

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Abstract

Industrialization processes and policies change and transform settlements socially, economically, and spatially within capitalist production relations. This change and transformation also changed the hierarchy and gradation system between settlements, described as urban systems. In this context, Aliağa is an important settlement in İzmir, the third largest metropolis in Türkiye. It has been referred to as an industrial zone since the 1960s and has strategic importance as a national and international import and export port. While it was a rural settlement where farm and farm workers lived, it has been transformed into a settlement where macro-scale investment decisions such as special industrial zones, organized industrial zones, industrial areas, energy conversion facilities, thermal power plants, ports, railways, and highways are located. While this process is still dynamic, it has become an important settlement chosen by large capital integrated into international production and value chain networks. While industrial areas have increased more than 3-fold in the district between 1990 and 2018, capital accumulation continues to accelerate with new investment decisions. Today, the fact that it hosts the country's largest foreign-capital companies (PETKİM, TÜPRAŞ, HABAŞ, SOCAR, NEMPORT, STAR Refinery, etc.) and that the ship dismantling facilities, which are the only ship recycling facilities in the country, are located here, carries the district to an important position. When examined in terms of İzmir cargo regimes in 2020 (export, import, cabotage, and transit), the district, hosting one of the country's most significant ports with a dominant share of 75.1%, has gained prominence and undergone a rapid process of change and transformation. This study analyses the historicity of the industrialization, capital concentration, and spatial transformation processes of Aliağa district using qualitative (examination of studies on the historicity of Aliağa) and quantitative data-based (ISO 1000 company ranking, satellite images, plan studies) methods. It analyses the "growth" adventure of a village settlement that has a population of over 100 thousand at the end of 70 years and has become an industrial city with industrial zones, ports, and energy infrastructures, and the growth process initiated by public investments guided by development plans, which accelerated and transformed with the impetus of private sector investments, by analysing the periodic development of capital accumulation and industrialization dynamics. This study differs from the literature by analysing the spatiality of capital accumulation cycles and contributes to the literature by analysing how the tendency of capital accumulation affects its spatial change and transformation in the example of Aliağa district.

Keywords: Aliaga-Izmir, capital concentration, industrialization, transformation of space

1. Introduction

Capital accumulation creates and organizes itself as a national industrial policy in the construction processes of nation-states (Harvey, 2008). It ensures the determination and fixation of population, borders, and resources with the tools of the nation-state. Capitalist production relations fix commodity production and capital cycles in space through industry and factories. For this reason, industrialization processes and policies are of critical importance in the self-reproduction and restructuring of the nation-state (Harvey, 2008). The concentration of industry in certain areas within the nation-state through investment decisions corresponds to the social,

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economic, and spatial restructuring of capitalist production relations within the nation-state and the change in the position of settlements, which are the centres of capital accumulation, within the hierarchy of settlement systems (Das, 2017).

The change in the position of some settlements in urban systems and settlement hierarchy is a unique example of the restructuring of the capital accumulation of a nation-state that became late capitalist, inherent in Türkiye's transformation from an empire to a republic. As a country that structured and organized its production relations and institutions extremely late and quickly compared to other capitalist countries, it accelerated its capital accumulation in a short time. The restructuring process that was initiated, especially after the Republic caused the position of some settlements in the settlement system to change. The system, which was based on the redistribution of the wealth accumulated throughout the country, turned a settlement that was previously a small village or town into a capital and production centre all around the country. After the war, especially with Keynesian welfare state policies, industrial investments made by the state in Anatolia in Türkiye for industrial development caused few Anatolian cities' rapid growth and transformation. Settlements such as Karabük, Kayseri, İzmit, Alpullu, and Nazilli can be given as important examples of settlements that developed because of investments made by the state within the framework of industrial policies. The geography of Anatolia has many settlements that have undergone change and transformation in this way (Altaytaş, 2020; Kopuz, 2017; Sadri, 2020).

In the pre-Republican period, it was a settlement with a farm and rural structures where the workers lived. Today, Aliağa hosts large-scale industrial establishments with important international networks, ports, and an organized industrial zone. It is an industrial center that provides serious inputs to the Turkish economy. This transformation is undoubtedly important and is one of the areas where a nation-state that has become late capitalist can change and transform space and settlements with its industrial policies. The nation-state is an effective and important breaking point in separating space and borders. When it is considered that capitalism has established its existence on the fixation of production to space, it organizes and develops by intertwining the concepts of nation-state and national industry. The capital accumulation, industrialization, and spatial transformation path of the Aliağa district emerges as an example of Türkiye's modernization and capitalism. In the process, Aliağa settlement has transformed from a rural settlement that makes a living from agriculture into an urban settlement with a population of around 105 thousand as of 2023 (TURKSTAT, 2024) as a result of investment programs for the industry based on petrochemicals and its derivatives and upper-scale planning decisions such as iron and steel industry, which are among the roles assigned to settlements in the nation-state structuring processes mentioned above. Two of the five oil refineries in Türkiye (İzmit, Batman, İzmir, Kırıkkale, and Aliağa Star Refinery), Star Refinery and İzmir Refinery, are in Aliağa (Figure 1). Clearly, the iron and steel industry investments are concentrated in Marmara and Western Black Sea Regions, and only in İzmir in the Aegean Region. It is seen that almost all the iron and steel industry in İzmir is in Aliağa (Çebitaş, Ege, Aliağa, HABAŞ, İzmir, Kar-demir, Kılıçlar, Özkan, and Sider iron and steel industry) (Figure 1).

Within the scope of this study, the transformation of Aliağa from the past to the present and its development paths for the future were monitored through large capital investments and their effects, by revealing them with literature research, satellite images, planning processes, and investment decisions. The second part of the study presents the capital accumulation and concentration process (industrialization process) of Türkiye, following the explanation of the capital accumulation and concentration process in the first part. Next, the study will explain how Aliağa, the area of focus, has evolved within the context of capital accumulation and concentration, and how significant capital investments have influenced the city and its spatial development.

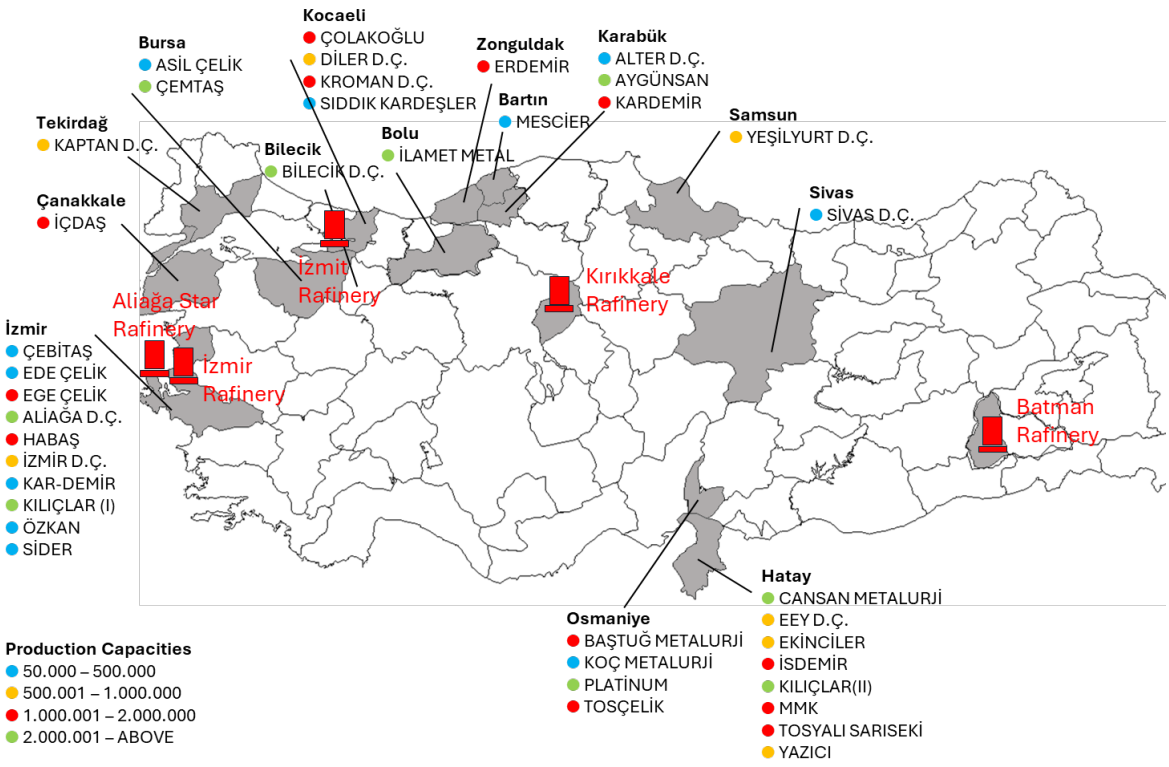

Figure 1 Distribution of refineries and iron and steel production companies in Türkiye (Turkish Steel Producers Association, 2024)

2. Hierarchical Urban Systems, Spatial Concentration Process, and Dynamics of Capital

The hierarchical urban systems approach studies settlements of distinct functions and sizes, analysing the economic, social, and spatial patterns they contain. It also describes the system formed by these patterns and the hierarchical structure they create. Historically, the accumulation of surplus products, population, and labour force in settlements varies based on the economic, social, and spatial dynamics within them. Furthermore, the capital accumulation process in settlements also involves dynamic restructuring. In this context, the central places theory is often employed as a key analytical tool to understand the formation and transformation of settlement systems (Christaller, 1980; Lösch, 1954).

On the other hand, Evolutionary Economic Geography (EEG) explains the growth of a region and its change in the hierarchical system with the effects of past economic activities, local capabilities, and investment processes (Boschma, 2017). According to this approach, investments are not only an external intervention, but also an internal drive fed by the region's past experiences, social networks, and institutional structures. The past investments and development processes, which are linked to path dependency and the evolution of local capacities lead to the economic structure of the regions. Investments increase the technological capacity of the region, strengthen local economic diversity, and integrate the region into national and transnational economic network structures. In this context, there are studies in the literature that address the restructuring of cities and regions regarding the processes of integration of small-scale cities into industrial production networks and reveal the trend (Saidi et al., 2024).

Evolutionary economic geography also emphasizes the impact of investments on regional hierarchy (Meijers, 2007). Local capacities of regions (human capital, capital accumulation, technical infrastructure, sectoral diversity, sectoral forward and backward linkages, innovation capacity) shape regional competition, growth, and development. Peripheral regions that are attached to strong centres can also dominate regional development and reach a level where they can compete with the centre in certain areas. This process transforms the regional hierarchy and ensures that local economies change over time because of an evolutionary process. Investments

restructure the region by triggering economic growth, innovation, and adaptation processes (Balland et al., 2017).

There are studies in the international literature on how refinery and complementary sectors, which stand out in Aliağa's development drive, shape regional restructuring, and these studies analyse the practices of industries in changing and transforming locations. For example, the transformation capacity of refineries in the Netherlands and Europe (Pinder & Husain, 1987), the spatiality of refinery and petrochemical industry in Europe (Molle & Wever, 1984), the regional development dynamics caused by the petrochemical industry in Norway (Reiersen, 1978), and the rapid regional development provided by the oil economy in Indonesia (Hill, 1992).

The spatial accumulation of capital through industry the transformation of space resulting from the concentration of capital in certain places and the change of the “position” of settlements within hierarchical urban systems are issues that have been discussed for a long time in the planning and economic geography literature. The expressed process is dynamic and restructures itself intrinsically in the changing tendency of the dominant paradigm that determines the relevant policies. Therefore, although the process of changing the position of a settlement within the hierarchical urban systems of capital accumulation and industrialization policies discussed within the scope of this study is based on classical accumulation discussions, it also reveals its importance as a process shaped by local dynamics.

There are two main approaches to explaining the spatial concentration of capital and the formation and evolution of hierarchical urban systems (Erdem & Kılıç, 2024). One comes from Marxist geography, the other from economic geography. From a Marxist perspective (Das, 2017; Harvey, 2008; Smith, 2008), capital accumulation is a fundamental process in which capital naturally concentrates in certain places to accelerate production and increase surplus production. In capitalist economies, capitals tend to cluster in certain cities and regions to access advanced production resources, high-quality raw materials, affordable labor, innovative production techniques, and cutting-edge technology. The pursuit of profit maximization through faster production and reduced costs is the main factor behind the unequal regional distribution of capital (Das, 2017; Harvey, 2008). As a result, industries, companies, and capital tend to concentrate in national production centers (Balland et al., 2017; Boschma, 2017).

In contrast, economic geography emphasizes spatial characteristics. The clustering of firms and capital is largely influenced by spatial factors such as transportation infrastructure, organizational capability, human capital, and the type and extent of existing capitalism (Storper, 1997). Some regions naturally have more favorable spatial characteristics, while others lack the resources to develop them because these characteristics are fixed and difficult to replicate. These assets lead to market dynamics that concentrate firms in certain areas, creating significant regional disparities across nations. The economic changes in Aliağa illustrate aspects of both theories, where large public investments have stimulated the growth of the local economy and attracted related industries, further developing the region's economy and attracting additional investment.

3. Izmir-Aliaga’s Evolution from Rural Settlement to Capital Hub and Its Spatial Implications

3.1. Study Area, Purpose, Scope and Method

This study focuses on the Aliağa district of İzmir, which is the westernmost province of Türkiye and the third province with the highest income and population. Aliağa is an important settlement located on the seaside with strong sea, highway, railway, and air transportation connections, located about 60 km away from the metropolitan city centre of İzmir. It has become a significant center of attraction for industrial investments since the 1960s. Aliağa has infrastructures requiring large capital such as special industrial zones, organized industrial zones, industrial areas, energy conversion facilities, thermal power plants, ports, railways, and highways. As of 2023, it has a population of 105 thousand and due to the industrial areas and other areas requiring intensive employment, its day and night population varies, and the daytime population increases to 200

thousand with those coming to work in the industrial area from the surrounding provinces and villages (Aliaga Municipality, 2020). The number of workers transported from the surrounding settlements and the Izmir metropolitan center by the city shuttles and railways and the Izmir Suburban System (IZBAN) constitutes the difference between day and night (Aliaga Municipality, 2020). While such a high density of daily displacements causes Aliağa to be a settlement serving a much larger population than it has, it also reveals the social, economic, and spatial importance of the district.

Within the scope of the study, the industrialization process of the district was examined in an integrated manner using the Internet and printed sources, and the spatial transformation process was examined using raster satellite imagery data. While the urbanization and industrialization process of Aliağa was revealed by examining the literature sources related to Aliağa, information and documents regarding upper-scale plan decisions and future investment decisions were compiled. Within the scope of the study, spatial development and change status were determined using satellite images at 5-year intervals during the period 1975-2024. Satellite images were obtained from the LANDSAT USGS platform (Appendix 1).

3.2. Iindustrialisation Process and Capital Accumulation Dynamics in Aliaga District

The decision to establish a refinery and petrochemical industry in Aliağa district in the II. and III. development plans, and later its designation as an industrial sub-region, and the location selection of the iron and steel sector in the IV. The Development Plan paved the way for industrial development in Aliağa district. The selection of Aliağa paved the way for the transfer of capital accumulated throughout the country through public investments to Aliağa, triggering industrialization, increasing capital accumulation with the development of complementary sectors, and the economic, social, and spatial change and transformation of an agricultural settlement in parallel with the capital accumulation dynamics. The specific selection of refinery and petrochemical industry was the determinant of the intensive location selection of the chemical industry and chemical-related sectors in Aliağa. Between 1965 and 1970, Petrochemical Inc. (PETKİM) was established in the Yarımca region of İzmit, which was determined as one of the industrial bases of Türkiye, and factories to produce Ethylene, Polyethylene, Chlor Alkali, VCM, and PVC were completed. II. In line with the decision taken in the development plan, the foundations of PETKİM's Aliağa facility were laid in the next investment period of 1971-1975, and LDPE, HDPE, PP, and ACN factories started to operate. In 1983, the Aliağa refinery was combined with the other three refineries established in Türkiye, namely İzmit, Batman, and Kırıkkale refineries, and gathered under the name of Turkish Petroleum Refineries (TÜPRAŞ) (Figure 1).

While refineries and petrochemical industries were initially established by the public sector due to their high capital requirements during Türkiye's capitalization process, they were privatized following neoliberal policies after 2000. With the privatization, TÜPRAŞ refineries started to operate under Koç Holding, one of the major capitalist groups of Türkiye. Other enterprises affiliated with PETKİM were transferred to SOCAR&Turcas Joint Venture Group, an Azerbaijani public enterprise, within the scope of privatization in 2008. In 2011, SOCAR laid the foundation for the establishment of its refinery facility, and the first oil was processed by STAR Refinery in 2018. The area where PETKİM and SOCAR are located was declared as Türkiye's first "Special Industrial Zone" by Presidential Decree No. 190 (Kılıçer & Peker, 2019) and in addition to refining and crude oil processing, it operates in the fields of discharge and storage with SOCAR Storage, port management with SOCAR Terminal and renewable energy with PETKIM RES. As of 2018, two refineries are operating in the Aliağa district, and 2023, STAR Refinery became the 3rd largest company in Türkiye in the list of Türkiye's top 500 industrial enterprises published by ISO. PETKİM, also located in Aliağa, is ranked 30th and İzmir Demir Çelik is ranked 49th. This process significantly reveals the size of the capital and capital accumulation concentrated in the Aliağa district with privatizations and the investments made by the companies after privatizations.

Before privatization, PETKİM and TÜPRAŞ, which were public companies and were established on the peninsula in the west of the district, had a production and capital accumulation cycle based on the processing of crude oil received from oil tankers docked at their ports and the presentation of fuel oil and different petroleum products to the domestic market, whereas in the post-privatization process, there are two different private refineries in Aliağa and similarly, the crude oil coming to the facilities through the ports is processed and the presentation of fuel oil and different petroleum products to the domestic and foreign markets is ensured (Figure 2). After the crude oil coming to the enterprises in Aliağa by sea is processed, it is presented to the domestic market by road and railway.

With privatization, the development of the chemical sector in the Aliağa district was triggered and to meet and regulate the increasing demands, the Aliağa Chemical Specialization and Mixed Organized Industrial Zone (ALOSBİ) was established in 1997. Its proximity to the highway and ports made the OIZ an attraction point for companies and the OIZ, where large parcels for the chemical sector were filled, reached an occupancy rate of 90% (Table 1).

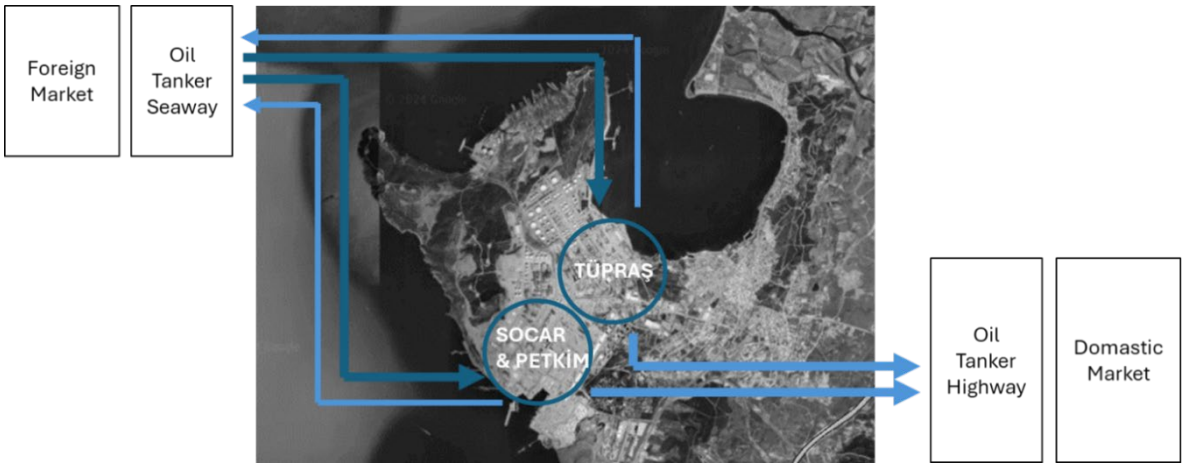

Figure 2 Petrochemical production and capital accumulation cycle in Aliaga district

Table 1 Details of Chemical OIZs by Province in Türkiye

Province	OSB Title	OSB Area (Hectare)	Total Number of Parcels	Number of Parcels Allocated	Number of Parcels to be Allocated	Number of Parcels in Production	Number of Parcels Under Construction
İstanbul	İstanbul Tuzla Kimya Sanayicileri	74	164	164	0	164	0
İzmir	Aliağa Kimya İhtisas ve Karma	922	310	257	53	117	119
Kocaeli	Kocaeli Gebze V(Kimya) İhtisas	245	72	72	0	39	25
Yalova	Yalova Kompozit ve Kimya İhtisas	118	13	12	1	10	0

Another determinant as important as the refinery is the transfer of capital to Aliağa district for scrap recycling and transportation for the chemical industry and Machinery and Chemical Industry (MKE) under the guidance of the IV. Development Plan, again through public investments. It would not be wrong to say that these two decisions are the most important decisions in the process of transforming Aliağa district into today's industrial city identity. Following the establishment of the refinery, private industrial investments were made in the chemical industry, and the sector was developed with private investments in the field of scrap recycling and transportation (Aliaga Chamber of Commerce, 2024).

In addition to MKE, different companies from the iron and steel sector based on scrap recycling were established in Aliağa district during the process. Ship dismantling facilities were established to provide raw material supply through a model based on the dismantling of large ships that had completed their service life or whose restoration was ineffective, and the processing of the steel obtained from the ships and re-offering them to the domestic or foreign market. In 1965, Kılıçlar Ship Dismantling Enterprise was established at the tip of the peninsula where PETKIM is located, this area was then chosen by different ship dismantling companies and provided raw materials to be processed for the iron and steel sector. In 1975, the coastal area between Taşlıburun and Ilıcaburun in the Arap Çiftlik district of İzmir province was declared as the Ship Dismantling Area by the decision of the Council of Ministers.

In parallel with the development of the refinery, it was observed that new iron and steel processing facilities were also established in Aliağa district, where the iron and steel sector developed. Kardemir Çelik, which carries out production based on the processing of scrap iron and steel into iron and steel products called rolled sheet or billet steel, was established in 1998, İzmir Demir Çelik in 1975, LEYAL Recycling in 1980, Ege Çelik in 1986, HABAŞ Iron and Steel Industry in 1987 and Kocaer Demir Çelik in 1996. All these establishments chose a location near the Horozgediği village, which makes a living from agriculture, on the road connecting Nemrut Bay to the Aliağa-İzmir highway in the south of Aliağa district.

Nemrut Bay has a critical importance in the location selection of the relevant iron and steel companies. In addition to the scrap iron and steel collected domestically and the iron and steel obtained from ship-breaking facilities, the iron and steel collected from other countries were brought to the special ports in Nemrut Bay by cargo ships, transported by road to iron and steel processing facilities, processed and processed iron and steel transported by road to the domestic market or to ports for foreign markets, which resulted in a production and capital accumulation cycle. It was also observed that container ports were also chosen in the region during the process. The iron and steel production cycle, in which scrap iron and steel are processed into liquid steel and then offered to the market as rolled sheet and billet steel, is visualized in Figure 3.

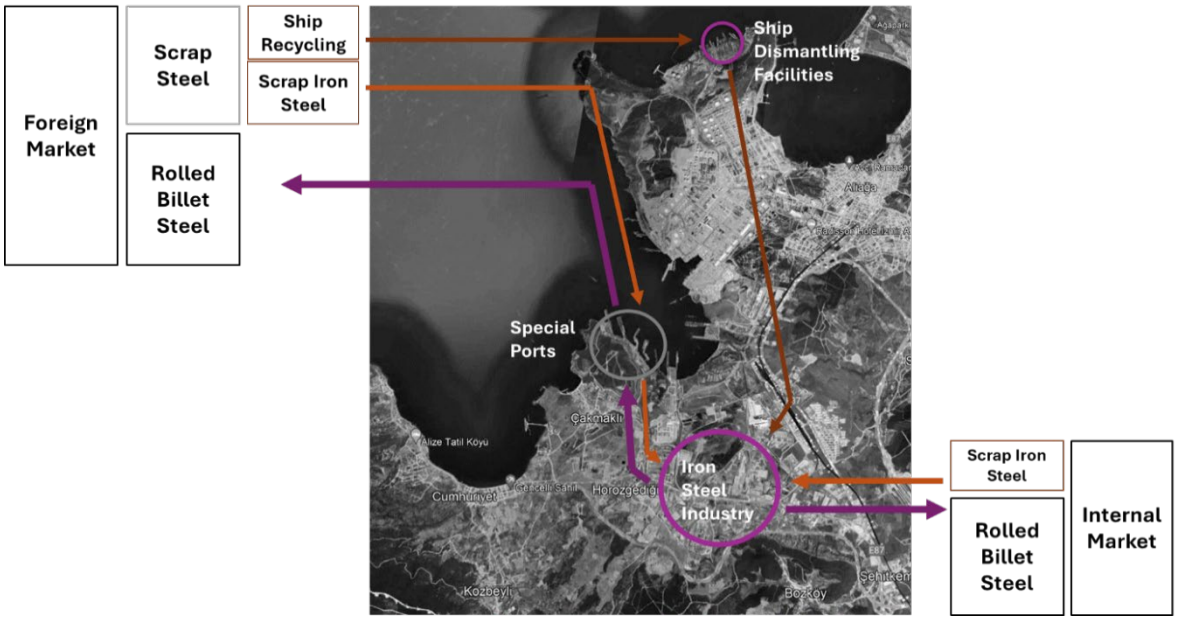

Figure 3 Production and capital accumulation cycle of the iron and steel sector in Aliaga district

The development of the iron and steel sector in the region has led to the establishment of natural gas energy conversion businesses and thermal power plant businesses in the region to meet the energy needs of the iron and steel sector, as the process of converting scrap iron and steel into liquid steel requires a high amount of energy. The presence of businesses requiring intensive electricity use in the region and the increase in their numbers throughout history have paved the

way for energy companies to choose locations in the region. In addition, it is seen that renewable energy investments are being made in the region due to the high wind and solar potential in the region (İZKA, 2012).

When Table 1 is examined, it is seen that other investment decisions have also chosen the area in the process, especially with the arrival of the petrochemical industry in Aliağa district. Decisions regarding transportation and technical infrastructure have been investments primarily investments in the area along with the development of the industry. It has been observed that port activities have developed specifically for import and export because there are international foreign capital investments. Subsequently, the presence of leading companies in the sector here has made the area a canter of attraction especially for small-scale industrial companies, and therefore it has been seen that industrial areas and organized industrial zones have also quickly chosen a place in the area in the process. With the gradual growth of the area and its becoming an important industrial zone nationwide, the area was declared a special industrial zone with the Presidential Decree published in the Official Gazette dated 14.11.2023 and numbered 32369 (Resmi Gazete, 2023).

Table 2 Evolution of Key Macro-Scale Investment Decisions in Aliaga Over the Years

	1975	1980	1985	1990	2000	2005	2010	2015	2023
Petrochemicals	x	x	x	x	x	x	x	x	x
Refinery	x	x	x	x	x	x	x	x	x
Aliağa Gulf Breakwater Number	1	2	2	3	4	4	4	4	4
Refinery Port		1	2	2	2	2	2	2	5
Iron Steel Port		2	3	5	5	6	6	7	7
Iron Steel Factory	2	2	3	5	10	10	10	10	10
Nemrut Gulf Breakwater Number		3	5	7	8	8	10	10	14
Ship Breaking				x	x	x	x	x	x
OSB						x	x	x	x
ÖEB									x
Highway								x	x
Highway								x	x

These macro-scale investment decisions made in the area over approximately 40 years have also significantly affected the spatial change of Aliağa. Table 2 shows the places located in Aliağa district that are on the list of Türkiye's top 1000 industrial establishments published every year by the Istanbul Chamber of Industry. As can be seen, 16 of the companies in the top 1000 industrial establishments of Türkiye are in the Aliağa district. The presence of 16 large industrial establishments in one district reveals the importance of the area where capital is concentrated. Among these industrial establishments, there are STAR Refinery, which is ranked 3rd in direct sales within Türkiye, Petkim Petrochemicals, which is ranked 30th, as well as industrial establishments such as Kar-El Demir, which is ranked 996th. When Table 3 is examined, it is also noteworthy that 10 of the establishments in Aliağa that are among the ISO 1000 are among the top 500 (ISO, 2023).

Table 4 shows the sectoral distribution of companies located in Aliağa district according to TOBB data. Consistent with the framework provided above, it is seen that the largest number of companies operate in the chemical industry, metal industry, and fabricated metal products manufacturing sectors. The leading companies in the field have determined which sector the district will develop in and have attracted small-scale industrial investments, especially those that provide input to the chemical industry, metal industry, and fabricated metal products industry and want to benefit from the market niches of large companies in this area (TOBB, 2023).

Table 3 Industrial Enterprises in the Aliaga District Among the Top 1000 in Turkey (ISO, 2023)

Companies	2023	2022	2021	Sector
STAR Refinery	3	2	3	Petroleum Products Industry
Petkim Petrokimya	30	25	15	Basic Chemical Industry
İzmir Demir Çelik	49	42	37	Iron and Steel Basic Metal Industry
Abalıoğlu Yağ	93	66	66	Foodstuff Industry
Ravago Petrokimya	106	84	76	Basic Chemical Industry
Kocaer Çelik	118	92	102	Iron and Steel Basic Metal Industry
Özkan Demir Çelik	201	134	97	Iron and Steel Basic Metal Industry
İzdemir Enerji Elektrik	262	146	398	Electrical Sector
Akdeniz Chemson Kimya	263	275	259	Basic Chemical Industry
Sun Chemical Matbaa	366	372	400	Other Chemical Products Industry
Eltaş Transformatör	528	625	721	Electrical Machinery, Appliances and Devices Industry
Opet Fuchs Madeni Yağ	573	602	657	Petroleum Products Industry
Atik Metal Sanayi ve A.Ş.	597	623	-	Basic Metal Industry Other Than Iron and Steel
Agromey Gıda	627	549	-	Foodstuff Industry
Ege Seramik	678	472	-	Pottery, Pottery, Tile, Porcelain Industry
Kar-El Demir	996	845	766	Iron and Steel Basic Metal Industry

For this reason, it is also seen that the district has significant clustering potential due to the concentration in these sectors. Of course, it was declared an industrial sub-region in the 1960s and it is seen that companies from different sectors have chosen to locate in Aliağa as a settlement where capital accumulation is constantly concentrated. Aliağa district is very close to Bakırçay plain, one of the fertile plains of the Aegean region, and there is a high density of agricultural production in its hinterland. In this context, it is seen that food industry companies constitute 8% of the companies located in Aliağa. Moreover, as a region with high agricultural quality and a livelihood from agriculture from the past to the present, the fact that companies still operating in this sector are seen in the area is an important indicator of this. Another sector with a high number of companies is the waste reclamation and recovery sector with 7.8%, again consistent with the framework given above. The capital transfer to Aliağa district in the period of 1965-2024 is as discussed above. Because the private sector does not have the capital accumulation required to establish and operate enterprises such as PETKİM and TÜPRAŞ inherent in the late capitalist development of Türkiye and due to industrialization policies based on national capital, investments requiring large amounts of capital were made through public means. Although capital transfer through public means in Türkiye is not specific to Aliağa alone, it can be said that capital transfer was made relatively later, especially when the Public Economic Enterprises (KİT) established in the 1930s and 1940s are considered. After the declaration of the Republic, the welfare produced throughout the country within the process of westernization and capitalization of the economic and social pattern was continued by assigning different functions to different regions of Türkiye.

The 1st Development Plan and the XII. During the 60 years encompassing the development plan, the development plans and the private capital dynamics that emerged afterward increased the population of Aliağa district from 17 thousand in 1985 to 25 thousand in 1990, 57 thousand in 2000, 65 thousand in 2010, and 105 thousand in 2023. While the population increase was 44% with an increase of approximately 8 thousand between 1985-1990, the population increased by more than 100% between 1990-2000, the population increased by 8 thousand between 2000-2010 and the district population increased by approximately 60% with an increase of 40 thousand between 2010-2023. The rapid growth trend created by neoliberal policies after 2000 can be read in the population of Aliağa. It transformed a “settlement” consisting of rural structures where a farm and employees lived into an urban settlement where the most profitable businesses of Türkiye are located with

transfers made through public and private capital. Some of the businesses requiring large capital established in Aliağa settlement throughout history are presented in Figure 4.

Table 4 Sector-wise Distribution of Companies in Aliaga District (TOBB, 2023)

Sector	Number	%
Plant and Animal Production	3	1,07%
Coal and Lignite Mining	4	1,42%
Natural Gas Extraction	2	0,71%
Mining and Quarrying	17	6,05%
Food Products Manufacturing	23	8,19%
Textile Products Manufacturing	4	1,42%
Paper Products Manufacturing	4	1,42%
Coal and Petroleum Products Manufacturing	16	5,69%
Chemical Products Manufacturing	44	15,66%
Rubber and Plastic Manufacturing	8	2,85%
Non-Metallic Mineral Product Manufacturing	15	5,34%
Basic Metal Industry	37	13,17%
Fabricated Metal Products Manufacturing	30	10,68%
Electrical Equipment Manufacturing	4	1,42%
Machinery and Equipment Manufacturing	19	6,76%
Trailer Manufacturing	4	1,42%
Furniture Manufacturing	2	0,71%
Electricity, Gas, Steam, and Air Conditioning System Production and Distribution	10	3,56%
Waste Reclamation and Recycling	22	7,83%
Office Management and Business Support Activities	13	4,63%
Total	281	100

Capital transfer to Aliağa district is still ongoing and it would not be wrong to say that transportation investments will accelerate the relevant capital transfer process. While investment decisions requiring large amounts of capital continue to be realized through both public and private capital, it has been determined that there are also investment decisions that will accelerate capital accumulation in the district but have not yet entered into force.

3.3. Spatial Development Process of Aliaga

While Aliağa was a rural settlement based on agriculture until the 1970s, the fact that the settlement was determined by Ankara as an industrial sub-region of İzmir province in the 1st, 2nd, and 3rd development plans within its history was the trigger for the change and transformation process that would take place in Aliağa settlement (Figure 5). The economic structure of the settlement began to change, and it became an industrial canter with important industrial investments established in the 1970s. The fact that the canter assigned the mission of being a sub-region where industrial production would be carried out on a country scale to a settlement whose economic and social pattern was previously based on farming and fishing activities reveals the importance of the economic, social, and spatial transformation that will take place.

As of 1960, Türkiye entered a planned development process within the framework of the prepared II. Development Plan, a decision was made to establish a refinery in the Aliağa district, but this decision was cancelled due to objections. The refinery decision was finalized in the III. Development Plan and Aliağa was accepted as the industrial sub-region of İzmir. Another upper-scale decision that would affect Aliağa district becoming an industrial city was the selection of the location of the industry in Aliağa for the processing of scrap iron and steel in rolling mills and conversion into liquid steel in the IV. Development Plan.

(a) (b) (c) (d) (e) (f) (g) (h) (j) (k)

Figure 4 Industrial establishments in Aliaga district. Chemical sector; a) STAR Refinery (Anadolu Ajansı, 2024), b - c) Tüpraş (Global, 2020), d) Petkim (CGTNTURK, 2024), e) İnaltaş, ship dismantling sector (Deniz Haber, 2024); f) Kılıçlar

(Kılıçlar, 2024), food sector; g) Bunge (Bunge, 2024), h) Abalıoğlu (Abalıoğlu, 2024), iron and steel sector; i) İzmir Demir Çelik (İzdemir, 2024), k) HABAŞ (HABAŞ, 2023)

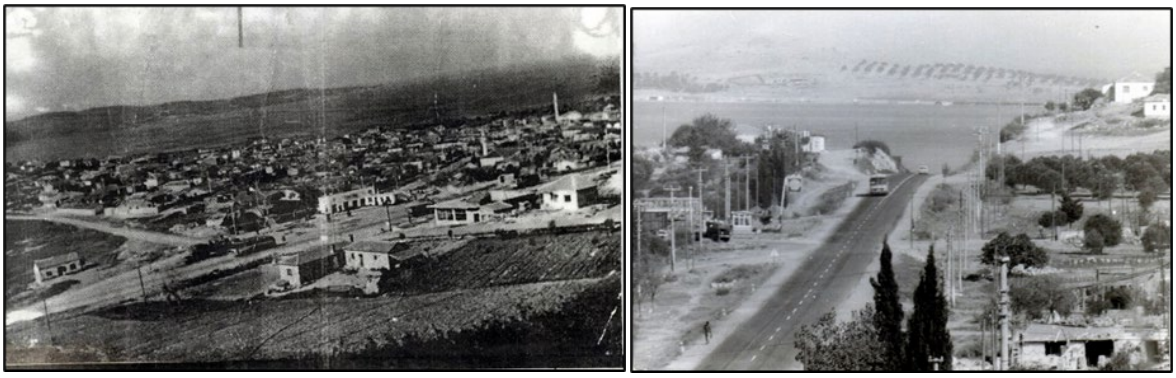

Figure 5 Aliaga before industrialization and capital accumulation processes (Şahin, 2020)

One of the important factors in Aliağa being accepted as the industrial sub-region of İzmir was related to the allocation of the south of İzmir to tourism activities and the allocation of industrial investments to the north of İzmir. The decision to plan a refinery is cancelled II. The plan led to the start of industrialization initiatives in Aliağa and Dönmezler Cotton-Gin Factory became the first industrial establishment established in 1960. It is not surprising that the first industrial establishment was for the processing of agricultural products, considering the agricultural pattern of Aliağa. According to the 1961 Constitution, the settlement was accepted as a "Heavy Industry Zone" (Aliağa Chamber of Commerce; n.d.), and with the provision of electrical infrastructure in the region in 1963, industrialization accelerated, and the foundations of the refinery were laid between 1965-1967. Following the electrical infrastructure, water infrastructure was also provided to the region in 1967. Thus, the settlement began to gain an industrial-oriented economic character from the 1970s onwards. The 1/1000 scale city plans prepared by Ahmet Yavuz in 1960 and Haluk Berksan in 1968 considered Aliağa as a relatively small settlement that was expected to develop through agricultural and tourism potentials, and therefore the plans lagged behind Aliağa's industrialization process and development dynamics. After Aliağa was planned as an industrial city in the 2nd Development Plan, the population in the city increased, and urbanization problems began to emerge. This situation manifested itself as infrastructure and housing problems. This trend accelerated with the construction of a metallurgy industry-based facility near Nemrut to recycle scrap obtained by the Machinery and Chemical Industry, and the establishment of TÜPRAŞ, then PETKIM, Petrol Ofisi, and liquefied gas storage and filling facility, ship dismantling, paper factory, fertilizer industry, and iron and steel factories.

Due to the inadequacy of the plans and the increase in shantytown areas, a new urban plan on a scale of 1/1000 was prepared by the Bank of Provinces in 1975. In the new plan prepared, the population was predicted to be 60,000 and the main development direction of the city was determined as the south. A multi-story settlement was arranged to prevent shantytown settlements. Due to the population movements and urbanization dynamics created by the industrialization process of the Aliağa district, the plan prepared by the Bank of Provinces also remained inadequate during the process.

According to Kibrit (2003), the criticisms of the report prepared by Gazi University Urban and Regional Planning Department regarding the 1/1000 scale plan prepared by the Bank of Provinces are as follows: "It did not fully solve the housing need, the Petkim housing area and the Slum Prevention Zone (SPZ) plan was rationally divided by the State Railways facilities, the terminal, and small industrial areas were within the borders of the SPZ, therefore implementation problems occurred, there were multi-story buildings in commercial areas, the unity of order was not ensured on the islands, the area between the SPZ ... In Aliağa, shanty houses that developed in different locations were tried to be prevented with shanty house prevention zones (İZTO, 1998; Kibrit, 2003) to prepare Aliağa for urbanization trends and the transformation of shanty house areas, a new zoning plan was prepared by Baran İdil in 1987, which foresaw a population of 300,000 for 2005,

and additional zoning plans were made to the prepared plan in 1991, 1992, 1994 and 1997. The İzmir-Manisa Planning Region 1/100,000 Scale Environmental Development Plan (EDP) (Figure 6), which was approved with the Ministry Approval dated 23/06/2014 and numbered 9948 and is in force, and the 1/25,000 scale Zoning Plan for İzmir Northern Region, a sub-region that also includes the Aliağa district, was prepared by İzmir Metropolitan Municipality in 2018 (Figure 7).

When the upper-scale plan decisions are examined specifically for Aliağa; it is observed that the settlement has developed especially as an industrial centre when looking at the province of İzmir in general, these industrial areas continue on important archaeological sites (Kyme ancient city, etc.) in the north and especially in the south, and the OIZ area has chosen a place on agricultural and forest areas in the north. In addition to the existing residential areas, it is seen that the development of residential areas also tends to develop by fringing of agricultural and forest areas, especially along the north-south line, around the industrial areas. In addition to this development, it is seen that the railway route has been developed with an additional connection to the east of the industrial area to serve the industrial areas, and at the same time, it supports the development of the area with highway and main transportation connections. As can be seen in the upper-scale plan decisions, Aliağa continues its development as an important industrial city of İzmir. In parallel with this, it is observed that the land use decisions required by the industrial areas and new industrial areas are also included in the plans. In 2020, a 1/1000 scale implementation zoning plan was prepared by the İMPO Planning Bureau.

The population predicted by the zoning plan prepared for 2035 is 103 thousand. It is seen that urban work areas (industrial services) are selected in the areas around industrial areas in the plan. It is seen that Aliağa has undergone significant change and transformation over the years with macro-scale investment decisions and spatial planning processes. While the city is rapidly spreading towards the peripheries, it is observed that industrial investment decisions and sectors that will serve the industrial area have chosen places in the periphery in parallel. Again, it is seen that residential and commercial areas have increased rapidly within the city in parallel with industrial investment decisions. Table 5 shows the change and size of land classes in the Aliağa district according to Corine's data. Figure 8 shows the spatial transformation of Aliağa district with 5-year satellite images between 1975-2024. According to Corine data, the number of industrial areas has increased more than 3 times between 1990-2018 (CORINE, 2018). Considering that industrial investments are risky and costly to establish due to dynamics such as intensive capital accumulation, suitable area, labour force, and transportation opportunities, the fact that industrial areas have increased more than 3-fold in 30 years indicates a remarkable increase. The increase in ports is as remarkable as the increase in industrial areas. The port areas, which were 65 hectares in 1990, increased to 160 hectares according to 2018 data. Although Corine's data is not definitive, it provides important information about the industrial development trend of Aliağa district.

As a result, it is observed that the settlement has developed with fragmented and additional zoning plans with areas such as industrial zones, industrial areas, and ship dismantling areas, while the lack of a holistic plan for the whole of Aliağa has brought with it many spatial problems such as transportation problems, lack of equipment areas, and construction problems. Since planning practices follow investments, it is not possible to talk about urban development created by the prosperity created by rapid industrialization in Aliağa. Industrial areas that have shown irregular development have been surrounded by urban areas with rapid urbanization, and due to the lack of public abandonment in factories built on cadastral parcels that have not been implemented, this has caused both the lack of public equipment areas in industrial areas and the development of factories receiving service from cadastral roads located between cadastral parcels and congested transportation systems. On the other hand, air quality and soil pollution measurements carried out in Aliağa reveal pollution and low quality of life in urban areas and rural areas located at the periphery of urban areas.

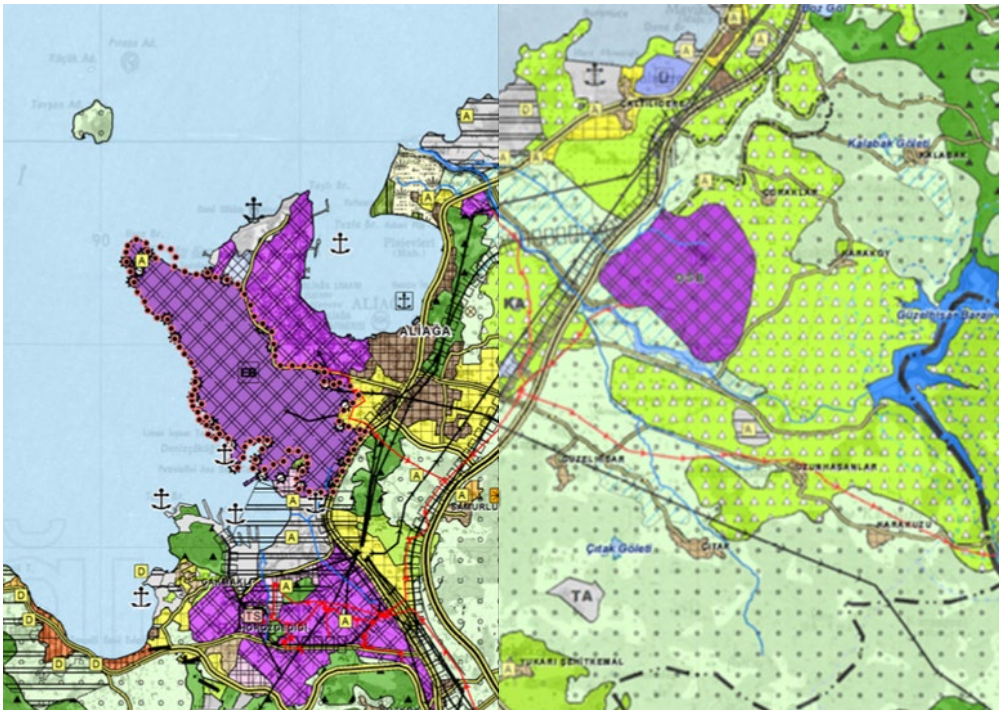

Figure 6 Izmir-Manisa Planning Region 1/100,000 Scale Environmental Plan (ÇŞB, 2015)

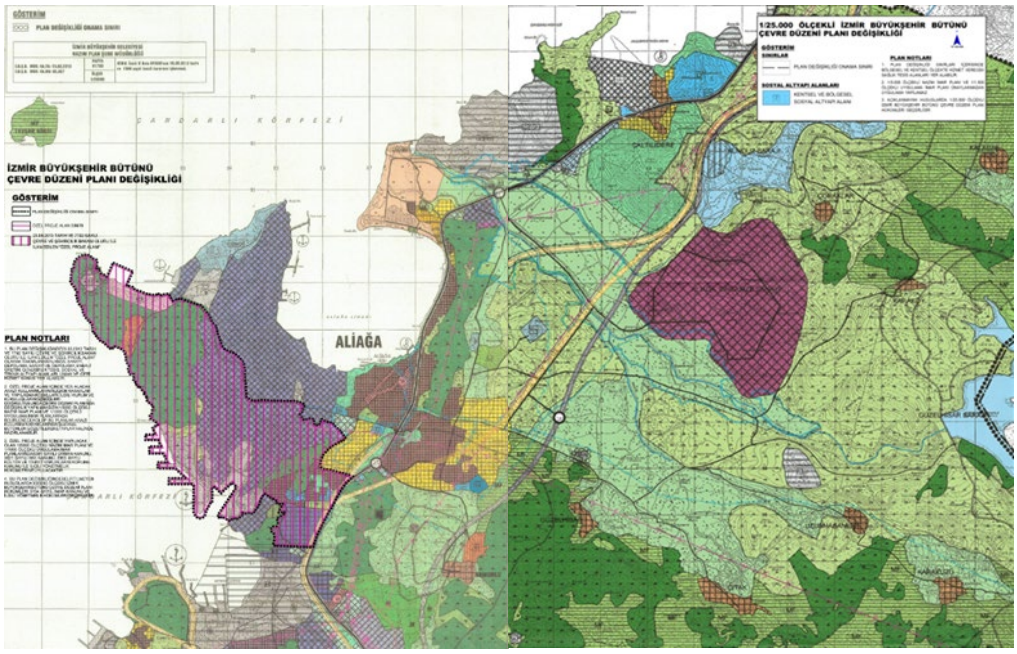

Figure 7 1/25,000 Scale Izmir North Region Zoning Plan (IMM, 2007)

Although it is stated that the proximity of the protected areas in Aliağa to industrial areas restricts capital concentration, that industrial facilities cannot be established in parcels where excavations are not carried out, and that construction activities cannot be carried out at the speed desired by capital due to the extension of excavation processes, when the spatial development process and investment activities of the city are examined, it is seen that the city has developed and expanded rapidly in approximately 50 years.

Table 5 Land Classes and Sizes (ha) of Aliaga District According to Corine Data by Year (CORINE, 2018)

	1990	%	2000	%	2006	%	2012	%	2018	%
Discrete City Structure	705	0,008	1.359	0,014	1.750	0,019	1.510	0,017	1.560	0,018
Industry	850	0,010	1.417	0,015	1.998	0,022	2.700	0,031	2.939	0,034

Mining Areas	32	0,000	50	0,001	195	0,002	225	0,003	410	0,005
Ports	65	0,001	74	0,001	77	0,001	133	0,002	160	0,002
Construction Area	65	0,001	0	0,000	100	0,001	131	0,001	138	0,002
Agricultural Area	34.950	0,397	40.103	0,426	41.714	0,458	40.184	0,458	39.910	0,457
Forest Areas	51.373	0,584	51.044	0,543	45.219	0,497	42.927	0,489	42.283	0,484

3.4. Pending Investment Decisions for Aliaga District and Their Potential Impacts

The concentration of capital in a certain area is specific to capitalist production relations, and Aliağa district is an important region that attracts the attention of capital due to its proximity to transportation connections and its location 80 km from a centre such as İzmir, where approximately 4 million people live in the metropolitan area and approximately 10 million people live in the hinterland. In addition to the growth trends of the companies located in the Aliağa district, new investment decisions that will start operating in the region will trigger the increase in the capital, population, and labour density in the region. For this reason, the existence of investment decisions that are in the investment process but not yet in operation is also gaining importance within the scope of the study. Not only the industrial sector but also technical infrastructure and other sector investments that have an important share in the development of the industrial sector are gaining importance. When the investments made in the industrial sector are examined, in addition to the OSB currently operating in the Aliağa district, the establishment of the Aliağa Bağyurdu Special Organized Industrial Zone by Matlı company continues. It was established in 2021 in an area of 135 hectares and zoning plan studies are ongoing.

Although there is no direct industrial investment, there are also investment decisions regarding the infrastructure owned by industrial enterprises. Aliağa Fertilizer Industry, which was established in 1974 and operates in the chemical industry sector, has grown by investing in fertilizer production and pier facilities in 2022 (Ege Gübre, 2022). When transportation investments are examined, the İZBAN investment (Hürriyet, 2019) and the Northern Aegean Highway investments, which are aimed at accelerating the circulation of freight, passengers, and capital with the settlements located in the north of Aliağa district, continue. Although it is not included as an investment decision directly in the Aliağa district, both railway and highway investments have the potential to enable significant capital mobility in terms of providing a connection to the Çandarlı port, which is located close to Aliağa in Bergama district, and the Free Zone, where an investment decision was made in an area very close to Çandarlı port (Hürriyet, 2019). Another investment decision with development potential and clustering in the Aliağa district is the decision regarding the energy sector. There is a need for high amounts of energy use in the capital production accumulated in Aliağa. ENKA natural gas power plant became the fifth largest power plant in Türkiye and the largest in İzmir as of 2017 (Aliaga Chamber of Commerce, 2024).

In this context, companies from the iron and steel sector make energy investments to meet their own energy needs and to prevent disruptions in the main network from affecting production. Besides, the İzdemir Energy Production Power Plant facility based on imported coal was put into operation in the Horozgediği neighbourhood in 2013 and it is stated that the construction of the 2nd unit is ongoing (İzdemir, 2024). Similarly, the natural gas conversion facility of HABAŞ, which operates in the iron and steel sector, increased its capacity in 2022 (HABAŞ, 2023). Aliağa and especially Bergama districts stand out as the areas where renewable energy investments, RES investments, are focused. PETKİM RES, which operates with the installation of 17 turbines by PETKİM in Aliağa district, was completed in 2017. The last investment made in Aliağa district is the Kalabak Dam (General Directorate of State Hydraulic Works, 2021).

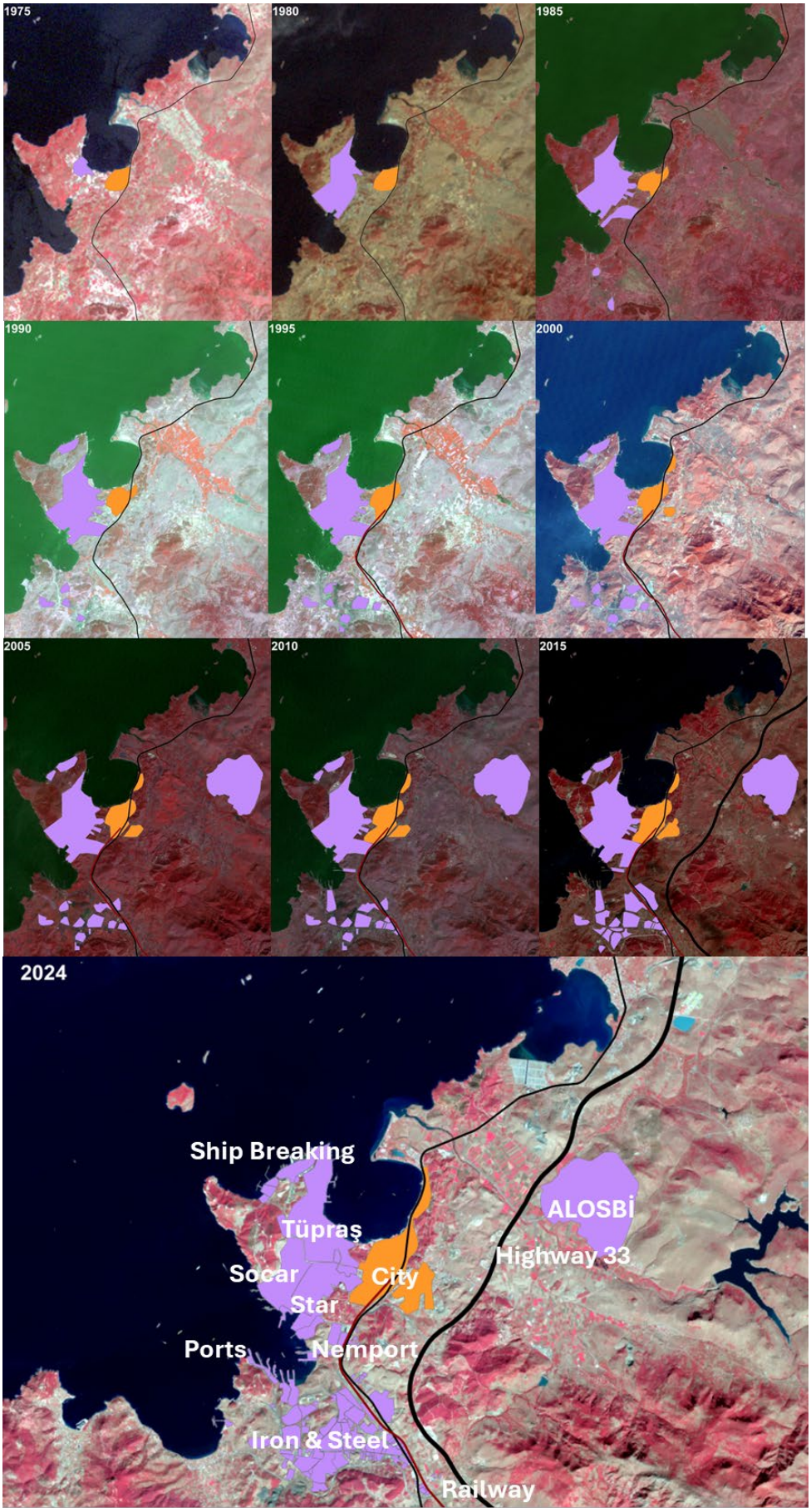

Figure 8 Spatial development process of Aliaga district and industrial areas by years

Irrigation of 970 acres of land will be provided, and it is aimed to provide approximately 1.5 million TL of additional income to the regional producer annually with the irrigated agriculture to be carried out in the region (General Directorate of State Hydraulic Works, 2021). When the new investment decisions for Aliağa are examined, it is seen that Aliağa is developing by its industrial identity. The investments made trigger the development of Aliağa as an industrial city and show that it will become one of the most important industrial centres in the country in the process.

4. Discussion and Conclusions

While the forms of intervention in space changed in line with the increasing competition conditions within the framework of changing and developing industrial policies, especially after the Second World War, the changes and transformations in space began to be explained by the changes and transformations in production processes (Karataş, 2006a, 2006b). Especially large-scale industrial investments affected the development of space, and multinational investment companies also chose locations in transnational areas to provide the raw materials, labour force, etc. they needed by crossing national borders, which caused the industrial geography to change and develop. While the areas chosen by industrial investments grew and changed rapidly, they also started to change and transform the settlement in the area they were in rapidly. This change had a significant impact both on the socio-economic structure of the city and on its spatial development. Especially the settlements chosen by large-scale foreign capital investments underwent a much faster change compared to other areas, and this process created significant changes in the identity of the city, causing it to be remembered and identified with the industrial sector it hosted.

Aliağa district was one of the settlements most affected by this change, especially within the framework of neoliberal policies after 1970, and in the process, the settlement lost its agricultural identity and transformed into an important industrial centre. The location of the district, being a coastal settlement and especially being an important port point for maritime trade accelerated this process, while the settlement gained the identity of an industrial city.

The planning decisions that would support the development of agriculture and tourism before 1970 changed with the area being selected for industrial investment, and the city turned into an important industrial city with heavy industry. Especially macro-scale investment decisions (large industrial companies, OIZ, port, road, railway, energy, etc.) changed the spatial structure as well as the economic structure of the city. In particular, the concentration of large-scale industrial companies transformed Aliağa district into an important industrial centre not only in the city but also regionally and even nationally. 8000 people are employed in the Aliağa Organized Industrial Zone. The total number of people working in Star Refinery, Pet-Kim, and İzmir Iron and Steel Industry alone is approximately 10,000. With the declaration of an industrial zone, the services in the city have been transformed into services needed by industry and have affected land use decisions. While residential areas in the settlement have developed rapidly, it is seen that transportation and technical infrastructure have also changed in favour of industry in this process. The development of the highway and important highways in Aliağa district in this process and the development of the train line needed by the large-scale investments established subsequently via the İZBAN route to the industrial area have been an important factor in the change of the city's macroform. It is observed that large-scale investment decisions have developed further in certain sectors of the industry, in the field of energy and the fields of transportation and technical infrastructure during the process and that this process has had an accelerating effect on the growth and development of the city. While this process has caused the city to gradually lose its agricultural quality and become a completely industrial city, it has also increased the pressure on fertile agricultural areas during the process. In parallel with this, industrial investments and subsequently residential areas have started to develop in fertile agricultural areas. This has caused significant losses in areas with high agricultural quality (Figure 8). The land use type of the city is industry, trade, technical infrastructure, storage and port activities, etc. While it is changing towards usage

types such as agricultural land, meadow, and pastureland, etc., it has caused a decrease in areas such as agricultural land, meadow and pastureland, etc. with the evolution in this process.

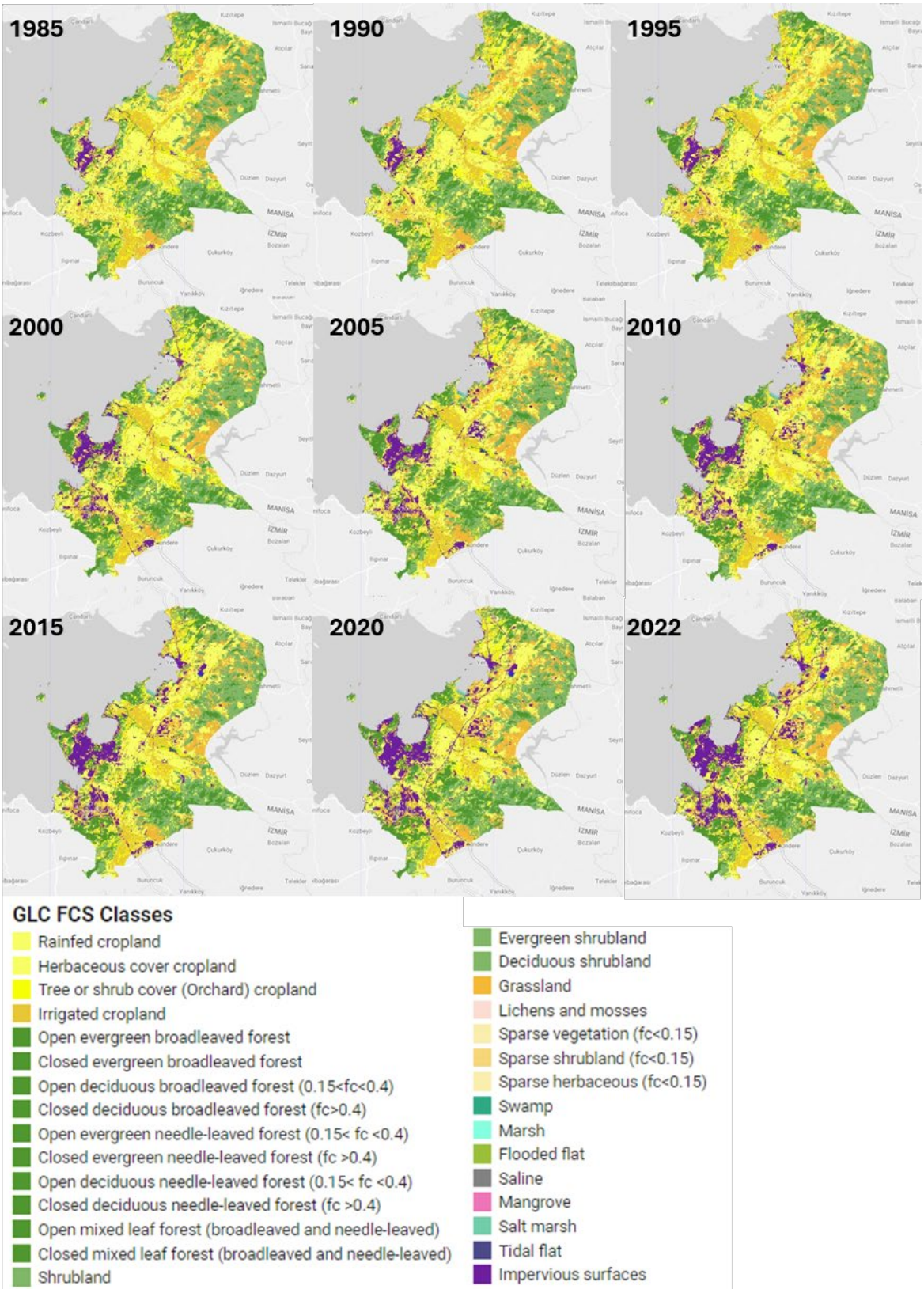

Figure 9 Change in land cover of Aliaga district according to years (Algorithms created by (Zhang et al., 2024))

The industrialization process is one of the most important factors that show the development dynamics of a city, region, and even a country. It is seen that the industrial and service sectors have an important share in developed settlements. Industrial cities develop rapidly in the process and

while they change, they also bring about significant changes in the spatial, economic, and social structure of the city. This study reveals the effects of capital concentration and industrialization in the change and transformation process of a settlement and the change in spatial processes. The following studies will be an important study to reveal how a city changes in the industrialization process and its effects in all aspects by investigating and presenting the change in the social and economic structure of the city in detail. The findings presented within the scope of this study will contribute and provide a basis for the studies to be carried out in this direction.

Undoubtedly, capital concentration and industrialization are dynamic processes. When the investment decisions that are not yet in operation for the Aliağa district are examined, it is seen that the investment decisions such as the special industrial zone, OIZ and new ports planned to be built in the Aliağa settlement will increase the capital concentration and industrialization tendencies. The fact that new energy investments are being made to meet the energy needs arising from the scale of the petrochemical, refinery, and iron and steel sectors provides insights into the future of Aliağa. The findings of this study are important for policymakers, decision-makers, bureaucrats, and civil society organizations, who have a say in the future of cities.

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Appendices

Appendix 1 – Satellite Images and Details
1975 - LM01_L1TP_195033_19750523_20200908
1980 - LM02_L1TP_195033_19791002_20210620
1985 - LT05_L1TP_181033_19840619_20200918
1990 - LT05_L1TP_181033_19890820_20200916
1995 - LT05_L1TP_181033_19960807_20200911
2000 - LE07_L1TP_181033_20001114_20211214
2005 - LT05_L2SP_181033_20061107_20200831
2010 - LT05_L2SP_181033_20091030_20200825
2015 - LC08_L1TP_181033_20151031_20200908
2024 - LC09_L1TP_181033_20231114_20231114

Resume

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