



REPUBLIC OF TÜRKİYE
MINISTRY OF INDUSTRY
AND TECHNOLOGY



İZMİR
DEVELOPMENT
AGENCY

CURRENT SITUATION ANALYSIS AND DEVELOPMENT PERSPECTIVE OF THE PORTS OF İZMİR

—
2022



CURRENT SITUATION ANALYSIS AND DEVELOPMENT

PERSPECTIVE OF THE PORTS OF İZMİR

2022, İZMİR

Published by

İzmir Development Agency
Megapol Çarşı Kule, Halkapınar Mahallesi,
1203/11. Sk. No: 5-7, Kat: 19
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FOREWORD

As a historical port city, İzmir holds a key position in the Mediterranean Basin. When we look at the history of İzmir, especially in the last 400 years, we can see a direct correlation between the development of the ports and the development of İzmir. To that end, it is safe to say that ports form the backbone of İzmir. With the awareness of this historical significance, our agency has included sea and maritime matters in the main studies carried out in line with the blue growth approach for better utilization of this potential in İzmir within the frame of the current developments.

Rooted in the concept of sustainable development, the blue growth approach is a long-term strategy for achieving economic growth through the management of coasts and marine resources in maritime industries in line with environmental considerations. The goal of this strategy, which has also been adopted by the European Union, is to achieve sustainable development and obtain more value for humanity in

various maritime industries from fishery to biotechnology, and maritime transport to coastal tourism.

İzmir handles 16 percent of Türkiye's total cargo, and 15 percent of its container cargo at its 16 ports. Additionally, studies show that the ports of İzmir possess a great deal of development potential. İzmir's biggest contribution to Türkiye's sectoral production and added value occurs in its maritime transport and port services at 28 percent, which further reinforces this potential.

With the 2020 Work Program, our agency prioritized the blue growth approach for our region and implemented the Result-Oriented Program for the Marine Economy. Focused on maritime transport and port aspects of the maritime economy, this program aims to develop maritime transport and port services in the regional economy by deriving strength from İzmir's identity as a historical port city.



Carried out in this context, the Current Situation Analysis and Development Perspective of the Ports of İzmir study arose with the question “what must we need to do to make the ports of İzmir more attractive for maritime transport and port services?” Various sub-analysis studies were carried out with the contributions of the academicians and experts in the field. From literature analysis to economic projections, and from capacity analysis to big data analytics, İzmir’s port ecosystem was studied in consideration of all global trends and developments. Efforts, which included field studies such as workshops, focus group meetings and stakeholder surveys, were carried out to support data analysis and desk work.

We believe that the Current Situation Analysis and Development Perspective of the Ports of İzmir will further develop maritime transport and port services industries, as it provides guidance at both local and national levels by revealing the current global maritime transport trends and increasing the current presence of the region’s ports in our country’s developing foreign trade operations.

We thank the academicians and experts who contributed to this study, and hope that the study will contribute to the development of İzmir’s rooted and lucrative port ecosystem.

From literature analysis to economic projections, and from capacity analysis to big data analytics, İzmir’s port ecosystem was studied in consideration of all global trends and developments.

DR. MEHMET YAVUZ

SECRETARY GENERAL,
İZMİR DEVELOPMENT AGENCY



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DEFINITIONS

Smart port: A port that uses automation and innovative technologies such as artificial intelligence, big data, the Internet of Things and blockchain to improve its performance.

Warehouse: Indoor or outdoor spaces with certain features for the placement of goods under customs supervision.

Shipowner: Natural or legal person engaged in maritime trade.

Forwarder: A company that has the competence to carry out transport operations, acting as an intermediary between the cargo owner and the carriers.

Ballast water: Sea water pumped in by ships for better stabilization en route.

Maritime transport: The process of transporting passengers and goods by sea.

Handling: Processes of loading and unloading.

Shipbroker: The company that represents a particular ship to third parties outside the port of registry and carries out all kinds of operations and procedures for the ship.

Hinterland: The sub-region forming the port's impact area.

Branch line: The connection between the main railway line and centers with high cargo volume potential such as ports, mines, industrial areas.

Intermodal transport: Moving the cargo using more than one mode of transportation before handling by transferring containers to trains after being transported by ships, then transporting them to the destination by truck, etc.

Dock: A wooden or concrete platform that extends from the land into the sea, built for the docking of vessels.

Station: Station directorates and siding sites carrying out traffic services for the transport of passengers and goods.

Cabotage: A state's right to transport passengers and cargo between its ports.

Container: A large box with certain dimensions and standards with suitable equipment for intermodal tariffs, used in international freight transport.

Dry port: A domestic terminal with a direct connection to sea ports.

Port: Natural or artificial sea areas for the safe onboarding of passengers and goods, including quays, piers, buoy anchorages and approach areas, indoor and outdoor storage areas and service facilities.

Port authority: The administrative body responsible for all port-related activities.

Logistics: Cargo services such as loading, unloading, storage, customs clearance, stacking, transportation, distribution and delivery.

Logistics center: Infrastructure units for logistics activities, standing out with multi-modal, fast and efficient logistics opportunities.

Blue growth: A development approach based on utilizing the unused potential of the seas and coasts for employment and growth, while preserving the marine environment and biodiversity.

Project cargo: Non-standard heavy or bulky cargo mostly transported for infrastructure investments with special features such as factories, refineries, mining, energy and construction.

Pier: Stone and concrete walls for loading, unloading and mooring vehicles and passenger lounges, built to onboard passengers on sea or river sides, load or unload cargo and deep enough for vessels to dock.

Ro-Ro (Roll-on/Roll-off): The transport of rubber-tired vehicles over long distances by ships.

Modes of transport: Types of transport with various advantages and disadvantages, based on the use of different modes such as road, air, sea, river and pipeline.

Transit cargo: Cargo transported through third countries that are neither the sender nor the recipient of the cargo.

Green port: Ports that incorporate environmentally friendly and sustainable practices regarding issues such as pollution, energy, waste and noise.

ABBREVIATIONS

| | |
|------------------|---|
| BASBAŞ | : Western Anatolia Free Zone |
| BRI | : Belt and Road Initiative |
| CEO | : Chief Executive Officer |
| CFS | : Container Freight Station |
| DWT | : Deadweight Metric Ton |
| EC | : European Commission |
| GIL | : Global Institute of Logistics |
| İDÇ | : İzmir Iron and Steel Industry Inc. |
| İMEAK DTO | : İstanbul, Marmara, Aegean, Mediterranean, Black Sea Region Chamber of Shipping |
| IMO | : International Maritime Organization |
| İZKA | : İzmir Development Agency |
| LNG | : Liquefied Natural Gas |
| LPG | : Liquefied Petroleum Gas |
| OIZ | : Organized Industrial Zone |
| PSA | : Port of Singapore |
| TCDD | : State Railways of the Republic of Türkiye |
| TDİ | : Turkish Maritime Lines Inc. |
| TEU | : Twenty-foot equivalent unit |
| TPC | : Metric Tons per Centimeter |
| TÜPRAŞ | : Türkiye Petroleum Refineries Inc. |
| TÜRKLİM | : Port Operators Association of Türkiye |
| TURKSTAT | : Turkish Statistical Institute |
| UAB | : Ministry of Transport and Infrastructure |
| UfM | : Union for the Mediterranean |
| UNCTAD | : United Nations Conference on Trade and Development |
| USA | : United States of America |
| WWF | : The World Wide Fund for Nature |



EXECUTIVE SUMMARY

Throughout history, Türkiye has boasted a location that connects major trade lines, such as the Spice Route that has nurtured ancient civilizations by connecting the Far East to the West, and the Silk Road that connects China to the Mediterranean. The seas surrounding this geography have been the main driving forces behind both culture and trade. Today, these seas, more specifically maritime transports, offer us the most efficient mode of transport, meet the demand for all kinds of raw materials, manufactured goods, pharmaceuticals and technological equipment on top of food products, and form the core of the economy.

Accompanied by the port services industry, maritime transport is at the heart of global trade and economy. The use of shipping containers for marine transport, which became particularly prevalent in the 1960s, had a key role in the development of this mode of transport. The increase in ship sizes, the port investments required to serve the growing ships, the development of trade in line with the increasing demand for shipping containers, the increasing strength of shipowners, the lines operated by the shipowners and the increasing competition between the ports to attract these lines, the increase in mergers and alliances have been some of the multidimensional effects of the containerization movement.

Additionally, the new emission limits imposed on ships by the International Maritime Organization (IMO) in line with climate change adaptation and sustainability policies, efficiency in port services, digitalization and sustainability expectations shape these effects in light of new trends. China's *BRI – Belt and Road Initiative*, which aims to establish a transport infrastructure, trade and investment link between major economies on the Asia–Europe route, and the emerging availability of the Northern Sea Route following the melting of the glaciers due to global warming reveal the industry's significance in terms of international relations, security and military, and the economy.

To that end, it has become a strategic priority for our country to strengthen its position in line with its geographical advantage, realize the significance of maritime transport for national and regional development, and increase its share in this industry. In fact, the Development Plan that defines our country's development for the coming period includes policies II. aimed at improving logistics and energy infrastructure in line with the goal of strengthening Türkiye's competitive production. These policies prioritize focusing on cargo transport in railway investments, developing maritime infrastructures at the relevant locations and scales, increasing efficiency and competitiveness by expanding intermodal transport and reducing logistics costs.

Carried out for the 5,000-year-old port city of İzmir, the **Current Situation Analysis and Development Perspective of the Ports of İzmir** study offers a regional perspective and basis for analysis as well as suggestions for increasing the share of maritime transport and port services industries in line with this prioritization scenario.

Maritime transports offer us the most efficient mode of transport, meet the demand for all kinds of raw materials, manufactured goods, pharmaceuticals and technological equipment on top of food products, and form the core of the economy

The first chapter of the study analyzes the global trends shaping the global maritime trade and puts emphasis on its effects, and analyzes the structure and scale of the maritime transport and port services industries in Türkiye.

The second chapter examines the general characteristics of the ports of İzmir, cargo regime, handling performance, direct connections and economic development scenarios. This chapter also presents the infrastructure of development perspectives by summarizing the strategic issues identified at global, national and regional scales that directly or indirectly concern the maritime industry. The third and final chapter discusses the four main scenarios for the development of the Ports of İzmir, and explains the background and relevant approaches. Accordingly, the four main development perspectives of the Current Situation Analysis and Development Perspective of the Ports of İzmir study can be summarized as follows:

PERSPECTIVE 1: Revival of the TCDD Port of İzmir

The significance of the TCDD (State Railways of the Republic of Türkiye) Port of İzmir¹ remains high despite its investment needs, and its ability to respond quickly to container development as the flagship port of the region constitutes the background of the perspective.

Suggestions include deepening the port upon scanning the Gulf of İzmir approach canal and maneuvering room, swiftly completing the second part of the filling works and commissioning the new dock, making arrangements in the docks for increased efficiency, reorganizing the warehouse building, and strengthening the port by eliminating the deficiencies in the port's superstructure equipment.

PERSPECTIVE 2: Strengthening the Ports of Aliğa

The background for strengthening the Ports of Aliğa consists of the ports' connections with each other and the industry, the problems encountered in logistics and back area transport despite the region's performance in container development, and the lack of synergy between the actors.

Suggestions include making infrastructure investments that will increase the competitive power of the Ports of Aliğa, and supporting the development of ports with a governance model for enhanced strategic cooperation and communication based on a "cluster" approach.

PERSPECTIVE 3: Wind Power Specialization of the Port of Çandarlı

The perspective proposal for the Port of Çandarlı comprises three critical determinations that constitute the background of the current status of the port and port-related issues. Changing conditions, the container-handling capacity of the region, and the developing wind power equipment production industry in the North Aegean are worth mentioning for the course of this major port project.

Considering the developing wind power equipment production in the region, it is recommended that the Port of Çandarlı should specialize on project cargoes, and more specifically on wind power equipment logistics.

PERSPECTIVE 4: Creation of the İzmir Port Authority

The perspective for the creation of the İzmir Port Authority is based on the fact that İzmir's port ecosystem is rather large and characterized with intense intra-regional competition, and that port authorities around the world are able to effectively manage the port areas.

This perspective suggests establishing the İzmir Port Authority to increase the competitive power of regional ports, and to realize the first practice in the country in this region based on a draft model.

¹ The TCDD Port of İzmir may also be referred to as the Port of İzmir or the Port of Alsancak in other reports and sources.



INTRODUCTION

The Result-Oriented Program for Marine Economy started by our agency in 2020 aims to develop the marine and coastal economy in İzmir based on blue growth principles. In line with this purpose, the development of maritime transport and port services in İzmir has been set as the main priority.

İzmir's status as a 5,000-year-old port city and its socioeconomic and spatial development and business and investment environment being shaped by this exact identity create unique advantages for the maritime transport and port services industries that should be considered while conceptualizing policies for İzmir's future.

Historical sources reveal that the rapid development of İzmir following the mid-17th century came with the development of trade through the port. As the most sheltered and natural harbor of the Mediterranean, İzmir has managed to maintain its port city quality, and the region has turned into a maritime cluster

with the new ports that have emerged in the gulfs adjacent to the Gulf of İzmir. İzmir's biggest contribution to Türkiye's sectoral production and added value occurs in its maritime transport and port services at 28 percent (İZKA, 2021e), which further reinforces this potential.

The main purpose of this study is to determine how İzmir can build on its strong legacy as a port city and experience in today's changing conditions, and to establish the actions required to increase the attractiveness of the region for maritime transport and port services.

This search has been further detailed with sub-questions while focusing on the following subjects (Figure 1):

- ▶ Global trends and opportunities in ports and maritime transport,
- ▶ Changes expected in Türkiye's foreign trade by 2033 and port-related scenarios,
- ▶ Analysis of the current status of port services and maritime transport in İzmir,
- ▶ Positioning specific to the İzmir port cluster for the international market,
- ▶ Strategies, actions and projects required for the proposed location.

FIGURE 1. Main Questions of the Study



Process Design and Sub-Analysis

A four-stage process was designed in line with the questions of the study (Figure 2). The process leading from the research and scanning efforts to the development of a perspective was carried out with an understanding that is interactive and dynamic in practice.

As part of the study, existing national and international reports were examined and cooperation was carried

out with different institutions and organizations that specialize in maritime transport and ports to find answers to the relevant questions with qualified analyses and to offer quality information at a regional scale. The studies conducted in this context and the relevant sub-analysis reports are shown in Table 1. These studies formed the basis for the analyses and evaluations in this report.

FIGURE 2. Stages of the Study



TABLE 1. Information on Analysis Studies

| Institution/ Organization | Title | Subject |
|--|---|---|
| Dokuz Eylül University Maritime Faculty | Evaluation of the TCDD Port of İzmir (Alsancak) in terms of Regional Economy from Past to Present | Evaluation of the role of the TCDD Port of İzmir in İzmir's economy from past to present. |
| Piri Reis University | Analysis of Foreign Trade Development in Türkiye and İzmir | Development of Türkiye's foreign trade, export-import projections, port-related positioning of İzmir based on the relevant scenarios. |
| İskenderun Technical University Barbaros Hayrettin Naval Architecture and Maritime Faculty | Current Situation Analysis and Development Perspective of the Ports of İzmir | Analysis of Türkiye ports in terms of their current states and port-based logistics and strategic cargo, and strategic studies for their development. |
| ShipsGo Global Container Tracking Platform | Big Data Analysis on Container Tracking and Route Search Records in Maritime Transport | Location analysis of the Ports of İzmir in container transport based on "big data" containing approximately 230,000 loading movements and 200,000 route searches. |
| Dokuz Eylül University Maritime Faculty | Analysis of the Logistics Requirements in İzmir's Wind Power Industry | Evaluation of the logistics processes in İzmir's wind power industry and the specialization potential of the Port of Çandarlı |

he data used for analysis studies were compiled from the data and reports periodically published by institutions such as the Turkish Statistical Institute (TURKSTAT), the Ministry of Transport and

Infrastructure (UAB) General Directorate of Maritime Affairs and the Port Operators Association of Türkiye (TÜRKLİM), as well as the unique data sets requested by our Agency specifically for the study.

Field Studies and Stakeholder Engagement

While the efforts to create the perspective document were built on our Agency's experience in planning and strategy studies, the intensive field studies were carried out with the contributions of different stakeholders in our region and within the maritime industry.

Port actors in Aliğa and İzmir, representatives of public and umbrella organizations, and the relevant experts and academics played a key role in these studies.

One of the biggest milestones in these studies was the **Development Perspective for the Ports of İzmir Online Workshop** held on November 26, 2020. Held with the perspective of regional development with a focus on maritime transport and port services, the workshop was the first step of the field studies, which host more than 50 participants and unite professionals from the public and private sectors, academia and civil society for the discussion of the global trends in the industry, the Ports of İzmir and the risks and opportunities affecting maritime transport, the smart and green transformations of the ports, logistics management and the integration of multimodal transport.

The **Development Perspective for the Ports of İzmir Online Stakeholder Survey** was conducted in November and December of 2020 to obtain feedback from the segments in İzmir's port ecosystem for the Ports of İzmir, their needs and to determine future opportunities. The survey was conducted with cargo owners, shipowners, industrial companies in port areas, insurance companies, forwarders, customs brokers, ship repair and appraisal companies, catering companies, universities and other educational institutions, ship chartering companies, pilotage/towage companies, shipyards, land transport companies, bunkering companies and companies providing diving services. Responses were received from 51 organizations and analyzed in detail.

The field studies continued with **focus group meetings** held with regional actors on different dates. The dates of these meetings, which included the exchange of information with experts and decision-makers, are shown in Table 2:

TABLE 2. Information on Focus Group Meetings

| Date | Organization |
|------------|--|
| 01.09.2020 | İMEAK DTO İzmir Branch |
| 13.10.2020 | Governorship of İzmir |
| 13.10.2020 | İzmir Metropolitan Municipality |
| 13.10.2020 | Aegean Exporters' Associations General Secretariat |
| 21.10.2020 | Dokuz Eylül University Maritime Faculty |
| 25.12.2020 | Managers of the Ports of Aliğa |
| 08.01.2021 | İMEAK DTO Aliğa Branch |
| 26.04.2021 | TCDD Port of İzmir |
| 15.06.2021 | Arkas Port and Terminal Operations |
| 22.06.2021 | İzmir Kâtip Çelebi University Faculty of Naval Architecture and Maritime |
| 25.06.2021 | MSC Shipping Agency Inc. |
| 13.07.2021 | Stakeholders of the Aliğa Port Ecosystem |

The Current Situation Analysis and Development Perspective of the Ports of İzmir document was prepared by our Agency's experts based on findings of research, analyses, workshops, focus interviews and surveys.

The goal of the study is to increase the share of maritime transport and port services industry in the region's blue economy, and to contribute to the national policies established in this context.

Custom House



CHAPTER 1.

Maritime Transport and Ports Across the World and in Türkiye

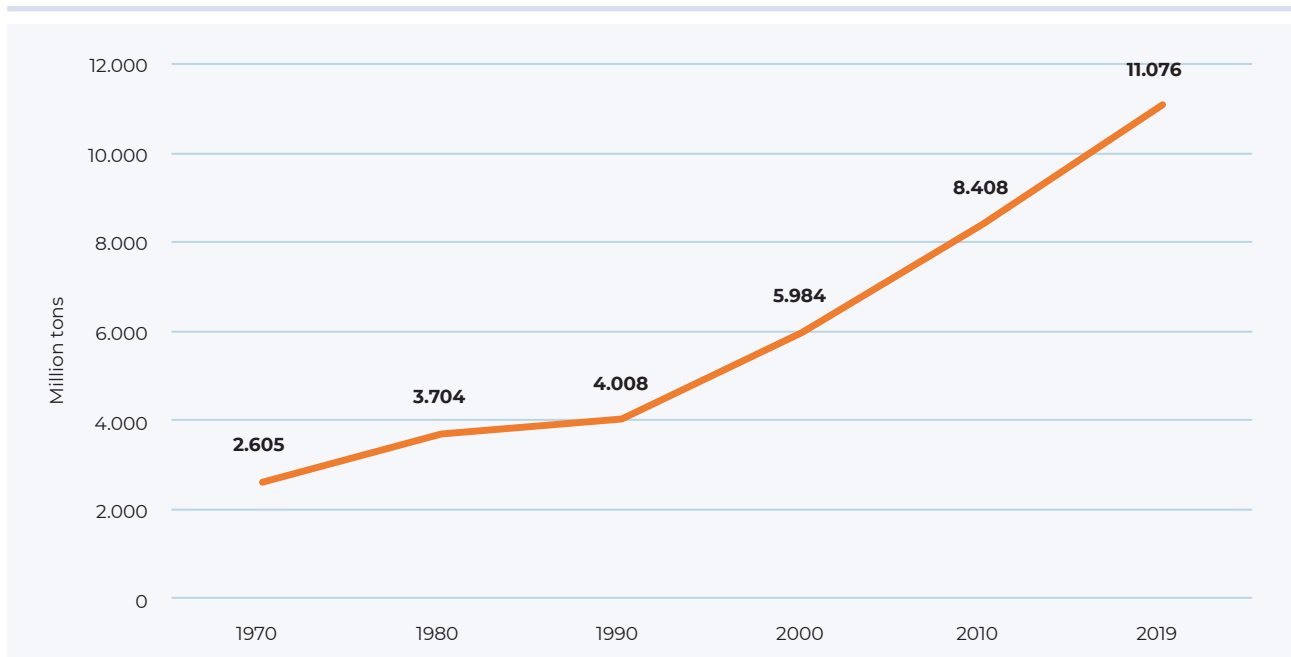


1.1. Global Trends and Developments

With the globalization of the economy, intercontinental trade is gathering speed every day, and maritime transport stands out primarily for heavy and bulky cargoes. In 2020, the share of maritime transport in global transport was 90 percent (IMEAK, 2021: 109). Global cargo has exceeded 11 billion metric tons, and cargo volume has increased 4.3 times compared to 1970 (UNCTAD,

2020:4) (Graph 1). In light of the increase in population, urbanization, food, various goods and energy needs, maritime transport is expected to develop together with global trade. In fact, the UNCTAD predicts that the maritime trade volume will achieve an annual growth of 3.4 percent by 2023 (UNCTAD, 2019:X).

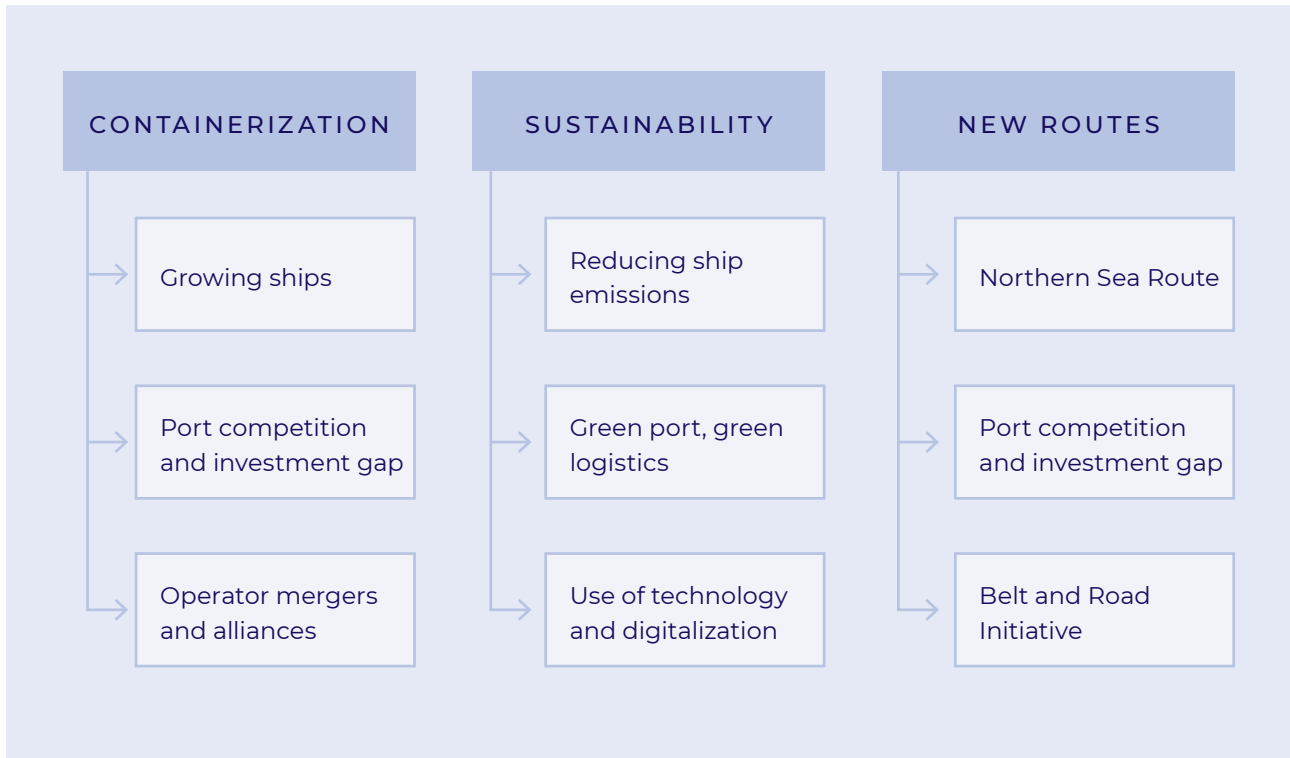
GRAPH 1. Development of International Maritime Trade Around the World, 1970–2019
(total cargo, million metric tons)



Source: UNCTAD, 2020

Container transport, which became particularly popular in the 1960s, has gained great momentum in the last 30 years and played a key role in the development of maritime transport. The containerization movement has introduced various trends that have had an impact on maritime transport and ports. Examples include increasing ship sizes, increasing competition between ports to attract growing ships, investment obligations brought by the competition, and increasing mergers and alliances.

Additionally, the new emission limits imposed on ships by the International Maritime Organization (IMO) in line with climate change adaptation and sustainability policies, efficiency in port services, digitalization and sustainability expectations shape these effects in light of new trends. China's BRI – Belt and Road Initiative, which aims to establish a transport infrastructure, trade and investment link between major economies on the Asia–Europe line, is regarded as a development that could affect global trade.

FIGURE 3. Trends in Maritime Transport and Ports

The emerging availability of the Northern Sea Route as the glaciers melt due to global warming is among the developments that should be considered in terms of new routes and potential changes (Figure 3). When operational, this route could save 40 percent compared to the journey made on the East–West line from the south via the Indian Ocean and the Suez Canal.

Observing the ports that have the most crucial roles as starting, transferring or ending points in maritime transport, the volume of the world’s top-20 container terminals constitutes 44 percent of the global total. While Shanghai is the busiest container port in the world, demonstrating Asia’s strong position in the

field, a limited number of ports from Europe and America have also made the list (Table 3). According to the UNCTAD (2020:7), Asia accounted for 41 percent of the total loaded cargo and 62 percent of the total unloaded cargo in 2019.

Underlying Asia’s prominence in the field is its role in global production and its ability to adapt to manufacturing and trade networks.



TABLE 3. Data on the Top 20 Handling Ports Worldwide, 2020 (million TEUs)

| No | Port | Country | Handling volume |
|----|---------------------|-----------------------------|-----------------|
| 1 | Shanghai | China | 43.5 |
| 2 | Singapore | Singapore | 36.6 |
| 3 | Ningbo-Zhoushan | China | 28.72 |
| 4 | Shenzhen | China | 26.55 |
| 5 | Guangzhou | China | 23.19 |
| 6 | Qingdao | China | 22 |
| 7 | Busan | S. Korea | 21.59 |
| 8 | Hong Kong, China | China | 20.07 |
| 9 | Tianjin | China | 18.35 |
| 10 | Rotterdam | The Netherlands | 14.35 |
| 11 | Jebel Ali | Dubai, United Arab Emirates | 13.5 |
| 12 | Port Klang | Malaysia | 13.24 |
| 13 | Antwerp | Belgium | 12.04 |
| 14 | Xiamen | China | 11.41 |
| 15 | Tanjung Pelepas | Malaysia | 9.85 |
| 16 | Kaohsiung | Taiwan | 9.62 |
| 17 | Los Angeles | USA | 9.2 |
| 18 | Hamburg | Germany | 8.7 |
| 19 | Long Beach | USA | 8.11 |
| 20 | New York–New Jersey | USA | 7.59 |

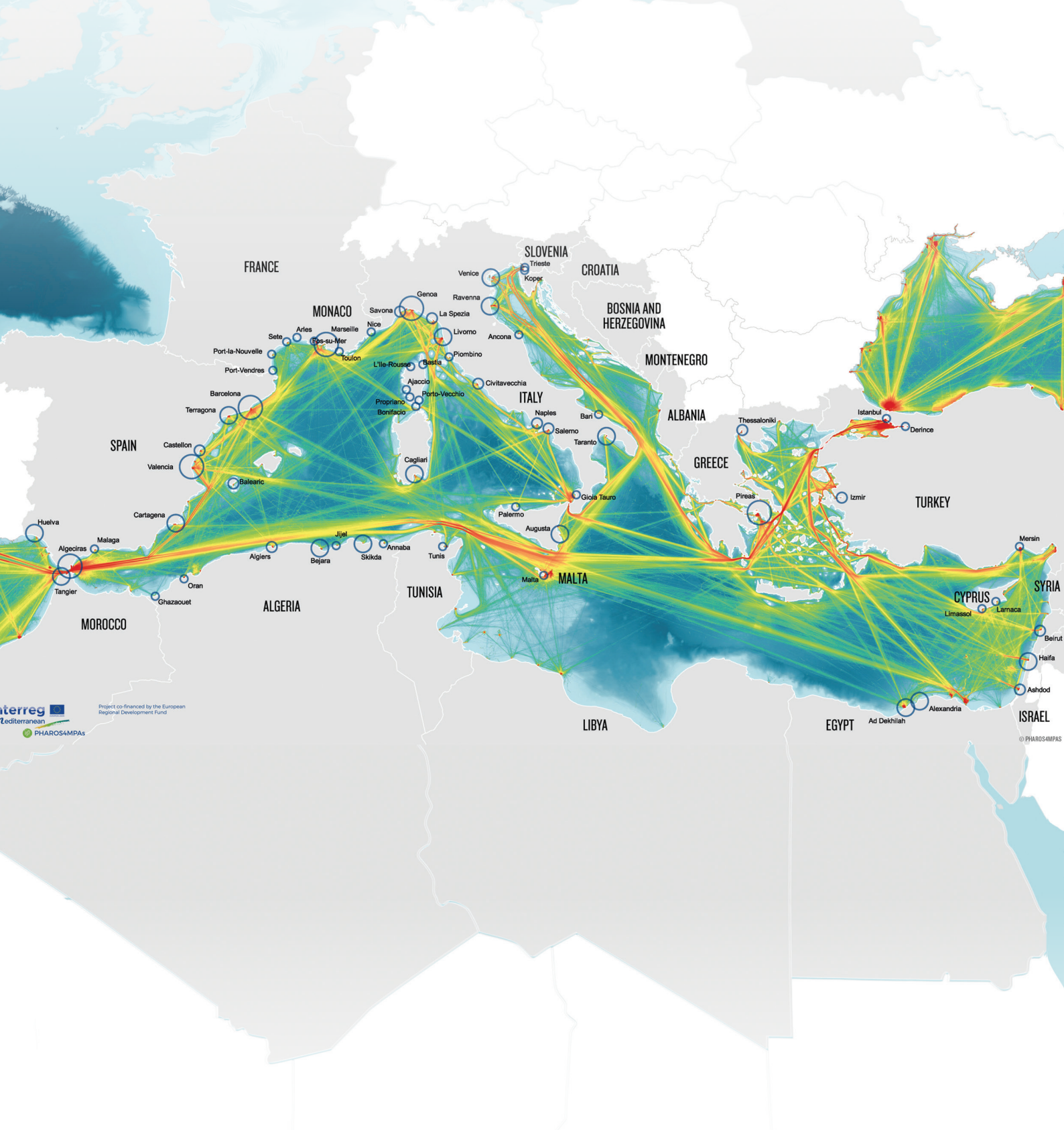
Source: World Shipping Council, 2020

Leading European ports such as Rotterdam, Hamburg and Antwerp, totaling 16 percent in global container handling, are far behind the ports of China. Maritime transport accounted for 9 percent of employment, 17 percent of the added value and 21 percent of the total earnings in the EU blue economy in 2017 (EC, 2021:60).

It is accepted that maritime transport in the Mediterranean, including our country, forms the most vital link in the transportation chain between Asia and Europe. The Mediterranean, which covers

only 3.5 percent of the world's sea surface, is home to 25 percent of the global traffic and is among the busiest waterways in the world. Although structures and administrative characteristics vary among ports and countries, continuous expansions have occurred to the seaports both to the north and south of the region (UfM, 2021:10). The main transport routes in the Mediterranean show heavy traffic in the North-South and East-West directions (Figure 4). Our country's ports are located in the Eastern Mediterranean.

FIGURE 4. Major Ports and Marine Traffic in the Mediterranean



Kaynak: WWF, 2019

1.2. Maritime Transport and Ports in Türkiye

Türkiye has 197 shore facilities in different forms and qualities (including piers, buoys, dolphins, platforms, etc.). Of these shore facilities, 89 are in the Marmara Region (45 percent), 45 are in the Mediterranean (23 percent), 35 are in the Black Sea (18 percent) and 28 are in the Aegean Region (14 percent) (Graph 2) (TÜRKLİM, 2020:78).

Türkiye's ports handled a total of 496 million metric tons of cargo in 2020, of which 229 million metric tons are in loading and 267 million metric tons are in unloading (Table 4). Across all cargo types (liquid bulk, container, etc.) and regimes (transit, cabotage, etc.), unloading comprises 54 percent and loading comprises 46 percent of the total handled load in metric tons. Observations within the last five years reveal that the total cargo has increased by approximately 15 percent, and that export cargoes in particular have improved. Export cargoes, which were at 22 percent in 2016, increased their share to 28 percent in 2020. While imports decreased, no significant change occurred in transit and cabotage loads.

GRAPH 2. Distribution of the Shore Facilities in Türkiye by Regions (%)

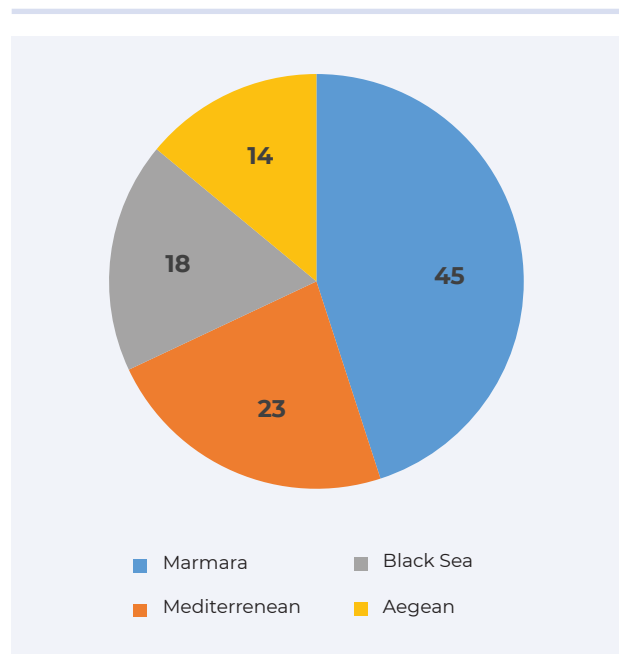


TABLE 4. Distribution of Cargo Handled at the Ports of Türkiye, 2016–2020 (metric tons)

| Cargo Regime | 2016 | | 2017 | | 2018 | | 2019 | | 2020 | |
|--------------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|------------|
| | Metric Tons | % | Metric Tons | % | Metric Tons | % | Metric Tons | % | Metric Tons | % |
| Import | 215,132,519 | 50.01 | 233,656,024 | 49.59 | 218,544,820 | 47.49 | 22,140,4812 | 45.73 | 226,539,473 | 45.61 |
| Export | 94,805,120 | 22.04 | 113,692,068 | 24.13 | 110,424,635 | 24 | 131,676,578 | 27.2 | 138,902,823 | 27.97 |
| Transit | 66,963,307 | 15.57 | 63,429,725 | 13.46 | 71,628,260 | 15.57 | 74,974,298 | 15.49 | 72,402,972 | 14.58 |
| Cabotage | 53,300,216 | 12.39 | 60,396,079 | 12.82 | 59,555,845 | 12.94 | 56,112,724 | 11.59 | 58,797,384 | 11.84 |
| Total | 430,201,162 | 100 | 471,173,896 | 100 | 460,153,560 | 100 | 484,168,412 | 100 | 496,642,652 | 100 |

Source: Ministry of Transport and Infrastructure, General Directorate of Maritime Affairs

From an economic point of view, Türkiye's port services industry achieved a revenue of approximately 40 billion Turkish lira and an added value of 10.9 billion Turkish lira in 2018. It is estimated that the port services industry, which alone accounts for 61 percent of the maritime industry revenue, directly contributes

to 71,000 jobs. Foreign trade by sea has a share of 61 percent in Türkiye's total foreign trade (TÜRKLİM, 2021: 10). The aforementioned data reveals that the ports provide various economic and socioeconomic benefits for our country.

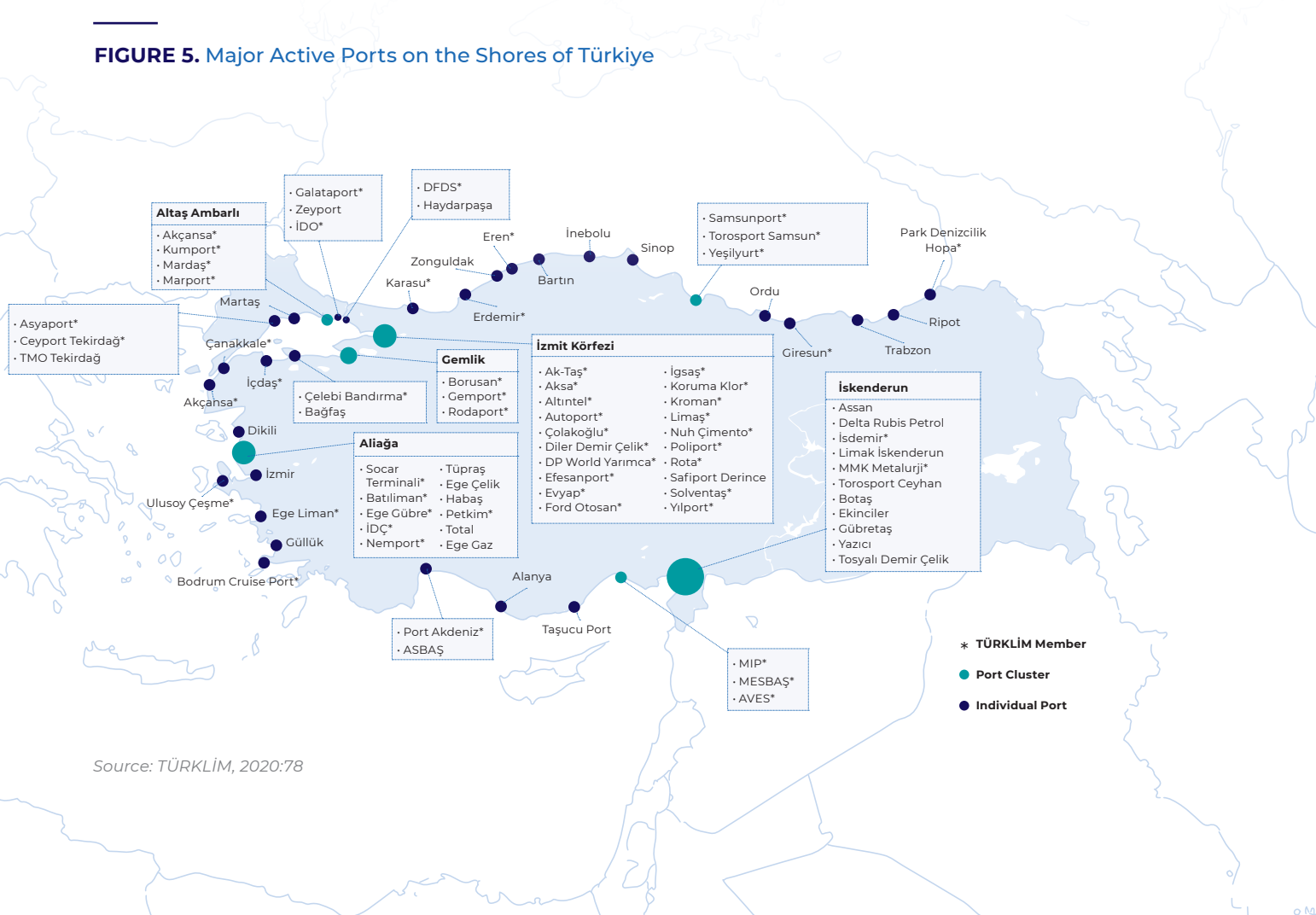
In fact, the 11th Development Plan that defines our country's development for the coming period includes policies aimed at improving logistics and energy infrastructure in line with the goal of strengthening Türkiye's competitive production (Republic of Türkiye Presidency of Strategy and Budget, 2019: 71).

These policies prioritize focusing on cargo transport in railway investments, developing maritime infrastructures at the relevant locations and scales, increasing efficiency and competitiveness by expanding intermodal transport and reducing logistics costs. The relevant policies and measures are as follows:

- ▶ To expand intermodal transport and increase the competitive power of the industry, the share of railway in cargo transport will be increased by completing the junction lines and logistics centers that will serve major cargo facilities, primarily the petrochemical facilities, manufacturing facilities for the automotive industry, ports, organized industrial zones (OIZs) and mine sites.

- ▶ The share of railways in land cargo transport will be increased from 5.15 to 10 percent.
- ▶ A 294-kilometer branch line will be constructed for 38 OIZs, specialized industrial zones, ports, free zones and 36 production facilities.
- ▶ Standards will be raised for the existing logistics centers and those under construction, especially in the Çukurova, Western Black Sea and Marmara regions, and new freight and logistics centers will be planned in railway corridors with high cargo demand.
- ▶ To increase the traffic density in the existing railway network and achieve a bigger share in cargo transport, the bottlenecks on the main lines will be eliminated, single-track railways determined depending on the traffic density will be converted into double-track ones, and signalization and electrification investments will be completed.

FIGURE 5. Major Active Ports on the Shores of Türkiye



- ▶ The port connection of the manufacturing industry sectors in the region will be established and export processes will be activated by completing the Aliğa-Çandarlı-Bergama-Soma and Port of the Çandarlı Railway Connection.
- ▶ Construction of the second railway line in Selçuk-Aydın-Denizli will commence to boost the railway cargo transport of the manufacturing industry sectors in the provinces of the region.
- ▶ The Torbalı-Kemalpaşa-Port of Alsancak railway project will be completed and the regional enterprises operating in the manufacturing industry will gain easier access to the ports.
- ▶ Major port investments will be completed for Türkiye to be effective on the regional and continental transit hub and the Belt and Road Initiative route.
- ▶ The Port of Çandarlı will be established to serve the Aegean hinterland. A transit cargo-oriented main container port will be built in the Eastern Mediterranean region as a gateway to the Middle East and Central Asia.
- ▶ Construction of the Port of Filyos will be completed.
- ▶ Arrangements for transit trade will be updated according to international standards for mixing in transit liquid bulk cargoes.
- ▶ Prioritized urban, environmental, infrastructure and other projects included in public investment policies and expected to be started within the plan period will be realized through the cooperation of the public and private sectors, including the Istanbul Canal, 3-Deck Great Istanbul Tunnel, Port of Filyos Superstructure and Operation, and the Port of Çandarlı Superstructure and Operation.
- ▶ Green Port practices will be encouraged to increase energy efficiency, minimize environmental impacts and ensure sustainability in port operations.

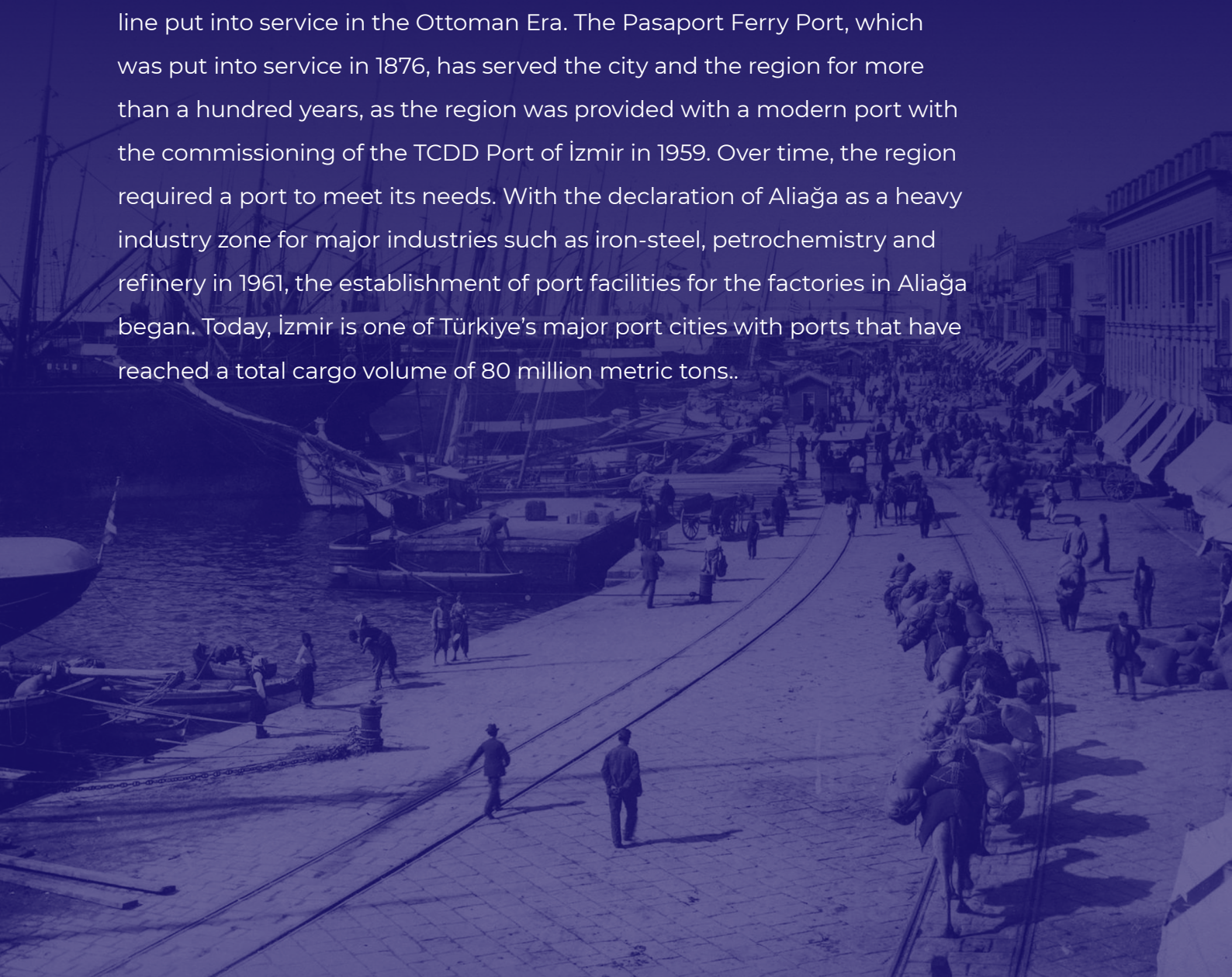
Observations of Türkiye's ports within the last five years reveal that the total cargo has increased by approximately 15 percent, and that export cargoes in particular have improved.



CHAPTER 2.

Ports of İzmir

Having grown more significant as a commercial port in the 18th and 19th centuries, İzmir became an export hub in the 19th century, particularly following the commissioning of the Aydın–İzmir railway line, the first railway line put into service in the Ottoman Era. The Pasaport Ferry Port, which was put into service in 1876, has served the city and the region for more than a hundred years, as the region was provided with a modern port with the commissioning of the TCDD Port of İzmir in 1959. Over time, the region required a port to meet its needs. With the declaration of Aliğa as a heavy industry zone for major industries such as iron-steel, petrochemistry and refinery in 1961, the establishment of port facilities for the factories in Aliğa began. Today, İzmir is one of Türkiye’s major port cities with ports that have reached a total cargo volume of 80 million metric tons..



2.1. Overview

There are 20 ports serving in the Aegean Region (Table 5). Sixteen of these ports are located in İzmir (İzmir and Aliağa). Ten of the ports serve general cargoes and dry bulk cargoes, eight serve liquid bulk

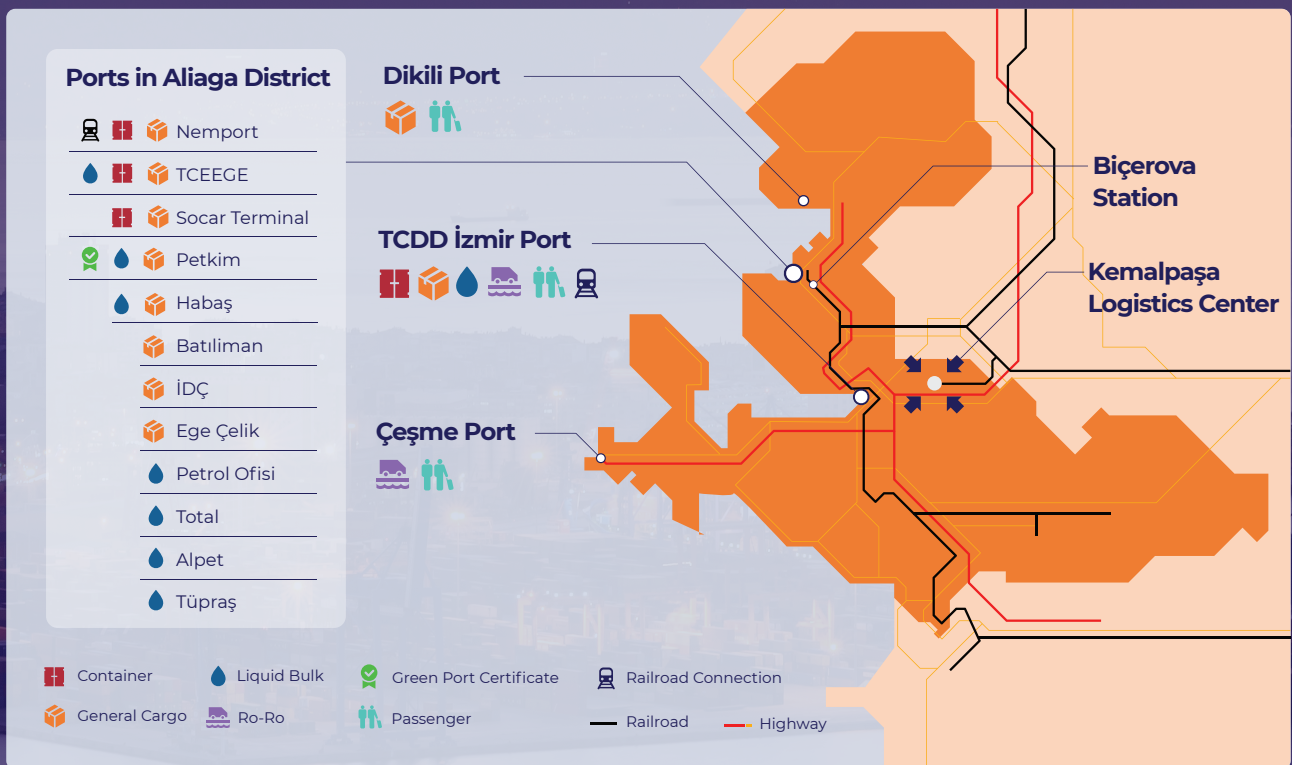
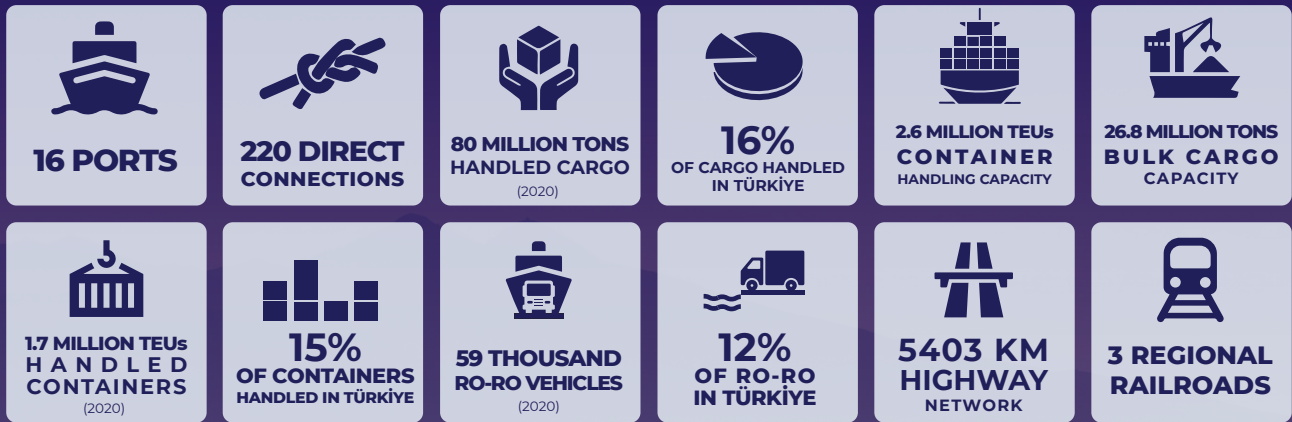
cargoes, and four serve container cargoes and ships. The Aegean plays a significant role in national and international maritime transport with its port infrastructure (Figure 6).

TABLE 5. Ports and Cargo Types in the Aegean Region

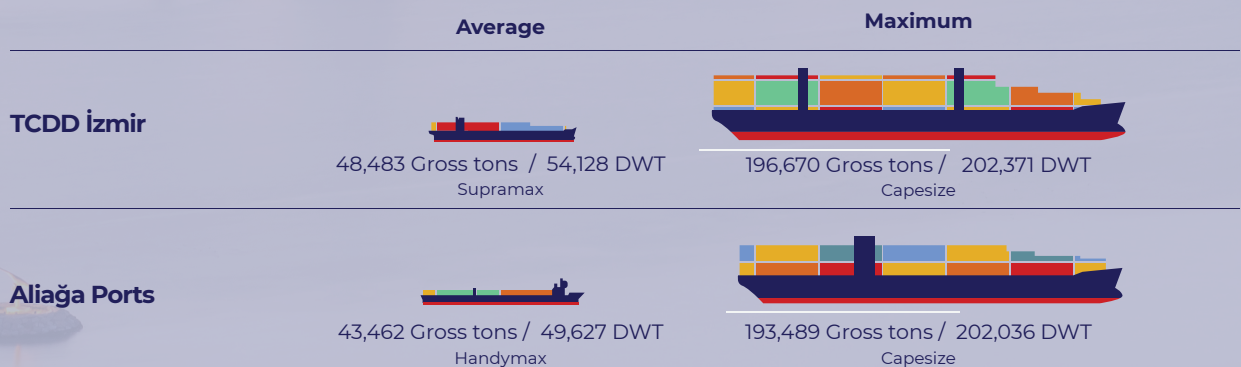
| Port / Terminal | Province – District | Kargo Tipi | | | | | |
|----------------------|---------------------|------------|---------------|-------------|----------|----------|-----------|
| | | Container | General Cargo | Liquid Bulk | LNG+PPG | Ro-Ro | Passenger |
| TCDD Port of İzmir | İzmir (Konak) | X | X | X | | X | X |
| Ege Fertilizer | İzmir (Aliağa) | X | X | X | | | |
| Habaş | İzmir (Aliağa) | | X | X | | | |
| Petkim | İzmir (Aliağa) | | X | X | | | |
| Nemport | İzmir (Aliağa) | X | X | | | | |
| SOCAR Terminal | İzmir (Aliağa) | X | | | | | |
| Port of Batılman | İzmir (Aliağa) | | X | | | | |
| İDÇ | İzmir (Aliağa) | | X | | | | |
| Ege Steel | İzmir (Aliağa) | | X | | | | |
| Çeşme Ulusoy | İzmir (Çeşme) | | | | | X | X |
| Dikili | İzmir (Dikili) | | X | | | | X |
| Petrol Ofisi | İzmir (Aliağa) | | | X | | | |
| Total | İzmir (Aliağa) | | | X | | | |
| Alpet | İzmir (Aliağa) | | | X | | | |
| Tüpraş | İzmir (Aliağa) | | | X | | | |
| Egeport | Aydın (Kuşadası) | | | | | | X |
| Ege Gaz | İzmir (Aliağa) | | | | X | | |
| Güllük | Muğla (Milas) | | X | | | | |
| Bodrum Cruise Port | Muğla (Bodrum) | | | | | | X |
| Marmaris Cruise Port | Muğla (Marmaris) | | | | | | X |
| Total | 20 | 4 | 10 | 8 | 1 | 2 | 6 |

Source: İZKA, 2021b

FIGURE 6. Some Indicators Regarding İzmir's Port Ecosystem



Ship Sizes – Berthing Container Ships (2020)



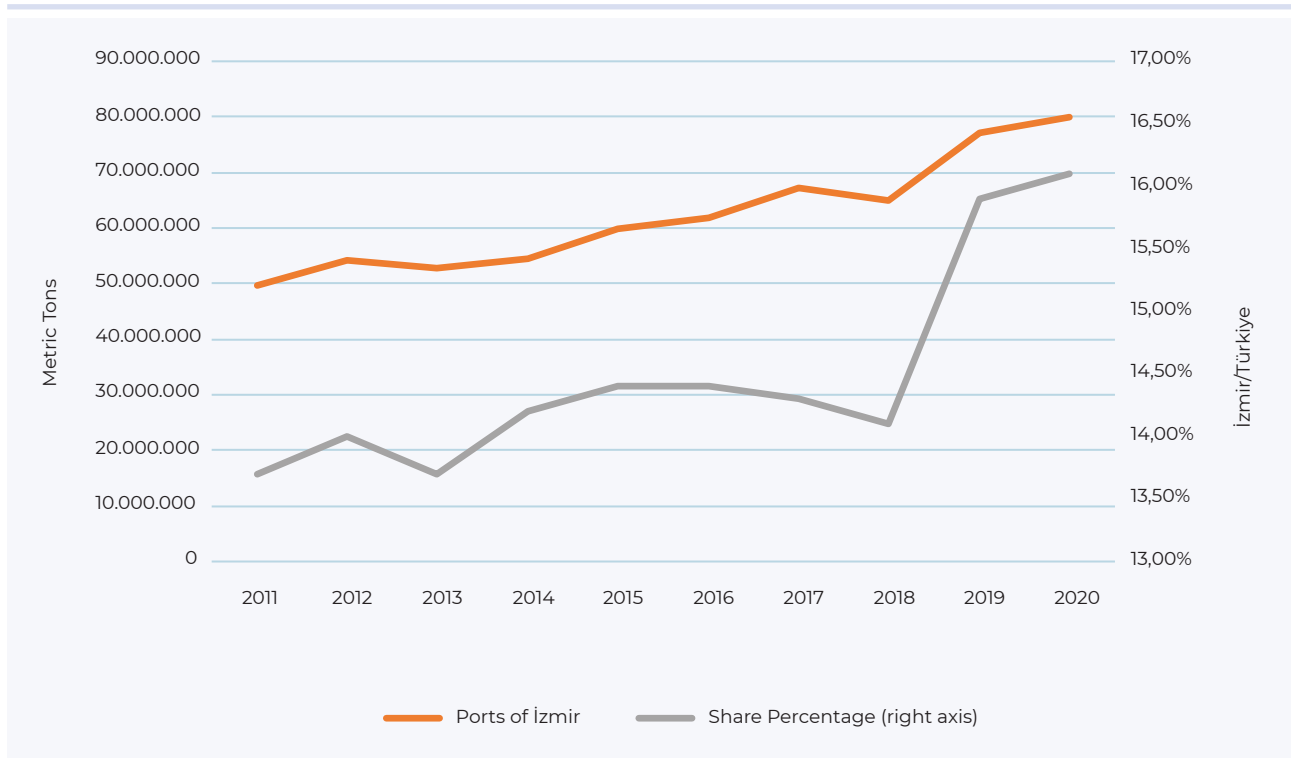
İzmir's port infrastructure consists of the TCDD Port of İzmir, Ports of Aliağa, and Ports of Dikili and Çeşme. The Biçerova Station and the Kemalpaşa Logistics Center under construction have major significance in terms of logistics. Within the provincial borders, 274 kilometers of highways, 2,481 kilometers of state roads, 2,648 kilometers of provincial roads, a total road network of 5,403 kilometers and a railway network² of 400 kilometers serve transport operations. The region possesses a handling capacity of 2.6 million TEUs and handled 1.7 million TEUs in 2020. The total cargo handled exceeded 80 million metric tons in 2020 (Graph 3).

The only state-operated port among the ports of İzmir is the TCDD Port of İzmir. The construction of the port began in 1954 and the first stage was commissioned in 1959. The TCDD Port of İzmir is currently the largest port in the Aegean in terms of dock length

and hinterland area, and the second-largest port of Türkiye. The TCDD Port of İzmir is also the only port in the Aegean with the capacity to handle all sorts of ships and cargo. This quality makes the TCDD Port of İzmir a significant component in the logistics infrastructure of the region.

The TCDD Port of İzmir and Ports of Nemrut Bay share the same hinterland thanks to their geographic proximity. According to 2020 data, 16.1 percent of the total cargo handled in Türkiye (metric tons) goes through the ports of İzmir. The share of the ports of İzmir in the total volume of cargo handled in our country's ports in the last 10 years has increased significantly in the last two years (2019 and 2020), exceeding 15 percent. As for total cargo volume, petrol and derivatives of the liquid bulk cargo group have a significant share in the Aliağa region.

GRAPH 3. Total Cargo Handled in İzmir and Its Share in Türkiye, 2011–2020 (metric tons, percent)



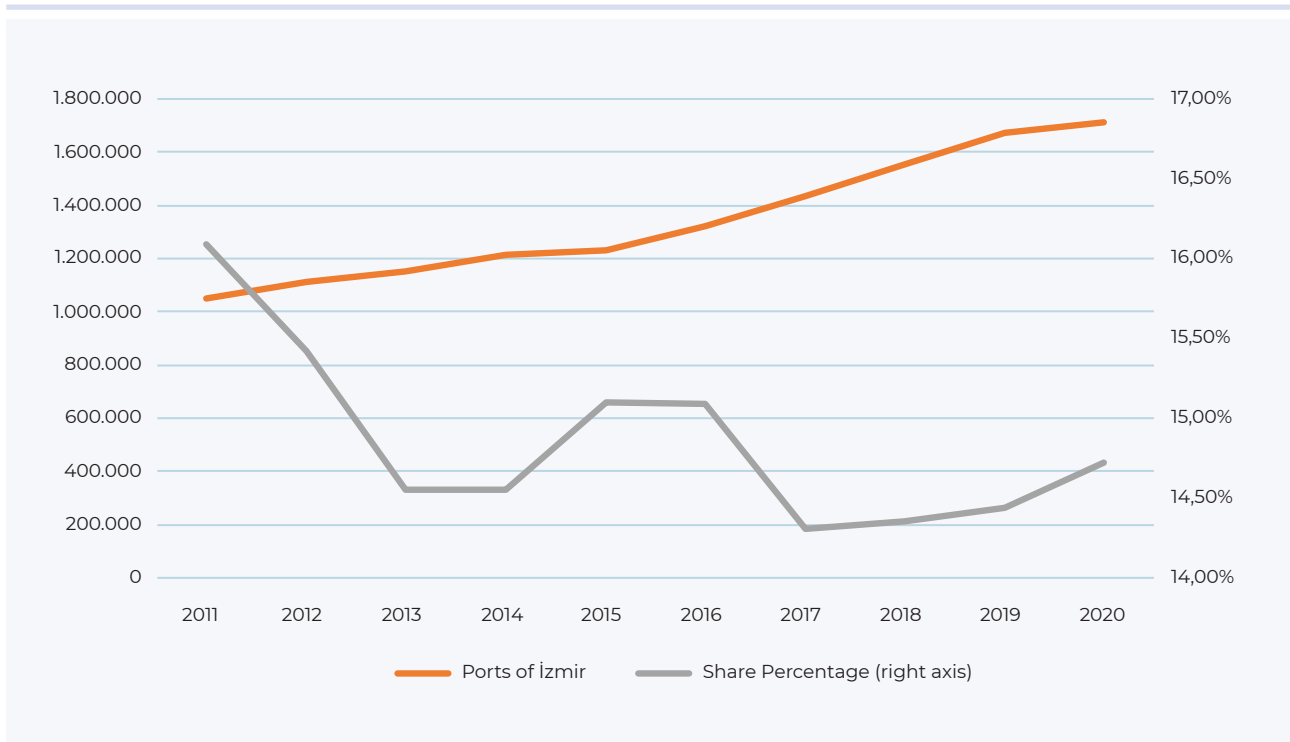
Source: Ministry of Transport and Infrastructure, General Directorate of Maritime Affairs

2 Basmane-Torbalı-Çatal-Tire-Ödemiş-Basmane, Basmane-Söke-Aydın-Denizli-Basmane, Alsancak-Manisa-Alaşehir-Uşak-Alsancak and Alsancak-Balıkesir-Bandırma regional trains serve under the TCDD 3rd Regional Directorate.

Four ports of İzmir (TCDD Port of İzmir, Ege Fertilizer Port, Nempont Port and SOCAR Terminal) serve container ships and their cargo. These four ports handle 1.7 million TEUs, which corresponds to 14.7 per cent of the 11.6 million TEUs of total cargo handled

at Türkiye's ports (Graph 4). There has not been a significant proportional increase in container cargo within the 10-year period. However, a slight growth momentum has been observed within the last three years.

GRAPH 4. Container Cargo Handled in İzmir and the Region's Share in Türkiye, 2011–2020 (TEU, percent)



Source: Ministry of Transport and Infrastructure, General Directorate of Maritime Affairs

There are seven ports in the Aegean, all of which are located in the Nemrut Bay in the Aliğa district of the İzmir province, which share the same hinterland as the TCDD Port of İzmir. These ports are (from the south to the north shore in counter-clockwise order): the Habaş Port, Ege Steel Port, Port of Batiliman, İzmir Iron and Steel Port, TCEEĞE Port, with Nempont and Petkim/SOCAR Terminals in the north (Figure 7).

All ports in İzmir are located within the gulf. They are all natural harbors and, therefore, are not protected against the weather or the sea by a breakwater.

These ports in İzmir handle a wide hinterland through a developed transport infrastructure. The railway reaches all the way through the TCDD Port of İzmir. The ports in Aliğa, on the other hand, primarily utilize the Biçerova Railway Terminal located behind Nemrut Bay. The terminal has a 40,000-square-meter open storage site. Construction continues for the Kemalpaşa Logistics Center, which will play a key role in regional logistics, with a planned area of 1.3 million square meters in the first stage, totaling 3 million square meters with the extension area.

FIGURE 7. Ports in the Aliğa Nemrut Bay



Source: Google Maps

2.2. Ports of İzmir from a Cargo-Handling Perspective

Upon observing the yearly performances of the TCDD Port of İzmir, TCEEĞE (Ege Fertilizer), Nempont and SOCAR Terminal ports, which handle the container cargo in the Aegean Region, we can see that the TCDD Port of İzmir has the highest share (Table 6). Among private ports, Nempont has the largest share in container handling. Nempont increased its share in the total volume from 24.19 percent in 2018 to 27.16 percent in 2020. TCEEĞE also increased its share from 18.48 to 25.81 percent. Despite the fact that TCEEĞE

Port has the third-largest share in container volume, it showed remarkable growth in the 2018–2020 period with a cargo development rate of 54 percent. Meanwhile, SOCAR maintained its share of approximately 17–18 percent in container handling every year in the relevant period. The decrease from 40 to 30 percent in the 2018–2020 period observed in the share of the TCDD Port of İzmir can be explained with the cargo shift from the TCDD Port of İzmir to the ports of Aliağa.

TABLE 6. Volume and Market Shares of Container Ports of the Aegean Region, 2018–2020 (TEU, percent)

| No | Ports | 2018 | | 2019 | | 2020 | | 2018-2020 Change |
|----------------------------|--------------------|------------------|------------|------------------|------------|------------------|------------|------------------|
| | | Volume | % | Volume | % | Volume | % | |
| 1 | TCDD Port of İzmir | 647,715 | 40.16 | 605,727 | 35.06 | 531,687 | 29.81 | -17.91% |
| 2 | Nempont | 390,071 | 24.19 | 430,014 | 24.89 | 484,371 | 27.16 | 24.18% |
| 3 | TCEEĞE | 298,045 | 18.48 | 380,790 | 22.04 | 460,297 | 25.81 | 54.44% |
| 4 | SOCAR | 277,000 | 17.17 | 311,162 | 18.01 | 307,250 | 17.23 | 10.92% |
| Aegean Region Total | | 1,612,831 | 100 | 1,727,693 | 100 | 1,783,605 | 100 | 10.59% |

Source: İZKA 2021b, TÜRKLİM

As previously mentioned, cargo handled at ports is evaluated under three main categories. These are bulk cargo, general cargo and passengers. While bulk cargoes are divided into either liquid or dry bulk cargoes, containers and Ro-Ro cargoes are classified under general cargoes. When the ports of İzmir and the ports of Türkiye are compared based on the types of cargo handled in the last nine years, we can see that the ports of İzmir exceed the national average in total cargo and bulk cargoes (depending on the port

development in Aliağa), but remain below the national average in container cargoes (Table 7). On the other hand, in 2020, a year in which the COVID-19 pandemic significantly affected almost every industry, we observed that the changes in the cargo handled at the ports of İzmir remained below the national average and were relatively unaffected by the pandemic. This positive development for ports can be explained by the resilience of the region's local cargo and exporting industries.

TABLE 7. Rates of Change and Increase in Handling Volumes of Ports by Cargo Type (%)

| Cargo Type and Change | Ports of Türkiye | Ports of İzmir |
|--|------------------|----------------|
| CONTAINER | | |
| Long-Term Change (2011–2020, 10 years) | 78.2 | 63.1 |
| Annual Average Increase Rate (2011–2020) | 6.6 | 5.6 |
| DRY BULK CARGO | | |
| Long-Term Change (2011–2020, 9 years) | 53.5 | 56 |
| Annual Average Increase Rate (2011–2020) | 4.9 | 5.1 |
| LIQUID BULK CARGO | | |
| Long-Term Change (2011–2020, 9 years) | 12.8 | 67.1 |
| Annual Average Increase Rate (2011–2020) | 1.4 | 5.9 |
| TOTAL CARGO | | |
| Long-Term Change (2011–2020, 9 years) | 36.7 | 61 |
| Annual Average Increase Rate (2011–2020) | 3.5 | 5.4 |

Source: Ministry of Transport and Infrastructure, General Directorate of Maritime Affairs

The annual increase rate of the total container cargo handled at ports from 2011 to 2020 in Table 7 shows that the annual increase rate of the total container cargo handled at the ports of İzmir is **5.6** percent, while the annual increase rate of the total container cargo handled at the ports of Türkiye is **6.6** percent. During this period, particularly in terms of containerization movements, the number of containers handled at the ports of Türkiye increased by **78.2** percent, while the amount of increase at the ports of İzmir remained at **63.1** percent. The figures show that the container-handling performance of the ports of İzmir remains lower than the national average. The share of the ports of İzmir in the total containers handled at the ports of Türkiye tends to decrease due to the amount of difference.

It has been observed that the Mediterranean in particular increased its share in the container cargo handled at the ports of Türkiye (Table 8). The ports of the Mediterranean, which had a share of approximately **20** percent in 2011, increased their share to **24** percent in 2020. The shares of the Marmara and Aegean regions decreased. Black Sea cargoes continue to have a relatively low share of 1 percent. In terms of the total cargo handled at the ports, the Mediterranean, Aegean and Black Sea regions increased their cargo volumes in the 2011–2020 period. The share of the Marmara region declined from 42.4 to 38.5 percent. The biggest rise was observed in the Aegean region. Today, 14.7 percent (1.7 million TEUs) of container cargo handled at the ports of Türkiye, and 17 percent (80.1 million metric tons) of all cargoes are handled at the ports of İzmir.

TABLE 8. Share of Regions in Türkiye's Cargo (2011, 2020) (percent)

| Cargo | Region | Share in 2011 (%) | Share in 2020 (%) |
|-----------------|---------------|-------------------|-------------------|
| Container Cargo | Marmara | 63 | 60.5 |
| | Mediterranean | 20.2 | 23.8 |
| | Aegean | 16.1 | 14.7 |
| | Black Sea | 0.7 | 1 |
| Total Cargo | Marmara | 42.4 | 38.5 |
| | Mediterranean | 33.8 | 35.3 |
| | Aegean | 14.9 | 17.3 |
| | Black Sea | 8.8 | 8.9 |

Source: Ministry of Transport and Infrastructure, General Directorate of Maritime Affairs

In the last nine years, the number of ports in our country has increased, major investments have been made in line with privatization efforts, and competitive factors have gained significance. There have been several large-scale port investments made in the Marmara region for handling container cargo (Asyaport, Belde Port, DP World Yarımca Port, Safi Port, etc). Likewise, the Port of Mersin achieved rapid growth with the investment made by the Port of Singapore (PSA), one of the largest port operators in the world, in cooperation with Akfen Holding. These developments in the industry have relatively reduced the share of the Aegean region and, more specifically, the share of İzmir.

While 30 percent of container cargo handled at the ports of Türkiye in 1999 was handled at the TCDD Port of İzmir, the total share of all ports in İzmir dropped below 15 percent in 2020. This decrease can be explained by the slow pace of infrastructure and superstructure investments towards ports and the development of the logistics infrastructure of İzmir

in comparison to other regions, and the attractive service conditions offered to exporters by the accelerated investments in the Mediterranean (Mersin and Adana in particular), and especially in the Marmara region.

Considering that container cargoes come with high added value, the finished and/or semi-finished goods produced in the Aegean region are exported by containers, containerization movements are accelerating around the world, and possibilities arising from intermodal transportation are increasing, our region should follow trends and adopt a development perspective towards container transports. On the other hand, the shift to transit loads rather than local loads is also key for the development of regional ports. The export profiles of the provinces comprising the hinterland of the ports of İzmir reveal that the cargo produced in the region is primarily exported by containers, and container-oriented development at the ports of İzmir will also support the region's exports (Table 9).

TABLE 9. Cargo Origins and Types in the Aegean Region³

| Product Group | Origin | Priority Load Type |
|--|-------------------------------------|---------------------------|
| Electric and Electronics | Manisa, İzmir, Denizli | Container, Ro-Ro |
| Chemicals and Products | İzmir, Manisa, Aydın | Liquid Bulk Cargo |
| Air Conditioning Industry | Manisa, İzmir | Container, Ro-Ro |
| Ready-to-Wear Clothing | Denizli, İzmir, Uşak | Container, Ro-Ro |
| Furniture, Paper and Forest Products | İzmir, Manisa, Denizli | Container, Ro-Ro |
| Tobacco | İzmir | Container |
| Automotive Industry | Manisa, İzmir, Aydın | Container, Ro-Ro |
| Steel | İzmir, Denizli | General Cargo |
| Machinery and Parts | İzmir, Manisa, Aydın | Container, General Cargo |
| Fruits and Vegetables | İzmir, Manisa | Container, Ro-Ro |
| Fisheries and Animal Products | Muğla, İzmir, Denizli, Uşak | Container, Ro-Ro |
| Dried Fruits and Products | Manisa, Aydın | Container |
| Cement, Glass Ceramics and Soil Products | İzmir, Kütahya | Dry Bulk Cargo, Container |
| Cereals, Pulses, Oilseeds and Products | İzmir, Manisa | Dry Bulk Cargo, Container |
| Ferrous and Non-Ferrous Metals | Denizli, İzmir, Manisa | General Cargo |
| Mining Products | İzmir, Denizli, Aydın, Muğla, Afyon | Dry Bulk Cargo, Container |
| Fresh Fruits and Vegetables | İzmir, Muğla | Container, Ro-Ro |
| Textile and Raw Materials | İzmir, Denizli | Container, Ro-Ro |
| Leather and Leather Products | İzmir | Container |
| Fruit and Vegetable Products | İzmir | Container |
| Defense and Aerospace Industry | İzmir | Container |
| Olives and Olive Oil | İzmir, Aydın | Container |
| Hazelnuts and Products | İzmir | Container |
| Ships and Yachts | İzmir | General Cargo |
| Carpets | Uşak | Container |

³ The export and import volumes of the hinterlands of the ports of İzmir were analyzed as part of the İZKA (2021b) study.

2.3. Ports of İzmir from a Cargo Regime Perspective⁴

Out of all cargo handled at the ports of İzmir in 2020, 54.5 percent came from imports, 32.5 percent came from exports, 12.8 percent came from cabotage and 0.2 percent came from transit cargo. The region's cargo volume stands out with a high level of import cargoes and a relatively low level of transit cargoes. The lion's share in the regional cargo volume is taken by the ports of Aliğa operating under the Aliğa Port Authority, and the TCDD Port of İzmir operating

under the İzmir Port Authority. The TCDD Port of İzmir stands out with export cargoes, while the ports of Aliğa stand out with import cargoes. The raw material requirements (oil, scrap, liquefied gases, etc.) of large industrial establishments in Aliğa emerges as a major factor for imported cargoes. At Çeşme Port Authority, the handling is primarily carried out with Ro-Ros, while the tonnage at the port of Dikili is low compared to other ports (Table 10).

TABLE 10. Cargo at the Ports of İzmir by Regime, 2020 (metric tons)

| Port | Export | % | Import | % | Cabotage | % | Transit | % | Total |
|-------------------|-------------------|------------|-------------------|------------|-------------------|------------|----------------|------------|-------------------|
| Aliğa | 20,598,308 | 79.1 | 39,032,358 | 89.4 | 9,222,252 | 90.1 | 93,083 | 75.1 | 68,946,001 |
| İzmir | 4,333,261 | 16.6 | 4,035,172 | 9.2 | 990,665 | 9.7 | 30,914 | 24.9 | 9,390,012 |
| Çeşme | 654,088 | 2.5 | 559,314 | 1.3 | 23,002 | 0.2 | 0 | 0 | 1,236,404 |
| Dikili | 451,759 | 1.7 | 46,258 | 0.1 | 0 | 0 | 0 | 0 | 498,017 |
| Total | 26,037,416 | 100 | 43,673,102 | 100 | 10,235,919 | 100 | 123,997 | 100 | 80,070,434 |
| Percentage | %32.5 | - | %54.5 | - | %12.8 | - | 0.2 | - | 100 |

⁴ The analyses in this chapter are based on the İZKA (2021b) study.

The raw material requirements (oil, scrap, liquefied gases, etc.) of large industrial establishments in Aliğa emerges as a major factor for imported cargoes.



According to this overview, the evaluations of ports should be based on the ports of Aliğa and İzmir, which handle 96 percent of the region's export cargoes, and 98 percent of its import cargoes.

Container cargo ranked at the top in terms of tonnage throughout the 2016–2020 period in the handling data of port authorities, which confirms the

cargo distribution in Table 11. Container cargo at the TCDD Port of İzmir is showing a decline due to the lack of required investments, but it still maintains its position as the most strategically beneficial cargo at the port. Besides containers, the most important cargo type at the port is cement (Table 11).

TABLE 11. Top Handled Cargo Types at the TCDD Port of İzmir (exports, metric tons)

| İzmir Port Authority – Product Groups – Export (metric tons) | | 2016 | 2017 | 2018 | 2019 | 2020 | 2016/2020 Improvement (%) |
|--|--|------------------|------------------|------------------|------------------|------------------|---------------------------|
| 1 | Various goods and containers | 4,186,675 | 3,706,406 | 3,505,446 | 3,327,468 | 2,916,479 | -8.6 |
| 2 | Cement, lime | 420,932 | 600,177 | 375,404 | 753,500 | 1,357,979 | 34.0 |
| 3 | Other machinery and equipment, engines and parts | 15,600 | 16,373 | 28,412 | 45,259 | 29,917 | 17.7 |
| 4 | Oilseeds, oily fruits and oils | 2,904 | 0 | 16,065 | 12,563 | 11,850 | 42.1 |
| 5 | Other manufactured building materials | 123 | 1,460 | 4,236 | 14,761 | 11,253 | 209.3 |
| 6 | Manufactured materials | 802 | 300 | 9 | 3 | 3,163 | 40.9 |
| 7 | Tubes, pipes and cast and wrought iron and steel | 0 | 18 | 455 | 221 | 1,215 | N/A |
| 8 | Glass, glassware and ceramic products | 253 | 0 | 704 | 495 | 783 | 32.6 |
| 9 | Other transported goods | 5,790 | 12,421 | 5,336 | 4,178 | 562 | -44.2 |
| 10 | Transport equipment | 103,182 | 11,847 | 9,719 | 6,782 | 58 | -84.6 |
| 11 | Other manufactured materials | 0 | 54 | 242 | 34 | 2 | N/A |
| Total | | 4,844,201 | 4,397,385 | 4,045,886 | 4,239,053 | 4,333,261 | -2.7 |

Container cargo at the TCDD Port of İzmir is showing a decline due to the lack of required investments, but it still maintains its position as the most strategically beneficial cargo at the port.



In 2020, 1.3 million metric tons of cement (dry bulk cargo) was exported at the TCDD Port of İzmir. Cement has emerged as the second-most important export cargo at the ports operated under Aliğa Port Authority, following containers. In 2020, 3.4 million

metric tons of cement exports were carried out at the ports of Aliğa. Export cargoes are also transported in containers at the ports of Aliğa. Other cargoes are handled as liquid and dry bulk cargo, and as general cargo (Table 12).

TABLE 12. Top Handled Cargo Types at the Ports of Aliğa (export, metric tons)

| Aliğa Port Authority – Product Groups – Export (metric tons) | | 2016 | 2017 | 2018 | 2019 | 2020 | 2016/2020 Improvement (%) |
|--|---|-----------|-----------|-----------|-----------|-----------|---------------------------|
| 1 | Various goods and containers | 4,495,096 | 5,244,222 | 6,684,882 | 7,693,661 | 8,385,747 | 16.9 |
| 2 | Cement, lime | 513,785 | 352,584 | 775,630 | 2,045,101 | 3,430,975 | 60.8 |
| 3 | Fuel derivatives | 3,067,191 | 3,062,342 | 2,103,138 | 5,441,882 | 3,238,507 | 1.4 |
| 4 | Iron and steel bars, angles, wire rods and tramway construction materials | 2,612,881 | 2,290,350 | 2,684,614 | 2,668,374 | 2,356,044 | -2.6 |
| 5 | Other chemical products | 59,890 | 29,162 | 34,480 | 604,889 | 1,264,088 | 114.3 |
| 6 | Essential chemicals | 375,520 | 417,592 | 380,592 | 630,846 | 490,086 | 6.9 |
| 7 | Non-fuel derivatives | 16,550 | 5,470 | 6,175 | 504,536 | 421,827 | 124.7 |
| 8 | Manufactured materials | 263,226 | 224,986 | 372,353 | 330,003 | 290,081 | 2.5 |
| 9 | Coal-derived chemicals | 150,400 | 158,049 | 117,780 | 163,280 | 156,212 | 1 |
| 10 | Gaseous hydrocarbons, liquid or compressed | 94,384 | 208,412 | 148,444 | 217,664 | 116,685 | 5.4 |
| 11 | Iron and steel waste and blast furnace flue dust | 184,933 | 107,911 | 129,785 | 134,100 | 100,600 | -14.1 |
| 12 | Oilseeds, oily fruits and oils | 11,200 | 21,950 | 46,250 | 136,412 | 98,350 | 72.1 |
| 13 | Soils and minerals from other stones | 24,225 | 14,750 | 38,820 | 76,026 | 88,863 | 38.4 |
| 14 | Semi-finished rolled steel products | 5,000 | 63,927 | 68,100 | 137,930 | 34,989 | 62.6 |
| 15 | Salt, iron pyrite and sulfur | 33,625 | 73,481 | 11,138 | 84,326 | 27,108 | -5.2 |

| Aliğa Port Authority – Product Groups – Export (metric tons) | | 2016 | 2017 | 2018 | 2019 | 2020 | 2016/2020 Improvement (%) |
|--|--|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------------|
| 16 | Other machinery and equipment, engines and parts | 5,866 | 19,014 | 39,341 | 18,589 | 23,188 | 41.0 |
| 17 | Grains | 2,000 | 0 | 5,963 | 0 | 20,000 | 77.8 |
| 18 | Non-ferrous ores and waste | 44,750 | 79,426 | 37,900 | 22,812 | 19,640 | -18.6 |
| 19 | Chemical fertilizers | 20,250 | 5,595 | 29,738 | 22,400 | 13,526 | -9.6 |
| 20 | Sand, gravel, clay and slag | 47,710 | 37,053 | 35,000 | 28,669 | 9,019 | -34.1 |
| 21 | Coke | 0 | 0 | 0 | 0 | 5,500 | N/A |
| 22 | Tubes, pipes and cast and wrought iron and steel | 0 | 0 | 0 | 0 | 5,015 | N/A |
| 23 | Other transported goods | 8,385 | 10,775 | 8,621 | 3,137 | 2,100 | -29.3 |
| 24 | Other manufactured building materials | 325 | 0 | 0 | 40,000 | 110 | -23.7 |
| 25 | Weapons and ammunition | 11,042 | 533 | 1,521 | 167 | 25 | -78.2 |
| 26 | Other manufactured materials | 21,848 | 25,599 | 22,068 | 983 | 14 | -84.1 |
| 27 | Plasters | 0 | 0 | 0 | 0 | 7 | N/A |
| 28 | Leather, textiles and clothing | 0 | 0 | 0 | 0 | 2 | N/A |
| Total | | 12,267,798 | 12,520,971 | 13,782,869 | 21,006,802 | 20,598,308 | 13.8 |

In 2020, 4.3 million metric tons of export cargo were handled at the TCDD Port of İzmir, and 20.5 million metric tons at the ports of Aliğa. Upon combining the data from both ports, we have observed that containers, cement, fuel, iron and steel products and other chemical products are the most frequently handled cargoes in the Aegean region. Forty-five percent of the total exports from both ports were transported by containers.

As for imports, 34 percent of the import cargo handled at the TCDD Port of İzmir in 2020 consisted of containers, and 28 percent consisted of grains (dry bulk cargo). The remaining 38 percent consisted of dry bulk, general cargo and a small amount of liquid bulk cargoes (oils, etc.) (Table 13).

TABLE 13. Top Handled Cargo Types at the Port of İzmir (import, metric tons)

| İzmir Port Authority – Product Groups – Import (metric tons) | | 2016 | 2017 | 2018 | 2019 | 2020 | 2016/2020 Improvement (%) |
|--|---|------------------|------------------|------------------|------------------|------------------|---------------------------|
| 1 | Various goods and containers | 2,392,224 | 2,306,268 | 1,992,183 | 1,597,872 | 1,377,505 | -12.9 |
| 2 | Grains | 410,765 | 892,033 | 711,851 | 1,234,988 | 1,132,964 | 28.9 |
| 3 | Animal feed and food residues | 458,547 | 643,224 | 533,811 | 587,224 | 674,346 | 10.1 |
| 4 | Oilseeds, oily fruits and oils | 232,173 | 262,339 | 215,608 | 266,274 | 296,318 | 6.3 |
| 5 | Pulp and waste paper | 171,392 | 176,983 | 167,997 | 183,109 | 204,119 | 4.5 |
| 6 | Sugar | 43,240 | 60,406 | 58,085 | 49,902 | 96,596 | 22.3 |
| 7 | Other non-perishable foodstuffs and hops | 7,882 | 8,299 | 51,557 | 40,575 | 54,717 | 62.3 |
| 8 | Sand, gravel, clay and slag | 74,672 | 84,960 | 78,305 | 59,831 | 35,565 | -16.9 |
| 9 | Iron and steel bars, angles, wire rods and tramway construction materials | 55,374 | 0 | 62,136 | 30,782 | 29,299 | -14.7 |
| 10 | Glass, glassware and ceramic products | 66,460 | 45,933 | 9,386 | 16,445 | 25,620 | -21.2 |
| 11 | Soils and minerals from other stones | 12,111 | 10,832 | 5,020 | 0 | 25,313 | 20.2 |
| 12 | Chemical fertilizers | 0 | 0 | 9,491 | 30,925 | 21,350 | N/A |
| 13 | Other machinery and equipment, engines and parts | 85,781 | 61,012 | 62,027 | 17,757 | 11,027 | -40.1 |
| 14 | Essential chemicals | 16,028 | 13,652 | 13,990 | 15,135 | 9,583 | -12.1 |
| 15 | Other manufactured building materials | 0 | 0 | 0 | 0 | 5,028 | N/A |
| 16 | Other transported goods | 11,220 | 9,170 | 12,343 | 5,422 | 4,736 | -19.4 |
| 17 | Tubes, pipes and cast and wrought iron and steel | 0 | 0 | 240 | 0 | 4,412 | N/A |
| 18 | Perishable foodstuffs | 0 | 0 | 0 | 0 | 999 | N/A |
| Total | | 4,212,249 | 4,709,120 | 4,064,832 | 4,166,864 | 4,035,172 | -1.1% |

On the other hand, an evaluation of the product groups imported at the ports of Aliğa shows that crude oil is the most imported commodity at 15 million metric tons with a significant rate of 39 percent. Crude oil is followed by scraps at 5.8 million metric tons with a share of 15 percent, and liquefied gases such as LPG and LNG at 5.4 million metric tons with

a share of 14 percent. While these three products transported in bulk account for 67 percent of the import operations at the ports of Aliğa, this rate rises to 87 percent with all the bulk cargoes in the top 10. The share of containers in import operations at the ports of Aliğa is at 2.8 million metric tons with 7 percent (Table 14).

TABLE 14. Top Handled Cargo Types at the Ports of Aliğa (import, metric tons)

| Aliğa Port Authority – Product Groups – Import (metric tons) | | 2016 | 2017 | 2018 | 2019 | 2020 | 2016/2020 Improvement (%) |
|--|---|------------|------------|-----------|------------|------------|---------------------------|
| 1 | Crude oil | 11.051.446 | 10.793.445 | 9.576.058 | 16.953.889 | 15.104.759 | 8,1 |
| 2 | Iron and steel waste and blast furnace flue dust | 4.668.429 | 5.325.820 | 4.847.539 | 5.649.012 | 5.781.461 | 5,5 |
| 3 | Gaseous hydrocarbons, liquid or compressed | 2.380.671 | 5.236.838 | 4.761.918 | 3.964.834 | 5.383.769 | 22,6 |
| 4 | Various goods and containers | 1.762.241 | 1.995.655 | 2.291.692 | 2.434.280 | 2.867.175 | 12,9 |
| 5 | Hard coal | 2.534.278 | 2.413.477 | 1.820.069 | 1.892.651 | 2.442.489 | -0,9 |
| 6 | Oilseeds, oily fruits and oils | 838.848 | 1.077.674 | 1.215.979 | 1.212.843 | 1.333.392 | 12,3 |
| 7 | Semi-finished rolled steel products | 1.664.374 | 1.457.896 | 1.726.365 | 809.585 | 1.220.327 | -7,5 |
| 8 | Fuel derivatives | 3.228.309 | 3.925.882 | 3.685.594 | 1.354.146 | 995.516 | -25,5 |
| 9 | Animal feed and food residues | 1.060.565 | 1.181.143 | 710.782 | 810.544 | 811.385 | -6,5 |
| 10 | Other chemical products | 71.665 | 94.467 | 174.176 | 132.332 | 717.645 | 77,9 |
| 11 | Grains | 432.617 | 684.890 | 690.765 | 635.710 | 713.698 | 13,3 |
| 12 | Chemical fertilizers | 655.001 | 596.594 | 586.033 | 785.027 | 503.971 | -6,3 |
| 13 | Iron and steel bars, angles, wire rods and tramway construction materials | 345.554 | 428.789 | 258.821 | 229.380 | 284.787 | -4,7 |
| 14 | Non-fuel derivatives | 359.957 | 361.112 | 518.783 | 202.659 | 249.680 | -8,7 |
| 15 | Essential chemicals | 323.239 | 273.961 | 220.083 | 193.922 | 187.753 | -12,7 |

| Aliğa Port Authority – Product Groups – Import (metric tons) | | 2016 | 2017 | 2018 | 2019 | 2020 | 2016/2020 Improvement (%) |
|--|--|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------|
| 16 | Coke | 499.605 | 304.199 | 320.424 | 168.117 | 139.509 | -27,3 |
| 17 | Pig iron, crude steel, ferro metal alloys | 147.389 | 162.582 | 117.078 | 77.639 | 88.312 | -12 |
| 18 | Non-ferrous metals | 123.993 | 134.476 | 98.839 | 40.316 | 56.235 | -17,9 |
| 19 | Non-ferrous ores and waste | 9.439 | 14.780 | 19.367 | 46.688 | 44.674 | 47,5 |
| 20 | Sand, gravel, clay and slag | 54.216 | 47.448 | 29.517 | 23.964 | 22.340 | -19,9 |
| 21 | Natural fertilizers | 3.000 | 4.200 | 0 | 9.461 | 22.000 | 64,6 |
| 22 | Other non-perishable foodstuffs and hops | 9.082 | 2.805 | 65.770 | 32.541 | 16.780 | 16,6 |
| 23 | Trees and mushrooms | 2.796 | 3.905 | 0 | 0 | 16.502 | 55,9 |
| 24 | Manufactured materials | 176.101 | 10.028 | 38.553 | 34.799 | 9.775 | -51,5 |
| 25 | Pulp and waste paper | 10.073 | 23.237 | 9.146 | 2.192 | 9.465 | -1,5 |
| 26 | Other transported goods | 94.500 | 69.031 | 20.876 | 2.076 | 4.818 | -52,5 |
| 27 | Other machinery and equipment, engines and parts | 41.859 | 14.777 | 10.574 | 19.431 | 3.263 | -47,2 |
| 28 | Tubes, pipes and cast and wrought iron and steel | 9.277 | 10.851 | 1.757 | 2.002 | 875 | -44,6 |
| 29 | Other manufactured materials | 10.830 | 45.550 | 8.767 | 4.290 | 3 | -87,1 |
| Total | | 32.603.211 | 36.778.033 | 33.828.478 | 37.781.433 | 39.032.358 | 4,6 |

Evaluation of the cargoes handled in both ports shows that 54 percent of the first 20 cargo groups, which account for 99 percent of the import operations in the Aegean region, consist of liquid bulk cargoes such as crude oil, oils and chemicals. Meanwhile, evaluation of other cargoes with significant shares in imports shows that dry bulk cargoes such as scraps, hard coal, grains, animal feeds and fertilizers have a

share of 31.7 percent and a volume of 13.2 million metric tons. Considering that the dry bulk and general cargo capacity of the regional ports is 26.8 million metric tons, there is no bottleneck in sight for dry bulk cargoes in the medium or long term.

The analyses so far reveal that the containers require development and renewal, as they are the most strategically beneficial cargoes for the ports of İzmir.

2.4. Ports of İzmir from a Connection Perspective⁵

Efficient and effective operation in ports depends on physical qualities and equipment as well as integration with world maritime trade. Pier length and depth are indicative of the maximum length of docking ships, while port equipment and warehouse storage indicate whether the port is suitable for cargo. Ports with strong superstructure equipment and infrastructure can attract more cargo by increasing the number of direct connection points. The hauled cargoes may be domestic cargoes such as exports and imports, or transit cargoes that enter the country temporarily before being transferred to a third country without being subjected to customs procedures.

Big data analyses for the ports of İzmir, performed on the three-year retrospective monitoring of container movements in the region, show that Aliğa is the most efficient and powerful port district in our country with 125 direct connections, coming right

after the Port of Mersin (Table 15). The TCDD Port of İzmir, which boasts 95 connections, is positioned as a port with requirements for the development of its connections. Findings of the same analysis show that the TCDD Port of İzmir and the ports of Aliğa share significant similarities with the Port of Mersin in terms of loading areas. Prominent loading areas are Mediterranean countries for the TCDD Port of İzmir, and Northern European countries and the United States for the ports of Aliğa. Therefore, the outlook is that the TCDD Port of İzmir dominates the Mediterranean, while the ports of Aliğa dominate Northern Europe.

There is no significant difference between the TCDD Port of İzmir and ports of Aliğa in terms of the size of the docking ships. According to the analysis made independently of the occupancy rates, the TCDD Port of İzmir seems to have a slight advantage in ship sizes.

TABLE 15. Big Data Analysis of the Container Movements at the TCDD Port of İzmir and Ports of Aliğa, 2020

| Indicator | İzmir | | Aliğa | |
|--|---|--|--|---|
| | Value | Additional Info | Value | Additional Info |
| Directly Connected Port | 95 | High performance from İskenderun (89). High performances from the ports of Mersin (135), Valencia (149), Algeciras (157) | 125 | Piraeus (113), Gioia Tauro (117) |
| Docking Ships (2020, gross metric tons) | 23 different shipowners, 206 ships | Biggest: 196,670 Average: 48,483 | 24 different shipowners, 404 ships | Biggest: 193,489 Average: 43,462 |
| Export Shipments (2020) | Mediterranean (30.9%) Northern Europe (27.5%) North America (8.5%) Asia (13.4%) North Africa (4.1%) | Israel (13%) China (9.7%) United Kingdom (8.2%) United States (7.4%) Spain (4%) | Northern Europe (23.2%) Mediterranean (15.3%) Middle East (13%) Asia (14.3%) North America (10.4%) | United States (9.6%) Germany (8.9%) China (9.3%) Spain (5.8%) United Kingdom (6%) |

Source: İZKA, 2021c; ShipsGo database

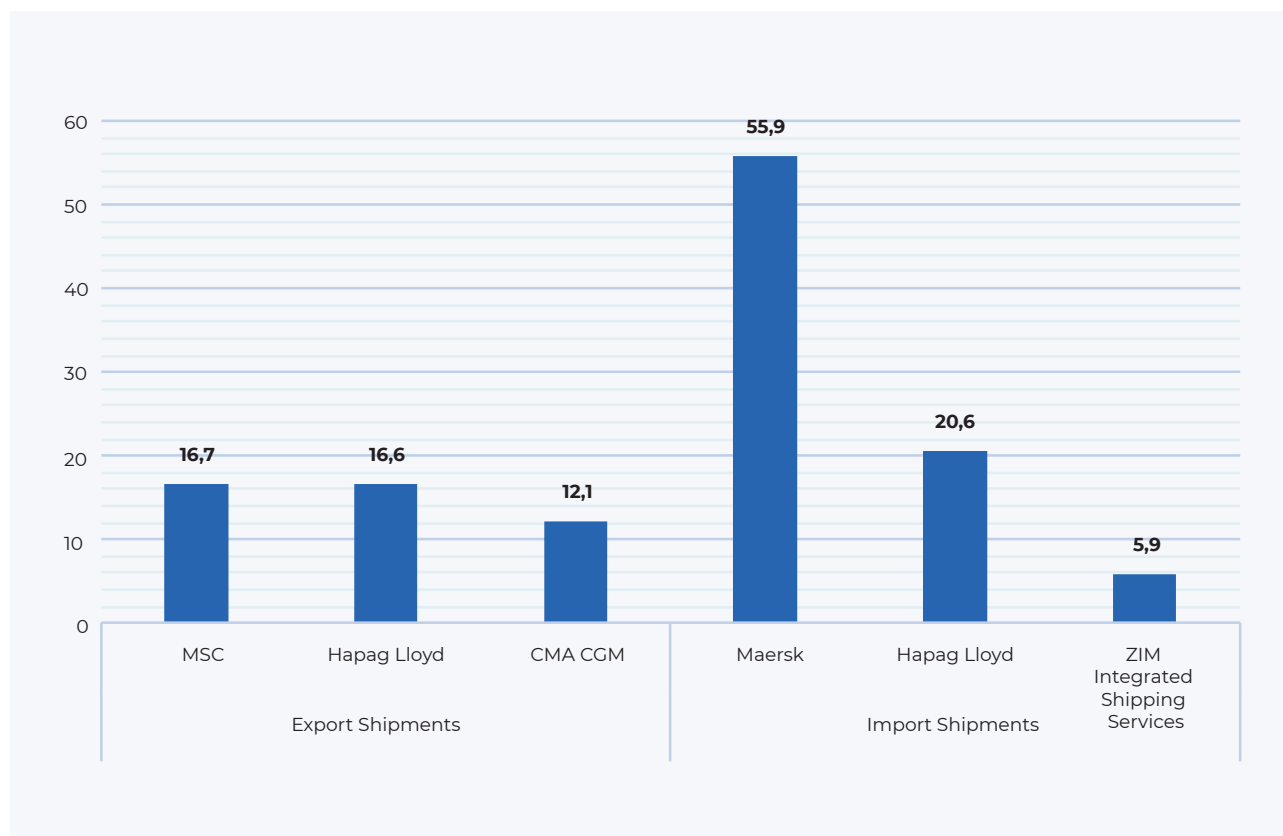
⁵ The analyses in this chapter are based on the İZKA (2021c) study.

Shipowners are central to port ecosystems, as they are the main actors using the ports. Container transport is an industry with high fixed costs, as it imposes regular service responsibilities for the shipowners regardless of occupancy. High fixed costs have resulted in new industry trends, such as joint action by way of sharing ships between container lines, and port administration that is based on service frequency and the speed demand in loading and unloading operations. This trend has accelerated mergers and acquisitions in container shipping in the last two decades. The five largest container lines accounted for 27 percent of the market's capacity in 1996, and this rate reached 83.9 percent in 2021. There are currently three main global strategic alliances: **2M** (Maersk, MSC,

ZIM), **Ocean Alliance** (CMA CGM, COSCO, Evergreen) and **The Alliance** (Hapag-Lloyd, ONE, Yang Ming, HMM).

Big data analyses show that Aliğa is the most efficient and powerful port district in our country with 125 direct connections, coming right after the port of Mersin Aliğa is the most efficient.

GRAPH 5. Three Shipowners with the Biggest Share in the Export and Import Shipments at the Ports of Aliğa, 2020 (%)

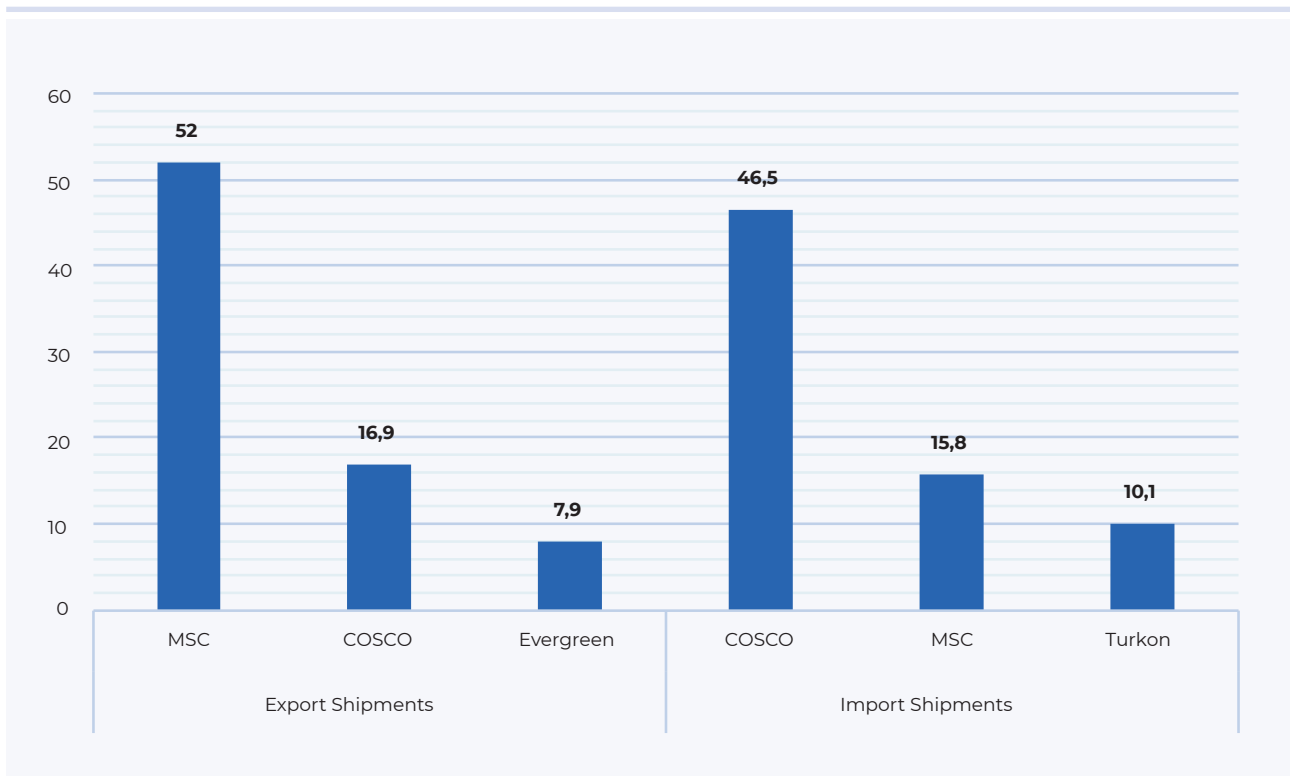


Ports of İzmir are among the ports to be visited by almost all of the lines operated by the shipowners within these alliances. As of 2020, MSC, Hapag-Lloyd and CMA-CGM use the ports of Aliğa extensively for export shipments (Graph 5). These three shipowners carried out 45.4 percent of the shipments at the ports of Aliğa. As for imports, Maersk takes the first place, followed by Hapag-Lloyd and ZIM Integrated Shipping Services. Maersk is well ahead with 55.9

percent, followed by Hapag-Lloyd and ZIM Integrated Shipping Services⁶.

According to 2020 data, MSC, Cosco and Evergreen use the TCDD Port of İzmir extensively for export shipments. These three shipowners carried out 76.8 percent of the shipments at the ports of İzmir. Cosco, MSC and Turkon Line stand out in import operations. Cosco is well ahead with 46.5 percent, followed by MSC and Turkon Line (Graph 6).

GRAPH 6. Three Shipowners with the Most Intensive Operations in Export and Import Shipments at the TCDD Port of İzmir, 2020 (%)

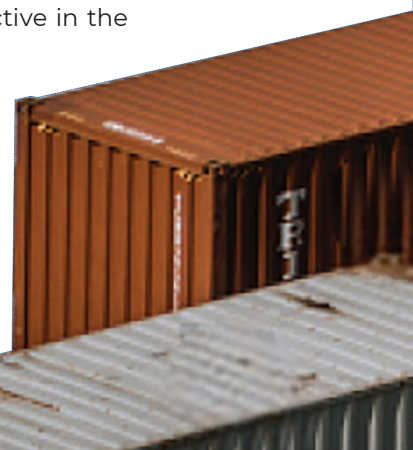


Source: ShipsGo Database

The data show that different shipowners are preferred for export and import shipments across all of Türkiye's container ports. Possible explanations for this include certain lines having particularly strong shipowner presences and the viability of direct connections to the ports in which they carry out their operations. On the other hand, the differences in

export and import cargoes and regions also affect the market shares of shipowners. The work to be done with the shipowners active in the region is crucial for the development of the ecosystem and the implementation of certain policies.

⁶ In line with the data structure, the margin of error in the relevant import data is ± 3 percent





2.5. Ports of İzmir from an Economic Development Perspective

The foreign trade volume of a region is a measurable factor that affects ports' handling quantities. An approach ranging from global trade to Türkiye's foreign trade and İzmir's cargo handling has been adopted to establish a model of the cargo-handling quantities at the ports based on the scenarios⁷. The

development of Türkiye's foreign trade, the role of İzmir's foreign trade in this development, and the cargo- and container-handling quantities created by the foreign trade volume are discussed in the three scenarios of average, above average and below average (Table 16).

TABLE 16. Foreign Trade and Cargo Analysis for Türkiye and İzmir

| Türkiye's Foreign Trade (2033) 2020=\$389 Billion | Value (Billion USD) | Growth (%) | Annual Average Increase Rate (%) (2020-2033) |
|--|----------------------------|-------------------|---|
| Above-average scenario | 1,016.86 | 161.29 | 7.67 |
| Average scenario | 783.65 | 101.36 | 5.54 |
| Below-average scenario | 531.26 | 36.51 | 2.43 |
| İzmir's Foreign Trade (2033) 2020=\$20.08 Billion | Value (Billion USD) | Growth (%) | Annual Average Increase Rate (%) (2020-2033) |
| Above-average scenario | 67.52 | 236.25 | 9.78 |
| Average scenario | 52.03 | 159.14 | 7.60 |
| Below-average scenario | 35.28 | 75.68 | 4.43 |
| İzmir's Cargo Handling (2033) 2020=80,070,434 metric tons | Value (metric tons) | Growth (%) | Annual Average Increase Rate (%) (2020-2033) |
| Above-average scenario | 285,053,268.13 | 256 | 10.26 |
| Average scenario | 252,456,951.54 | 215.29 | 9.24 |
| Below-average scenario | 164,759,344.11 | 105.77 | 5.71 |
| İzmir's Container Handling (2033) 2020=1,711,906 TEUs | Value (TEU) | Growth (%) | Annual Average Increase Rate (%) (2020-2033) |
| Above-average scenario | 4,796,127.02 | 180.16 | 8.25 |
| Average scenario | 4,698,906.17 | 174.48 | 8.07 |
| Below-average scenario | 3,648,197.53 | 113.11 | 5.99 |

⁷ Details of the projections are available in the İZKA (2021a) report, which is one of the sub-analysis studies. Table 16 was obtained by partial revision of the projections made in the study.

Accordingly, the average scenario was evaluated as the scenario with the strongest probability. In the average scenario, Türkiye's foreign trade is expected to reach \$783 billion, while İzmir's foreign trade is expected to reach \$52 billion in 2033. Projections also predict cargo handling of 252 million, and container handling of 4.7 million in İzmir. Based on the comparison of the total demand projections and the capacity & supply situation for the ports of İzmir, if the average scenario is realized, the total capacity utilization rate for the ports of İzmir, which was 56.82 percent in 2020, will increase to 62.98 percent in 2023, and to 72.25 percent in 2033.

International studies show that there is a significant relationship between regional economic growth and increased port performance (Munim and Schramm, 2018). The analysis of the impact of ports on local employment, carried out by Bottasso et al. (2013) based on 560 regions in 10 Western European countries, revealed concrete results for this relationship. Accordingly, every million metric tons of net port

volume creates 400–600 jobs in the relevant region. According to the study carried out by Bottasso et al. (2014) based on 621 regions in 13 European countries, every 10 percent increase in a port's business volume tends to increase the GDP in that region by 0.01 to 0.03 percent. Examination of this direct impact in combination with the total impact reveals that a 10-percent increase in port business in a particular region is associated with an average GDP increase of 0.06 to 0.2 percent across all regions (Battuso et al., 2014). According to another study focused on China (Shan et al., 2014), a 1 percent increase in port cargo volume can increase per capita GDP growth by 7.6 percent, with positive implications for neighboring economies as well. A study focused on South Africa revealed that a one-unit decrease in port activity could cause a loss of 17 percent in the country's economy (Chang et al., 2014). Accordingly, the development of foreign trade and the strengthening of ports can provide significant economic contributions to the regions.

International studies show that there is a significant relationship between regional economic growth and increased port performance.



2.6. Evaluation

Due to their nature and functionality, the maritime transport and port services industries should be evaluated in consideration of global and national scales as well as the local scale. Some key elements of these scales were mentioned in the previous chapters.

Meanwhile, this chapter will discuss the local, national and global developments affecting the maritime industry together, and will summarize them in the table below from a strategic point of view.

TABLE 17. Strategic Determinations Concerning the Maritime Industry

| No | Fact and Trends | Scale | Description |
|----|---|--------|---|
| 1 | Containerization | Global | Between 1980 and 2018, there was a decrease in tanker and general cargo ships, and an increase in dry bulk and container transport. Container transport showed the most significant increase with 719 percent. Container ships had a share of only 1.6 percent in 1980, and increased this share to 13.1 percent in 2018. |
| 2 | Increasing ship sizes | Global | As the ship size increases, the cost of each TEU container carried by the ship decreases; this is accompanied by increases in the handling costs of ports, the cost of transporting a container in the supply chain, and the duration of the ships' stay at the port. |
| 3 | Mergers and Alliances | Global | With mergers and alliances in the global container transport industry, companies can benefit from economies of scale and develop their resources and networks. On the other hand, competition becomes more challenging for container lines that are not members of alliances and ports are adversely affected in the face of increasing power, causing them to become more dependent on mergers and alliances. |
| 4 | Port competition and investment gap | Global | Serving larger ships and being able to offer the required speed and capacity puts pressure on ports. The rapid growth of ships necessitates large equipment investments, while rendering the existing capacities insufficient. |
| 5 | Developments in Sustainability and Environmental Protection | Global | Ports with intense traffic established on coasts, which are some of the most sensitive ecosystems, are faced with issues such as environmental compliance, the reduction of their carbon footprint, proper disposal of wastes and ballast water, transition to new fuel types, and the utilization of renewable resources. Maritime transport is responsible for about 2.5 to 3 percent of global greenhouse gas emissions. Concrete measures have been taken for both ships and ports to reduce this rate in the future. |
| 6 | Port Automation (Smart Ports) | Global | Decreased labor costs and carbon emissions are key drivers of automation. The use of technologies such as digitalization, artificial intelligence and blockchain is prominent in ports. |
| 7 | Port 4.0 | Global | The use of certain technologies to achieve a high level of integration, not only by ports, but by all parties in the supply chain. |
| 8 | China's Belt and Road Initiative | Global | Taking part in the project with both land and sea facilities will offer significant advantages in the future. The economic development in Asian countries and China's rapid progress towards being a consumer society provide a major commercial initiative for Türkiye in particular. |
| 9 | Northern Sea Route | Global | Due to global warming and the melting of the glaciers, the use of sea routes that could not be used widely for trade operations has become more prominent. These routes, which can serve as an alternative especially to the main maritime trade routes in Far East Europe, attract the attention of shipowners in many aspects. The active use of these routes can result in savings of approximately 40 percent, and poses a threat to the existing port structure. |
| 10 | Opportunities and risks in global trade | Global | The trade rivalry between the United States and China, protectionism policies, cyber attacks, increasing debt in both public and private sectors, weak economic development, the pandemic |

| No | Fact and Trends | Scale | Description |
|----|--|----------|---|
| 11 | Weight of import cargoes | National | Türkiye handled 496 million metric tons of cargo in 2020. In this amount, export cargo accounts for 28 percent (138.9 million metric tons), import cargo accounts for 46 percent (226.5 million metric tons), cabotage cargo accounts for 12 percent (58.8 million metric tons), and transit cargo accounts for 15 percent (72.4 million metric tons). |
| 12 | Weight of the Marmara Region | National | Thirty-eight percent of the total cargo (189.8 million metric tons) was handled in the Marmara region. The Mediterranean Region ranks second with 36 percent (175.5 million metric tons), and the Aegean region comes in third with 17 percent (85.9 million metric tons). Meanwhile, the Black Sea region ranks the lowest with 9 percent (45.3 million metric tons). |
| 13 | Developing maritime exports | National | In 2020, Türkiye's exports were at \$169.67 billion, with \$100.92 billion consisting of exports made by sea. The share of maritime transport in exports was 59.5 percent. The share of exports carried out with maritime transport gained particular momentum in 2016, increasing from 53 to 60 percent. |
| 14 | Developing maritime industry | National | According to the 2020 data by UNCTAD, Türkiye ranks 16th in the world's merchant fleet with a total capacity of 28,090,402 DWTs. Climbing from the 24th place to the 16th place in the last 10 years has had positive implications for the development of maritime and port services. |
| 15 | Developing ports | National | The number of ports, which was 60 in 2000, more than doubled to 185 in 2019. In the same period, the biggest increase in port cargo volumes was in exports with 389 percent. |
| 16 | Container transport is the fastest-growing mode of transport. | National | In the distribution of the cargo handled at Türkiye ports by cargo type, liquid bulk accounts for 32 percent, dry bulk accounts for 31 percent, containers account for 25 percent, general cargo accounts for 11 percent, and vehicles account for 1 percent. Between 2008 and 2020, the traffic of containers processed at ports showed an annual increase of 7.13 percent in Türkiye, and 3.64 percent around the world. |
| 17 | Containers as strategic regional cargo | Regional | İzmir'in liman hinterlandının yapısına ve dünyadaki eğilime uygun olduğundan, İzmir için stratejik yük konteynerdir. İzmir'de limanların özellikle konteyner taşımacılığında ulusal ve uluslararası rekabette güçlendirecek adımlara ihtiyaç vardır. |
| 18 | The decreasing share of the ports of İzmir in Türkiye's transports | Regional | 1999'da ülkemiz limanlarında elleçlenen konteyner yüklerinin %30'u tek başına TCDD İzmir Limanı tarafından elleçlenirken 2020 yılına gelindiğinde İzmir Bölgesi limanlarının tümünün toplam payı %15'in altında kalmıştır. |
| 19 | Shift to ports in Marmara and Mersin | Regional | Marmara Bölgesi'nde yoğunlaşan yeni nesil limanlar Ege Bölgesi yüklerinin Marmara'ya kaymasına sebep olmuştur. İzmir yükleri için Marmara Limanları ile birlikte Mersin Limanı da önemli bir rakiptir. |
| 20 | Differentiating-converging elements in regional ports | Regional | The TCDD Port of İzmir is still the most dominant port of the region in terms of export cargo. Meanwhile, the ports of Aliağa stand out in terms of import cargo. The dominant market is Northern Europe for the ports of Aliağa, and the Mediterranean for the TCDD Port of İzmir. There are no significant characteristic differences between the ships approaching the TCDD Port of İzmir and the ports of Aliağa. All ports in İzmir are located within the gulf, and therefore serve as natural ports. |
| 21 | Railway connection and logistics infrastructure requirements | Regional | The structure of ports and their adaptability to change are essential for the purpose of serving as a supply and logistics center. Freight villages are the most critical investment elements for directly increasing the handling capacity of the ports. While the TCDD Port of İzmir and Nempot have a railway connection, the other two container ports do not have this connection. |
| 22 | BRI and its potential to affect the region | Regional | China's Belt and Road Initiative (BRI) is strategically significant in positioning İzmir as a suitable destination for import cargoes. |
| 23 | Clustering and collaboration | Regional | Although there is no shortage of port capacity in İzmir, the ports in the region do not operate within a cluster. |

CHAPTER 3.

Development Perspective

Holistic evaluation of the trends in Türkiye and the world and the findings regarding the ports of İzmir reveals the need for intervention in four basic areas to increase the attractiveness of the port city of İzmir in terms of maritime transport and port services. These areas of intervention are:

- Revival of the TCDD Port of İzmir,
- Strengthening the ports of Aliağa,
- Wind Power Specialization of the Port of Çandarlı,
- Creation of the İzmir Port Authority.

The framework for these interventions, which concerns both regional and national policies, is discussed in detail in the following sections.

3.1. PERSPECTIVE 1:

Revival of the TCDD Port of İzmir

3.1.1. Background

The significance of the TCDD (State Railways of the Republic of Türkiye) port of İzmir remains high despite its investment needs, and its ability to respond quickly to container development as the flagship port of the region constitutes the background of the perspective.

A port that remains vital despite its investment needs

The TCDD Port of İzmir, which commenced its operations in 1954, is the one and only active government port in our country to continue its commercial activities with all types of cargo. The port was the second-largest cargo handling port in Türkiye in the 1980s. Having solely handled 43 percent of our country's cargo in 1998, the handling share of the TCDD Port of İzmir has now decreased to 13 percent.

FIGURE 8. Construction of the TCDD Port of İzmir

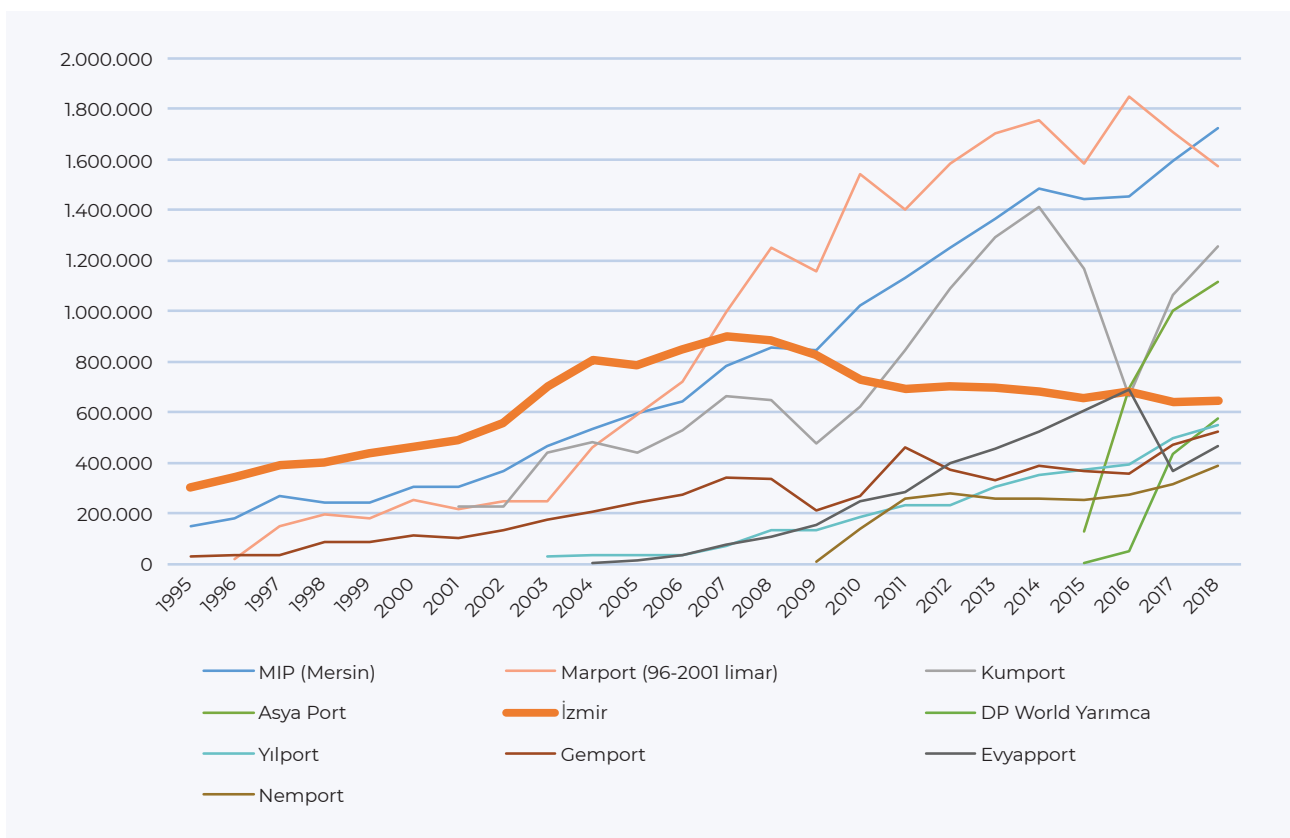


Source: İzmirMag – Bir Zamanlar İzmir (Once Upon a Time in İzmir)

Characterized as an export port, the TCDD Port of İzmir stands out with its wide hinterland and railway connection. It is located in a country region with one of the highest levels of cargo traffic. The TCDD Port of İzmir is our country's most important port as its geographical and geomorphological features make it one of the few natural ports in the world, it has a

railway connection leading into the port, and it remains the only public port that can serve all types of cargo (general cargo, dry and liquid bulk cargo, cargo on wheels and containers). It is the leading port of the Aegean region with a 29.81 percent market share (2020) in container cargo, the most strategically significant cargo type in the region.

GRAPH 7. Cargo Development in Container Ports in Türkiye (TEU) (First 10 Ports)



From 1995 to the first cargo loss in 2004, a continuous cargo increase is observed in the cargoes handled at the TCDD Port of İzmir (Graph 7). Between 2004 and 2005, a period that marked the start of cargo losses at the port, \$110 million worth of equipment and infrastructure investments were made to adapt to the growing ship sizes (İZKA, 2019:86). However, the inability to meet the increasing investment needs soon resulted in the loss of cargo and income, as cargoes shifted to the ports in the Marmara region from 2005 to 2018, and to other private ports that were put into service in Aliağa in 2009. Despite all of this, the TCDD Port of İzmir has the ability to create major

resources for both the investors and the regional economy upon swift elimination of its infrastructure, superstructure and equipment deficiencies.

The TCDD Port of İzmir can create major resources for the regional economy upon swift elimination of its infrastructure, superstructure and equipment deficiencies

3.1.2. Approach

Today, ports face the pressure of lines with intense demand and competition as they strive to develop their infrastructure, superstructure and equipment.

Based on the features mentioned in the background, the first thing that must be done to strengthen the advantageous position of the TCDD Port of İzmir and to expand the market by increasing İzmir's total cargo is to create a new operating model for the port. The

goal should be to adopt a new operating model to increase the operational and managerial efficiency of the port, which is owned by the Türkiye Wealth Fund and operated by Turkish State Railways (TCDD).

The necessary steps to revive the TCDD Port of İzmir can be explained under five main headings (İZKA, 2019: 73–74).

FIGURE 9. View of the TCDD Port of İzmir



Dredging the Gulf of İzmir Approach Canal and Maneuvering Room,

Today, the TCDD Port of İzmir is unable to serve the next generation of ships due to insufficient water depth. The Port of İzmir Operation Plan envisages a two-stage dredging process. The proposal includes deepening the port to -14 meters in the first stage, and dredging at -16 meters in the second stage. An extensive feasibility study was carried out in 2011 for the planned dredging and filling works. The study was accepted by the TCDD General Directorate, and was examined and approved by the now-abolished Ministry of Development.

Working with an average calculation based on metric tons per centimeter (TPC), if the approach canal is deepened by 150 centimeters, an additional cargo increase of 12,000 metric tons (665 containers) can be achieved per ship in terms of the average European ship sizes. This cargo increase can bring a significant cost advantage for the shipowners and directly contribute to the port's attractiveness.

Completing the Second Part of the Filling Works and Commissioning the New Dock for the TCDD Port of İzmir

The biggest bottleneck of the ports in the region is insufficient hinterland sizes. Many activities that should take place at the port are carried out in areas outside the port due to insufficient hinterland sizes. The CFS (Container Freight Station) port services, which consist of transferring the container to the container freight station area, unloading the cargo with a stevedore or forklift and loading it onto the vehicle, create additional costs for port users when operations such as storage, warehousing and container washing and repair are carried out outside the port area. Containers that should remain in the port are transported outside and then taken back to the port, negatively affecting the urban traffic.

To prevent these circumstances, the plan suggests completing the unfinished filling of the port area to be allocated to container cargo and building a new dock in front of the filled area. Planned as a container terminal, the new area will boost the port's efficiency and productivity by solving the lack of a hinterland.

FIGURE 10. TCDD Port of İzmir General Layout Plan



Dock Arrangements (Moving Docks No. 10–19 towards the Sea)

The existing docks at the port are insufficient to serve the next generation of ships. Additionally, their poor condition offers little resistance against vertical and horizontal forces. That is why the operation plan suggests relocating the docks to serve larger ships and to improve the use of high-capacity cranes.

Reorganizing the Warehouse Building

The existing warehouse building needs to be reorganized for the remaining general cargo at the port. One of the most basic functions of ports, which serve as logistics centers in their own right, is to provide safe and secure storage facilities for the cargoes arriving at the port. Accordingly, reorganizing the existing warehouse building will increase the amount of general cargo processed at the port.

Eliminating the Port's Equipment Deficiencies

The equipment investment for the TCDD Port of İzmir should be discussed under two main headings. The first is the modernization of the existing equipment. The modernization of the port equipment, which lags behind today's technological developments, will ensure efficient operation and reduce operating costs. The second is the equipment investment for the capacity increase required to meet the rising demand. The modernization of the port's existing equipment will not be enough to meet the increasing cargo volume on its own. The amount of equipment will also need to be increased.

The TCDD Port of İzmir has the ability to create major resources for the investors upon elimination of its infrastructure, superstructure and equipment deficiencies.



3.2. PERSPECTIVE 2: Strengthening the Ports of Aliğa

3.2.1. Background

The background for strengthening the ports of Aliğa consists of the ports' connections with each other and the industry, the problems encountered in logistics and back area transport despite the region's performance in container development, and the lack of synergy between the actors.

Industry-Integrated Ports in the Same Gulf

As one of our country's leading regions in petroleum and its derivatives, Aliğa is a major cargo center that serves various industries. Sharing the same hinterland with the TCDD Port of İzmir, the ports of Aliğa has the capacity to serve container ships and many other cargo types (Figure 10).

FIGURE 11. View of Aliğa Nemrut Bay



Consisting entirely of privately owned ports, the Aliğa port district has a share of approximately 85 percent in İzmir's total cargo handling volume with 69 million metric tons.

Aliağa is home to industrial establishments of national importance. Seventeen factories operated by Türkiye Petroleum Refineries Inc. (TÜPRAŞ), Petkim Petrochemicals Inc. and SOCAR Türkiye, Star Refinery, ship-breaking facilities, power plants, paper mills, fertilizer industry, iron-steel plants, rolling mills, Nemrut ports and logistics companies carry out their operations in this region. Starting from 2009,

ports have been established for the needs of industrial establishments, and the region has developed rapidly following initiatives made to serve third parties. Consisting entirely of privately owned ports, the Aliağa port district has a share of approximately 85 percent in İzmir's total cargo-handling volume of 69 million metric tons (Table 18).

TABLE 18. Performance of the Ports of İzmir by Cargo Type, 2020 (metric tons)

| Port Authority | Dry Bulk | General Cargo | Liquid Bulk | Container | Total |
|----------------|------------|---------------|-------------|------------|------------|
| İzmir | 3,875,261 | 403,570 | 394,181 | 4,717,000 | 9,390,012 |
| Aliağa | 14,826,307 | 10,591,534 | 32,105,943 | 11,422,217 | 68,946,001 |
| Dikili | 389,012 | 104,430 | 4,575 | - | 498,017 |
| Çeşme | - | 7,188 | 22,860 | - | 30,048 |

Source: Ministry of Transport and Infrastructure, General Directorate of Maritime Affairs

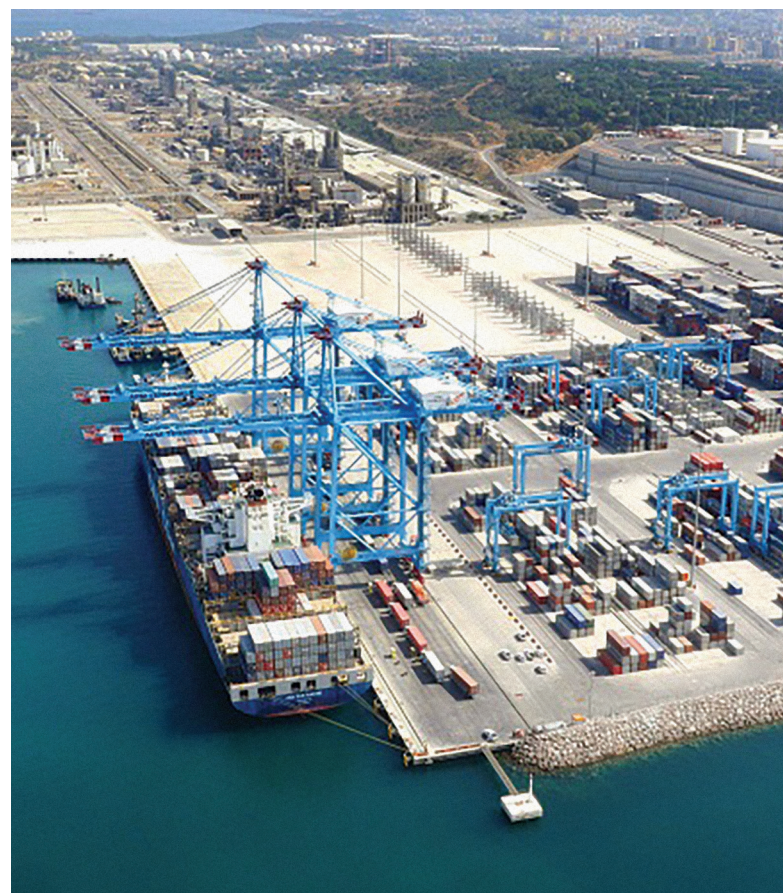
Aliağa is a port district that can handle almost any type of cargo. The main features of the ports are summarized below.

TABLE 19. Information on the Ports of Aliağa

| No | Port | Status | Cargo Type | Notes |
|----|--------------------|--------------|--|---|
| 1 | SOCAR Terminal | Service port | Container, liquid and dry bulk cargo, general cargo, project cargo | <ul style="list-style-type: none"> ▶ Boasts Aliağa's highest loading and unloading capacity. ▶ 1.5-Million-TEU handling capacity. |
| 2 | Nemport | Service port | Container, dry bulk cargo, general cargo, project cargo | <ul style="list-style-type: none"> ▶ The first private port in İzmir. Commissioned in 2009. ▶ Location with sea-level difference ▶ Railway connection line established with port facilities. |
| 3 | TCEEĞE – Ege Gübre | Service port | Container, liquid and dry bulk cargo, general cargo, project cargo | <ul style="list-style-type: none"> ▶ The corporate structure formed by the merger of TCEEĞE, which serves container cargo, and Ege Fertilizer, which serves general cargo and bulk cargo. |

| No | Port | Status | Cargo Type | Notes |
|----|----------------------------|---------------------|---|---|
| 4 | Batı Liman | Service port | Liquid and dry bulk cargo, general cargo, project cargo | ► Serves third-party cargo as well as cement and clinker cargoes of Batı Çimento. |
| 5 | İzmir Iron and Steel (İDÇ) | Service port | Dry bulk cargo, general cargo | ► Serves third-party cargoes as well as İDÇ cargoes such as scrap iron, rebar and coal. |
| 6 | HABAŞ | Inland service port | Liquid bulk cargo, general cargo | ► Serves only its own cargo. |
| 7 | Ege Çelik | Inland service port | General cargo | |
| 8 | Socar Star Rafinerisi | Inland service port | Liquid bulk cargo | |
| 9 | Total Dolum Tesisleri | Inland service port | Liquid bulk cargo | |
| 10 | TÜPRAŞ | Inland service port | Liquid bulk cargo | |
| 11 | Milangaz | Inland service port | Liquid bulk cargo | |
| 12 | Alpet | Inland service port | Liquid bulk cargo | |

FIGURE 12. Views of Nempont and SOCAR Terminal



Source: The official websites of the ports

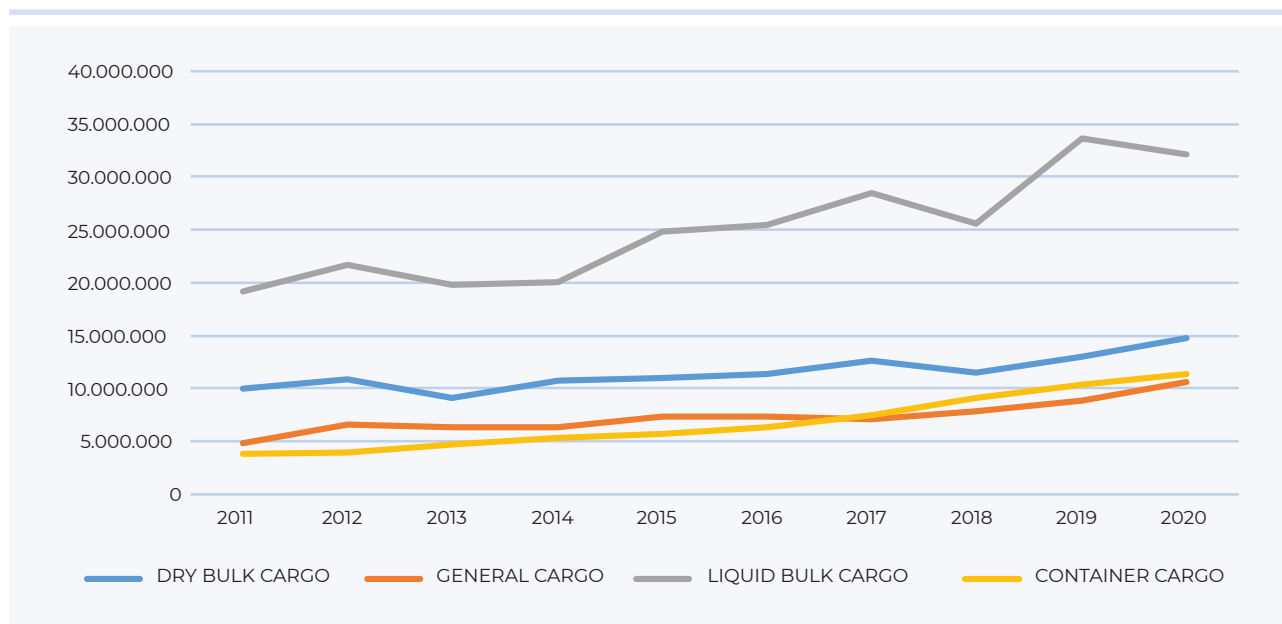
Fastest Development in Containers, with the Lion's Share in Liquid Bulk Cargo

The ports of Aliğa stand out primarily in liquid bulk cargoes, handling almost the entire volume in İzmir. As of 2020, the ports have handled 14.8 million metric tons of solid bulk cargo, 10.6 million metric tons of general cargo, 32.1 million metric tons of liquid bulk cargo and 11.4 million metric tons of container cargo (Graph 8). The performance in liquid bulk cargoes is a result of the region's industrial landscape, primarily

in relation to petroleum and its derivatives.

The biggest increase in the 2011–2020 period was observed in container cargoes. In this period, solid bulk cargoes increased by 48 percent, liquid bulk cargoes increased by 67 percent, general cargoes increased by 119 percent and container cargoes increased by 198 percent.

GRAPH 8. Cargo Development in Aliğa by Cargo Type, 2011–2020 (metric tons)



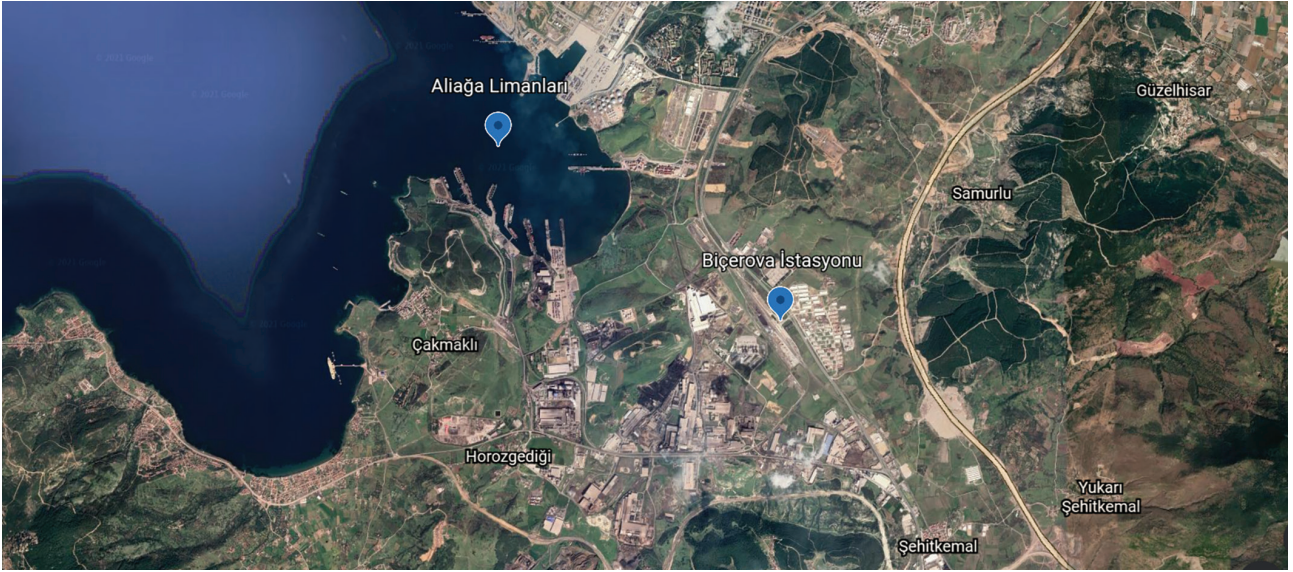
Source: Ministry of Transport and Infrastructure, General Directorate of Maritime Affairs

Limited Logistics Opportunities and Problems in Hinterland Transport...

the ports of Aliğa were established individually at different times and their capacities have increased over time, the region's transport issues are now more prominent than ever. The physical conditions of the port transport network are insufficient and steps that must be taken to plan the improvement and expansion of the port areas.

Since a planned road network has not been developed in line with the region's rapid port development, the ports lack a network that can respond well to heavy vehicle traffic (Figure 13). There are problems in

the dimensions of road routes, road widths and floor coverings. The solution to these problems requires financial investments by the public or private sector, as well as coordination and lobbying work within different institutions and organizations (ministries local administrations, etc.). Since the roads are used by both the ports and by other production facilities and rolling mills in the region, all stakeholders must be involved in the process. Additionally, the presence of an archaeological site, properties of different types, a security zone and similar restrictions in the region complicates the feasibility of the planning studies.

FIGURE 13. Aliağa Port Area and Its Hinterland

Source: Google Earth

The region's largest infrastructure for road transport and logistics consists of the Northern Aegean Highway completed in 2019, and the Biçerova Terminal operating since 2010. Established with the Build-Operate-Transfer model, the Northern Aegean Highway has strengthened the connection between Aliağa and İzmir's city center and the surrounding provinces, significantly alleviating heavy traffic. Stakeholders claim that measures such as tariff adjustments are needed to encourage greater use of the highway.

The Biçerova Terminal right behind the Nemrut Bay is used extensively by the region's ports for railway transport. However, the movements of freight trains are somewhat restricted due to the intense İZBAN suburban services on the same line. Thanks to the railway line connecting directly to Manisa, Aydın, Denizli, Afyon and Kemalpaşa (İzmir), the regional economy is provided with environmentally friendly and reliable transport opportunities.

Regarding the port-railway connection, only Nempport has a branch line established by its own means, while other ports lack this opportunity. Since the hinterland storage facilities are not sufficient, lines or cargo owners acquire their own warehouses by way of leasing.

Lack of Synergy Between the Port District Actors...

Field studies and focus group discussions revealed that the lack of collaboration between the ports of Aliağa located in Nemrut Bay. However, such collaboration model would be beneficial. Although it is accepted that more collaboration will contribute to the development of the ports, the reasons for lack of collaboration were cited as port activities having their own market dynamics, port operators being self-employed and independent enterprises, and the relations between ports being more competition-oriented. In addition to the examples abroad, a good example of this model is ALTAŞ Ambarlı Port Facilities Trade Inc., a company established at the port of Ambarlı for requirements such as general management, infrastructure and planning at the areas shared by four different terminals. Another issue that stood out was the importance of adopting a positive approach among senior management for the purpose of effective collaboration. It was stated that individual and divisive approaches resulted in inefficiencies and inadequacies while solving the problems. It was observed that the development of port and logistics knowledge and expertise is essential for the port ecosystem; not only for the ports, but also for the other institutions and organizations.

3.2.2. Approach

In light of the background elements discussed extensively above, two critical matters stand out for the development of the ports of Aliğa.

Making infrastructure investments that will increase the competitive power of the Aliğa port area

Infrastructure deficiencies at the ports of Aliğa stand out primarily in terms of highways and connection roads in the hinterland. Adapting the transport infrastructure to port functions and production capacity, strengthening the region's rail and road logistics capabilities, and increasing storage facilities are critical issues for the development of the region's ports. Focusing on these aspects and requirements necessitates providing information support to the relevant institutions and organizations, particularly the local administrations. A hinterland analysis and simulation study should be carried out for this purpose. To serve this end, the conditions that will enable the region's ports to provide healthy services in accordance with the theoretical capacities and the nature of the cargoes they serve should be determined, and data-based results should be produced for the required investments and planning efforts.

The plan suggests supporting the development of ports with a governance model for enhanced strategic collaboration and communication based on a "cluster" approach

In Aliğa, a multi-actor and multidimensional production area home to ports established and operated by the private sector and critical industrial establishments in the same gulf, communication and collaboration between actors stand out as major factors for the region's competitive power. In addition to increasing the physical and technical infrastructure capabilities required by the region for more competitive power, development of the collaboration capacity is

also crucial. The synergy that will be achieved with the development of the collaboration environment and capacity will contribute to the performance of works with a collective effort towards solving common issues, and the adoption of holistic approaches instead of individual ones. These approaches become necessary due to specific background issues, such as roads, highway tolls, zoning planning, and the improvement and expansion of port areas. They also enable much healthier performance of the lobbying works required by such port clusters, and the activities for the promotion of the region.

Accordingly, it is essential to support the development of ports with a governance model for enhanced strategic collaboration and communication based on a "cluster" approach. Studies that can be carried out in this regard include developing the clustering capacities of port administrations and umbrella organizations, performing the cluster analysis of the regional ecosystem, and developing platforms for building trust where the relevant stakeholders will come together. The newer ports in the region and the flexibility of the private sector stand out as positive factors for the potential of success.

Studies on this subject are available in the related literature. According to De Langen (2004), who examined the port clusters of Rotterdam (the Netherlands), Durban (South Africa), and Lower Mississippi (the United States), trust is the most critical component of the cluster approach. Building trust should be the main purpose of these practices. For instance, a "youth round table" now takes place regularly in Rotterdam, as young port professionals meet six times a year and discuss common themes to develop the "community spirit." The goals of this initiative include raising the awareness of these professionals for common themes, and preparing them for participation in the studies related to organizations that support common interests, and associations in particular.

There is no doubt that their presence in the same region and the same hinterland prioritizes competition

for the region's ports. De Langen (2004) underlines that competition within the port cluster has a positive effect on cluster performance. Low switching costs between ports in the same region prevents monopoly pricing, while internal competition also supports cluster firms' specialization and innovation efforts.

During the field studies carried out in Aliağa, it was determined that the port actors in the region do not come together regularly on almost any platform. Even though the ports are aware of this requirement, no action has been taken regarding it. Studies in this context should be carried out primarily with the three

ports working on container handling, the region's developing cargo type, and then strengthened with other port authorities, local administrations, district governorships, TCDD, highways, customs directorates, chambers of shipping involved in the port ecosystem. Such development efforts in the region will contribute to the development of joint projects, benefits from funding sources, the division of labor and specialization, joint management, and innovation. Below is a broad classification of the activities proposed for port clusters.

TABLE 20. 5 Basic Activities in the Port Cluster

| Cargo Handling | Transportation | Logistics | Production | Trade |
|---|--|---|---|--|
| <ul style="list-style-type: none"> ▶ Loading-unloading personnel ▶ Stevedore providers ▶ Railway terminals ▶ Pilotage and towage ▶ Storage ▶ Port engineering | <ul style="list-style-type: none"> ▶ Maritime companies ▶ Transport companies ▶ Ship suppliers ▶ Ship agents ▶ Freight forwarders ▶ Maritime and transport services ▶ Ship maintenance and repair | <ul style="list-style-type: none"> ▶ Logistics service providers ▶ Storage ▶ Logistics consultancy ▶ Value-added services | <ul style="list-style-type: none"> ▶ Production activities ▶ Production-related supply services | <ul style="list-style-type: none"> ▶ Import-export companies ▶ Trade centers ▶ Trade auctions |

Source: De Langen, P.,W. (2001) in Esmer, S.

Ports that operate in clusters within a strong collaboration model and adopt a pre-competitive collaboration approach can gain major competitive advantages. Strengthening the ports of Aliağa requires prioritizing the implementation of practices that will support geographical coexistence with a cooperation model and turn this into a competitive advantage. The first step in this direction could be the establishment of a "Ports of Aliağa Working Group" consisting of port professionals. The Aliağa Branch

of the Chamber of Shipping can lead to the establishment and coordination of this group as the umbrella organization of the region.

Trust is the most critical component of the cluster approach. Building trust should be the primary purpose.

3.3. PERSPECTIVE 3:

Wind Power Specialization of the Port of Çandarlı

3.3.1. Background

The perspective proposal for the Port of Çandarlı comprises three critical determinations that constitute the background of the current status of the port and port-related issues. Changing conditions, the container-handling capacity of the region, and the developing wind power equipment production industry in the North Aegean are worth mentioning for the course of this major port project. Growing wind turbines and the corresponding special logistics requirements are factors that should be considered for sector-specific specialization.

A Major Port Project in the Midst of Changing Conditions

The site selection of the port of Çandarlı (North Aegean), which is expected to be the largest port in Türkiye, was made in 2003, and the port's construction was started in 2011. It currently has a 1,500-meter-long breakwater, and no other construction works have been carried out for the port to date (Figure 14). Designed to serve container-oriented and transshipment cargoes, the port of Çandarlı is expected to reach a capacity of 2 million TEUs/year with a 1,000-meter dock in the first stage, and a capacity of 4 million TEUs/year with a 2,000-meter dock by 2035.

FIGURE 14. View of the Port of Çandarlı



High initial investment costs due to the determined capacity and the relevant investments, a long construction period, cargo shift to the existing ports in the region and rapid port developments in Greece and Aliğa are some of the factors delaying the commissioning of the port project despite the completion of all tender processes. This requires updating the physical and economic aspects of the development scenarios created for the port of Çandarlı, and reconsidering them from an innovative perspective.

The Region Does Not Require the Port of Çandarlı for Container Cargoes

During the planning process of the port of Çandarlı, there was no second port serving container cargoes in the region apart from the TCDD Port of İzmir. However, the number of ports in the region serving container cargoes has increased to four over time, and transit cargoes have been redirected to these new ports, especially to the Port of Piraeus of Athens, with the investments made by the lines. These developments affect target cargo type, capacity and demand forecasts.

The ports in İzmir comprise approximately 16 percent (3.2 million TEU/year) of the total container-handling capacity of the ports in Türkiye (19.6 million TEUs/year) (Table 21).

TABLE 21. Container Ship and Handling Capacity⁸

| Port Authority | Capacity (TEU) | | |
|---------------------------------|----------------|-------------------|-------------------|
| | Ship | Handling | Storage |
| Ports of İzmir and Aliğa | | | |
| Aliğa | 1,984 | 1,535,565 | 2,079,855 |
| İzmir | 1,577 | 1,083,404 | 1,099,214 |
| Total | 3,561 | 2,618,969 | 3,179,070 |
| Türkiye | | | |
| Total | 24,620 | 18,015,131 | 19,629,665 |

Kaynak: İZKA, 2021b

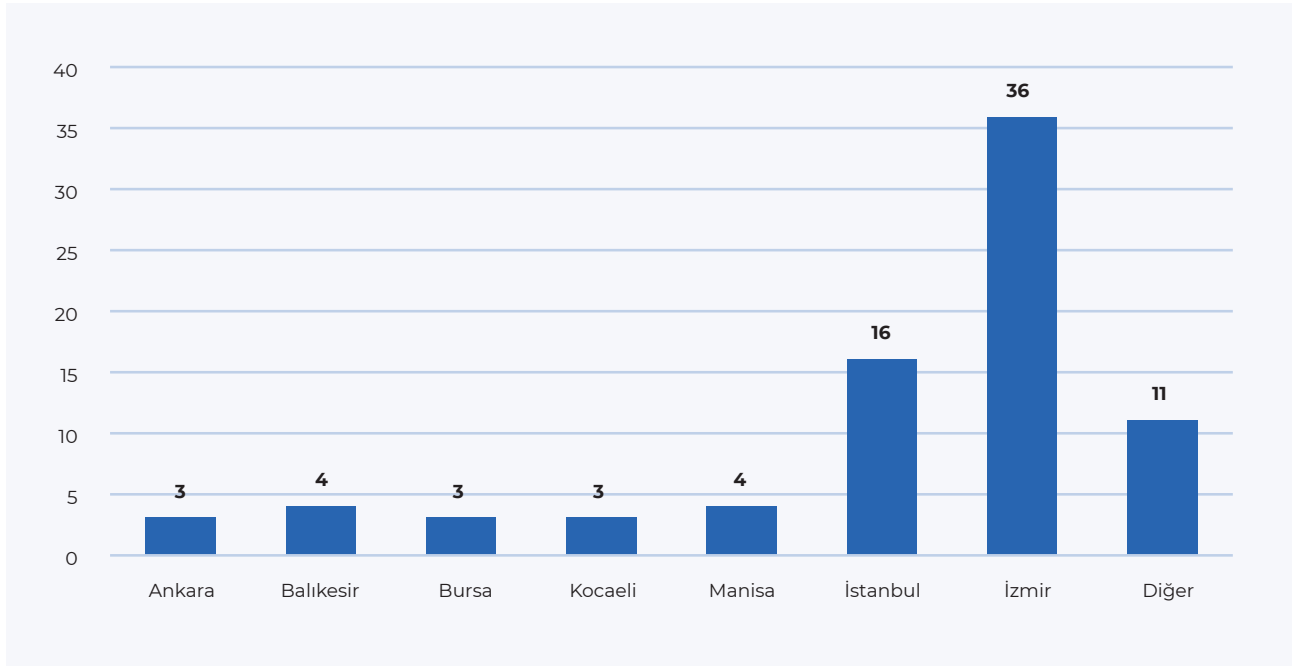
As of 2020, the ports of İzmir have handled 1,783,605 TEUs of container cargo (TCDD Port of İzmir and ports of Aliğa). The total capacity utilization rate of the ports of İzmir reached 56 percent in 2020. The usable capacity of the ports corresponds to 75 percent of the theoretical capacity, which explains the lack of a local cargo bottleneck in the region in terms of container capacity. However, there is no port in the Aegean region for serving transshipment cargoes. Accordingly, it would be beneficial to not limit the projections with local cargo, but also consider increasing the transit cargoes.

Specialization Opportunity, Developing Wind Power Equipment Production in Northern İzmir

The ports of Türkiye are structured conventionally as they are equipped with different equipment capable of serving many different types of cargo, rather than with ports specialized in one type of cargo. However, the most successful ports around the world tend to be specialized. Specialization-oriented structures will support the competitive power of Türkiye's ports in the Mediterranean and Black Sea markets (İZKA, 2021a). It would be helpful to consider specialization in the new scenarios that will be created for the port of Çandarlı.

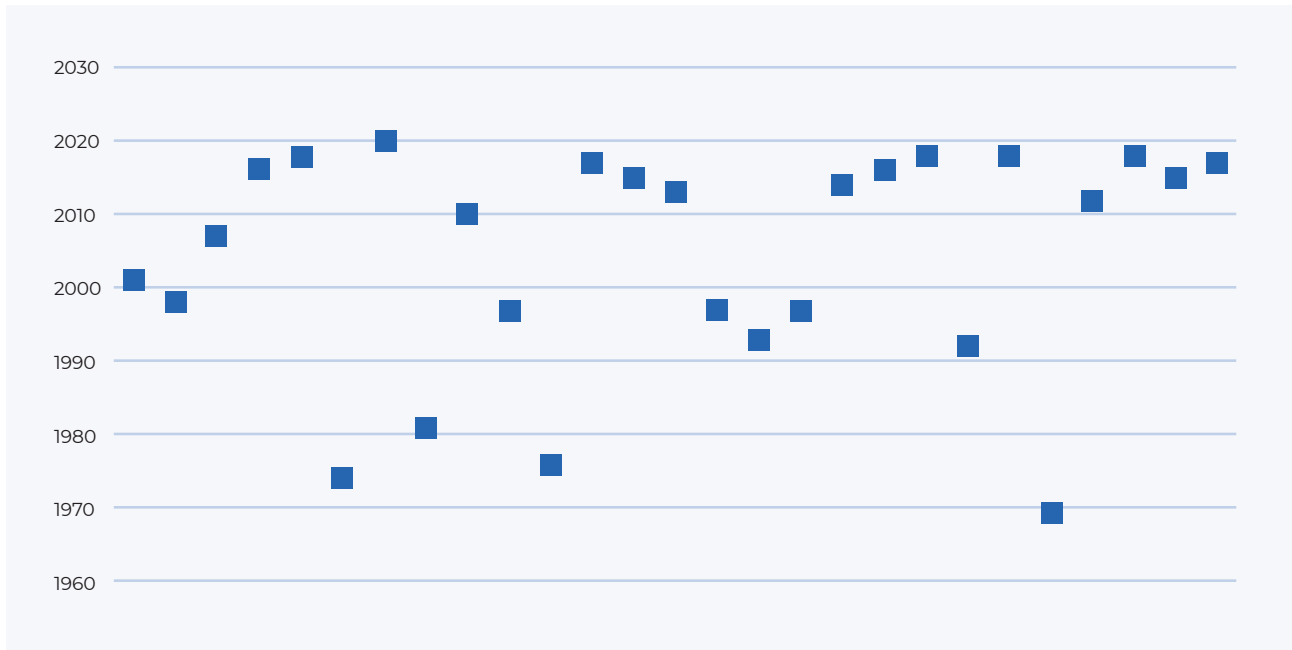
Looking at Northern İzmir, the region of the Port of Çandarlı, we can see that the wind power equipment production industry stands out in the region with its rapid development. İzmir single-handedly houses approximately 20 percent of Türkiye's total WPP installed capacity. Despite its theoretical wind power potential of approximately 12,000 MW, only 15 percent of this figure is currently harvested (Özen, 2021).

In Türkiye, 36 of the 77 companies operating in the wind power industry are located in İzmir. Housing 47 percent of all companies, İzmir has the highest number of companies compared to other provinces (Graph 9). The total employment of companies operating in İzmir is 7,506, which totals 38 percent of the total 19,816 employees in Türkiye's wind power industry.

GRAPH 9. Distribution of Wind Power Industry Companies in the Industry Inventory by Province

Source: İZKA, 2021f: 44

Most of the companies operating in the industry are newer ones, and the number of new companies is increasing rapidly (Graph 10).

GRAPH 10. Distribution of Wind Power Industry Companies in İzmir by Year of Establishment

Source: İZKA, 2021f: 45

Wind power can be sourced from both the land and sea. Both the positive predictions made around the world for the development of onshore and offshore wind power and the speed of the industry's development in İzmir make this industry, which offers added value and needs to utilize special logistics opportunities, one of the key industries for the region. Together with port specialization, this development may create a multiplier effect in the region for both industrial and port development.

The port of Çandarlı being located in a region with a wide industry presence; the strong transport connection provided by the Northern Aegean Highway; the ability to plan the storage and production back areas to ensure suitability for the industry; and the enabling of depth, approach width and other standards are all components of the rationale behind this effort towards specialization. When combined with our country's policies aiming to develop the capacity of offshore wind power as well as terrestrial developments, it becomes even more crucial to transform the port of Çandarlı into a port that can meet the various needs of the wind power industry.

The roles that the ports undertake in offshore wind power may revolve around imports/exports, production, assembly and operation/maintenance depending on the function of the relevant port. The study, which tackles the issue with an international perspective on the port of Çandarlı (COWI, 2021), cites the port's significant advantages as the port's project design status, large back-up areas, ability to offer design flexibility sensitive to the industry's needs, and proximity to potential offshore wind power resources and the existing production facilities in the region.

The comprehensive analyses carried out with the collaboration of the Danish Energy Agency and the Republic of Türkiye Ministry of Energy and Natural Resources state that the port is in a convenient location on the Aegean coast, and the navigation and port conditions are sufficient for the ships participating in installation and component transports. In addition to offshore wind farm installation activities, the ability to implement a terminal design that will facilitate the exports of turbine components from the

hinterland, and the settlement of production facilities together with the port have been identified as major opportunities. The analyses conclude that Çandarlı is among the most prominent port alternatives for offshore wind power (COWI, 2021)

Special Logistics Needs of Growing Wind Turbines Are Increasing

In line with the changing technology and needs, the turbine models produced today are growing in volume and weight due to increasing capacities. The recently introduced onshore wind turbine models reach 6 MW in capacity, while offshore wind turbines achieve 15 MW. Although the technological developments in mechanics and electronics have a role in this capacity increase, the change in the size of the turbine components appears to be more striking.

Wind turbines, which reached a total length of 120–130 meters 10 years ago, have reached 270 meters today (Figure 15). Blade lengths reach 85–90 meters in onshore wind turbines and 120 meters in offshore wind turbines for the purposes of expanding the swept area. As wind intensity and speed increase the higher it climbs above sea level, manufacturers began designing turbines with higher towers. Accordingly, turbine towers reaching 160 meters are now in use.

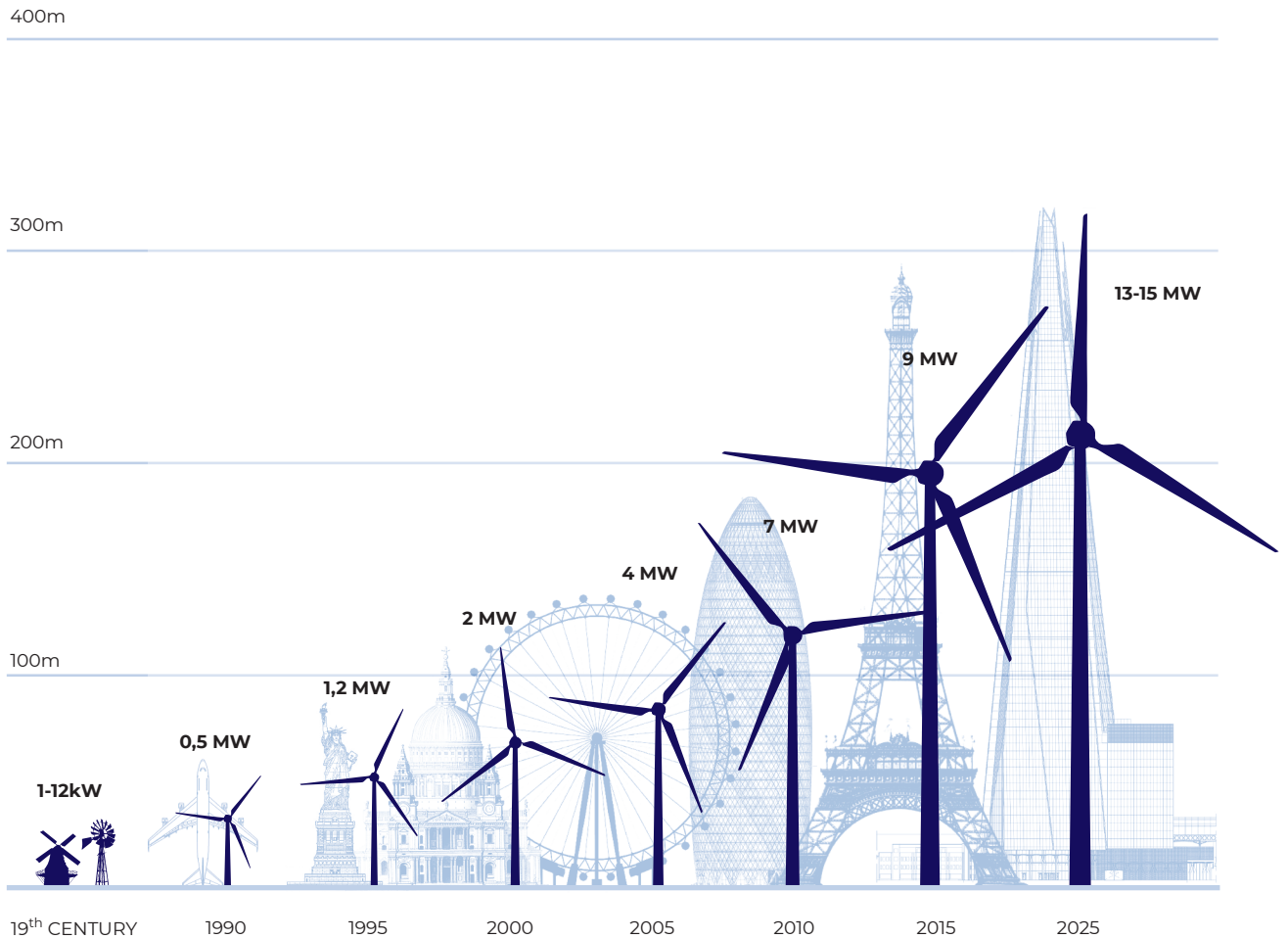
The nacelles of wind turbines can reach a weight of approximately 120 metric tons. The logistics processes of these wind turbine components that come in different shapes and weights cannot be carried out with standard logistics operations, equipment or infrastructure. Accordingly, wind turbine operations around the world are carried out via ports specialized in project cargo transports.

These components are usually produced in manufacturing sites that are either very close or adjacent to ports for the purposes of reducing and facilitating logistics operations. The highway connections of the facilities that are not close to the port area should likewise be suitable for the logistics of the said components. Otherwise, the maneuverability of the vehicles used for logistics operations must be restricted.

In the field meetings held with the wind power equipment manufacturers in İzmir, the turbine manufacturers and suppliers in Bergama, Menemen, Çiğli and other regions of İzmir expressed various problems with the ports they use for both import and export operations. They emphasize the need for a specialized port, particularly for wind turbines and equipment, and the need for integrated solutions with sufficient storage and production areas similar to the international counterparts (İZKA, 2021d).

Established in Aşağıkırklar, Bergama as İzmir's third free zone with the Presidential Decree published in the Official Gazette dated September 8, 2021, the West Anatolian Free Zone (BASBAŞ) is a significant development for the region's production infrastructure and a potential port investment.

FIGURE 15. Historical Development of Wind Turbine Dimensions



Source: Özen, 2021

3.3.2. Approach

Considering the background elements discussed broadly above, it can be said that port specialization underlies the development of the port of Çandarlı.

Specialization on Project Cargo for the Port of Çandarlı, Particularly on Wind Power Equipment Logistics

One thing to consider in the project design for the port of Çandarlı is the wind power equipment production industry, which requires special logistics capabilities. Ensuring logistics specialization for the industry, establishing industrial production areas in port hinterland similar to European ports, and building corresponding production and storage areas should go hand-in-hand with the port's development.

In onshore wind power, ports have a critical role in the supply of raw materials or byproducts required in turbine production and in the transfer of completed wind turbine components. The suitability of ports is directly associated with the suitability of the highways connecting wind turbine component manufacturing facilities and wind farms. Particularly in the exports or imports of blades of up to 85–90 meters in length, some critical parameters that are considered in port evaluation and selection of the port are the width of the highways connecting to the port, the maneuverability of carrier vehicles on intersections, and the permissibility of the obstacles on the road (signboard, overpass, bridge, etc.).

The suitability of storage and pier areas is also crucial for these operations. Due to the length of the dimensions, the handling of turbine components is usually carried out with two cranes in coordination, and loading and unloading operations are more complex compared to the standard tandem handling operations. Export cargoes are transferred to the appropriate storage area before handling, while import cargoes are transferred to the appropriate storage area after handling. Considering the dimensions and weights of the towers and blades in particular, it is imperative that these storage areas have the capacity to handle these cargoes.

As part of the specialization on wind equipment for the port of Çandarlı, the short-term priority is to establish the port-highway connection. Completion of the port's pre-feasibility and feasibility studies in line with the industry's needs, the determination of the operating model, promotion to potential investors, and project design and the phasing of the port construction are some of the ongoing steps.

In the medium-term, plans can be made to make the port more initially suitable for onshore, and then for offshore turbine logistics activities, and to establish Türkiye's first offshore wind farm with production/assembly activities undertaken by the port of Çandarlı.

Offshore wind turbines, which, due to their structural similarities to oil platforms, feature more complex foundations than their onshore equivalents, are predominantly manufactured in the port area and then transported to the sea. A manufacturing area of approximately 200 meters in diameter is required for the production of each platform (İZKA, 2021f).

The production of terrestrial wind turbine blades requires production halls with a length of 80–100 meters, and a width of 20–25 meters. Nacelles are manufactured with factory columns with a carrying capacity of at least 80 metric tons. These standards are set even higher for offshore wind turbines. The production of blades requires production halls with a length of 120–150 meters, and a width of 20–25 meters. The carrying capacity of the factory columns must be at least 120 metric tons for the production of nacelles.

Due to the aforementioned requirements, it is important that the facility designs are not based solely on the surface area, and instead include parameters such as the required width and length dimensions, and the static resistance required to carry heavy-tonnage equipment for the overhead cranes and factory foundations. Today, many equipment manufacturers must make new factory investments in line with their own needs. Often, establishing new investment areas becomes a prerequisite for realizing investments across the industry (İZKA, 2021f). Considering these

issues is critical in terms of developing the port in accordance with the requirements and achieving the desired specialization.

The complementary alternative cargoes for the main development of the port of Çandarlı, where the largest share is expected to come from project cargo, and more specifically from wind power equipment, will contribute to the port's effective and efficient operation. In addition to different types of project

cargoes, options such as the establishment of an LNG terminal and the supply of fuel in the field of energy should be considered. It is believed that green hydrogen plants operating in combination with offshore wind turbines may also provide business for Çandarlı. Solutions related to national policies on increasing transit cargoes in containers should also be considered.

Establishing industrial production areas in port hinterland similar to European ports, and building corresponding production and storage areas should go hand-in-hand with the port's development.





3.4. PERSPECTIVE 4: Creation of the İzmir Port Authority

3.4.1. Background

The perspective for the creation of the İzmir Port Authority is based on the fact that İzmir's port ecosystem is rather large and characterized with intense intra-regional competition, and that port authorities around the world are able to effectively manage the port areas.

A Broad Port Ecosystem Dominated by Regional Competition

The Ports of İzmir consist of the TCDD Port of İzmir, which commenced its operations in 1954 and remains the one and only active government port in our country, and also include ports primarily clustered in the Aliağa region, ports established by the private sector, and ports that became operational after 1960.

Of the 16 ports in the region, four serve the strategically significant container cargoes. These ports are the TCDD Port of İzmir, and the three private ports that started operating in the Aliağa Nemrut Bay after 2009; namely: SOCAR Terminal Port, Nempont port and TCEECE container port.

The Aliağa port district is a region where the infrastructure development cannot keep up with port development and possibilities are limited in terms of road and railway connections and storage areas despite its conveniences, especially in combined transports. High-cost investments in the region, such as railway connections, are made individually by the ports. Aliağa is a region of intense competition between ports.

The region's port ecosystem gives the impression that many units work independently from each other, which results in a lack of win-win situations. Currently, the prominent issues at the macro level are the cargo losses to Marmara, Mersin and İskenderun; region weakening due to the slow progress with the İzmir Kemalpaşa Logistics Center; and the inability to complete the port of Çandarlı in more than 15 years.

Other issues include the fulfillment of Aliağa's road and railway requirements with self-directed investments, an inability to establish an effective sharing and cooperation environment between the ports of İzmir despite common problems and requirements, and the failure to develop adequate lobbying power. These deficiencies necessitate the establishment of a strong and autonomous port authority that will demonstrate the will, cooperation and coordination needed in the regional port ecosystem.

Effective Port Administration with Port Authorities Around the World

In the global maritime industry, "Port Authority" is a concept that defines the administrative and operational management of ports. In many countries such as Italy, Spain, the Netherlands, and the United States, multidimensional issues such as ports, logistics, transports and urban affairs required by the port regions are managed efficiently by port authorities. Port authority refers to private enterprises that are legal entities generally demonstrating public will, defined by private law provisions and authorized with administrative procedures (Verhoeven, 2009). The main task of this authority is to ensure communication between the stakeholders affected by its activities, balance conflicts of interest, and prioritize public interest within the areas of authority and responsibilities.

Different models have been established for the organizational structures of port authorities around the world, as these structures vary depending on the needs of each country and region. Table 22 presents a taxonomy of the organizational structures and functions of port authorities and ports of practice. Although each port has its own idiosyncrasies, that the world's busiest ports are managed with the port authority model is striking.

TABLE 22. Organizational Structures of Port Authorities

| Levels of Management | Member Selection Criteria | Duty | Port Examples |
|---------------------------|---|---|--|
| Supervisory Board | Members are usually elected politicians and representatives of government agencies. Occasionally, experienced persons who do not represent any party may also be selected. Representatives of private companies operating in or out of the port, private company representatives in the port community and port authority employees are also eligible to become board members. The director general of the port authority is usually involved in the supervisory board. | Developing corporate strategies, supervising the port's administration, finances and overall performance. | Rotterdam, Marseille-Fos Port |
| Board of Directors | Profiles of the members of the board chaired by the CEO may vary depending on the port's administration model. The board consists of City Council members in municipality-owned ports. | Its duties include setting port policies and authorizing expenditures. | Rotterdam, Antwerp, Hamburg, Pire, New York & New Jersey |
| Executive Board | Chaired by the CEO, the executive board consists of business relations management, finance, information and communication technology units and port infrastructure and maritime affairs units. | It ensures the execution of the port's daily operations. | Rotterdam |
| Advisory Committee | The committee consists of port community stakeholders, policy and government units and national port commissions. | It carries out planning, follow-up and examination activities for the development of the ports, informs the port administration on research and statistical issues, and examines objections to port service revenues. | Marseille-Fos Port |

The port reform in Italy took place in 1994, bringing along the adoption of the port authority system with a legal regulation that involves 36 of the country's ports. With the Genoa Consortium Law, the ports of Piombino, Gioia Tauro, Salerno, Naples, Palermo, Ravenna, Trieste and Venice have transitioned to the port authority model. Following the transition to the port authority model in 1994, an increase from 3,000 TEUs to 200,000 TEUs was achieved at container ports (Naples, Salerno, Gioia Tauro, Trieste) within three years (Valleri et al., 2006; De Langen, 2004).

The Port of Valencia, one of Spain's busiest ports, is also managed with the port authority model. It received the best port cluster and cluster manager awards in its class by the Global Institute of Logistics (GIL) in 2009. Standing out with its collaborations for innovation, the Port of Valencia has enabled the development of an innovation plan for the logistics community thanks to its strategic collaboration with the Valencian Innovation Agency (Agència Valenciana de la Innovació) established in 2018. One such strong example of the port's unique good practices is the development of an implementation tool for the discovery of innovation priorities for the companies that comprise Valencia's port community during the implementation phase of the plan.

The ports of Rotterdam, Antwerp, Zeebrugge, Ghent and Ostend are also examples of good practices managed with the port authority model. The Flanders Port Cluster, established with the collaboration of regional port authorities, remains one of the world's most profitable and productive collaborations. Established by the cities in the Flemish region of Belgium, the ports of Flanders form a strategic collaboration and cluster structure. The cities of Antwerp, Zeebrugge, Ghent and Ostend, located at an average distance of 100 kilometers from each other, have united their ports in a platform called the Flanders Port Area, and reinforced their competitive advantages with this new cluster. The cluster engages in collaboration with 30 different activities in six strategic areas, such as economic and commercial collaboration, logistics, policy-making and joint decision-making, operational tools, public

support and access to human resources, containing strong ports led by the port of Antwerp, and a strong transport center (Kuş, 2020).

The Port Authority of New York and New Jersey (PANYNJ) is a transport agency operating between the states of New York and New Jersey in the United States. The port authority was established with an agreement between the two states in 1921, and oversees most of the regional transport infrastructure, including all bridges, tunnels, airports and seaports in the geographic area of the port of New York and New Jersey.

3.4.2. Approach

Creation of the Izmir Port Authority for a New Administration Approach That Will Increase the Ports' Competitive Power

Port authority practices, which have become more widely adopted around the world after the 1980s and diversified with different legal and implementation models, define the matters and principles of port administration in terms of ownership, institutionalization and commerce. While the main activities of traditional port authorities previously included developing maritime trade, ensuring service safety for ships and managing, creating and optimizing infrastructure for the port ecosystem, the main activities of port authorities have now been expanded with new functions such as adapting to the changing market environment, serving customers in the best way possible, looking out for public interest, creating various benefits by supporting innovation, and thus diversifying revenues. Today, the port authorities within the expanding port community system, supply chains, and trade and investor networks are expected to act within greater responsibility and jurisdiction according to the needs of the industry and the relevant regions, and make economic, social and environmental contributions to the value chain.

Each port has a unique organizational structure; that is why the efficiency of ports varies depending on their operational goals and governance structures.

Objective indicators used in the evaluation of port efficiency include the operational speed, safety and security approaches of terminals, and the ship & cargo handling and storage capabilities demonstrated depending on physical capacity. However, the critical factor behind these indicators is the port's administration model and governance structure. Increasing strategic alliances and mergers, especially in container transport, manifest themselves in the horizontal and vertical strategic collaboration of ports, the optimization of operations with joint action, especially at ports with close locations, and thus the development of a competitive advantage.

It is observed that İzmir, which is home to one of the country's key port clusters, needs a legal entity that will respond to the governance coordination needs of the ports, especially those serving the strategically significant container cargoes, develop a holistic view of the region and its needs, possess sufficient equipment for maritime transport and port services, and engage in strategic collaboration and joint action. To that end, the transport studies and final report of the specialization commission within the scope of the 11th Development Plan (2019–2023) describes the top priority for the 2023 goals and policies of the maritime industry as follows: *“port investment decisions should be better organized, and a port administration model that is specific to Türkiye should be developed. A structure should be established to coordinate the policies of the maritime industry and allocate the investments.”*

Role and Structure of the İzmir Port Authority:

It is advised that the İzmir Port Authority adopts a legal entity that possesses regional powers and responsibilities in line with regional requirements, manages the region's port infrastructures and areas while prioritizing public interest, coordinates and controls the activities of different operators at the port, and ensures the safety and security of the region's ports.

The structure of the İzmir Port Authority, the establishment of which was proposed in accordance with Article 123 of the Constitution, will constitute

the umbrella mechanism required by the region for port services and maritime transport.

It is recommended that the port authority assumes a regulatory role and serves as the main actor for control, supervision and policy functions. Duties of the İzmir Port Authority may include ensuring the safety and security of the ship and cargo operations at the ports within its jurisdiction, protecting the environment, ensuring the control and safety of dangerous goods, and executing rules and regulations for determining strategic goals in areas such as decarbonization, smart transformation and cyber security. Below is a more detailed description of the model.

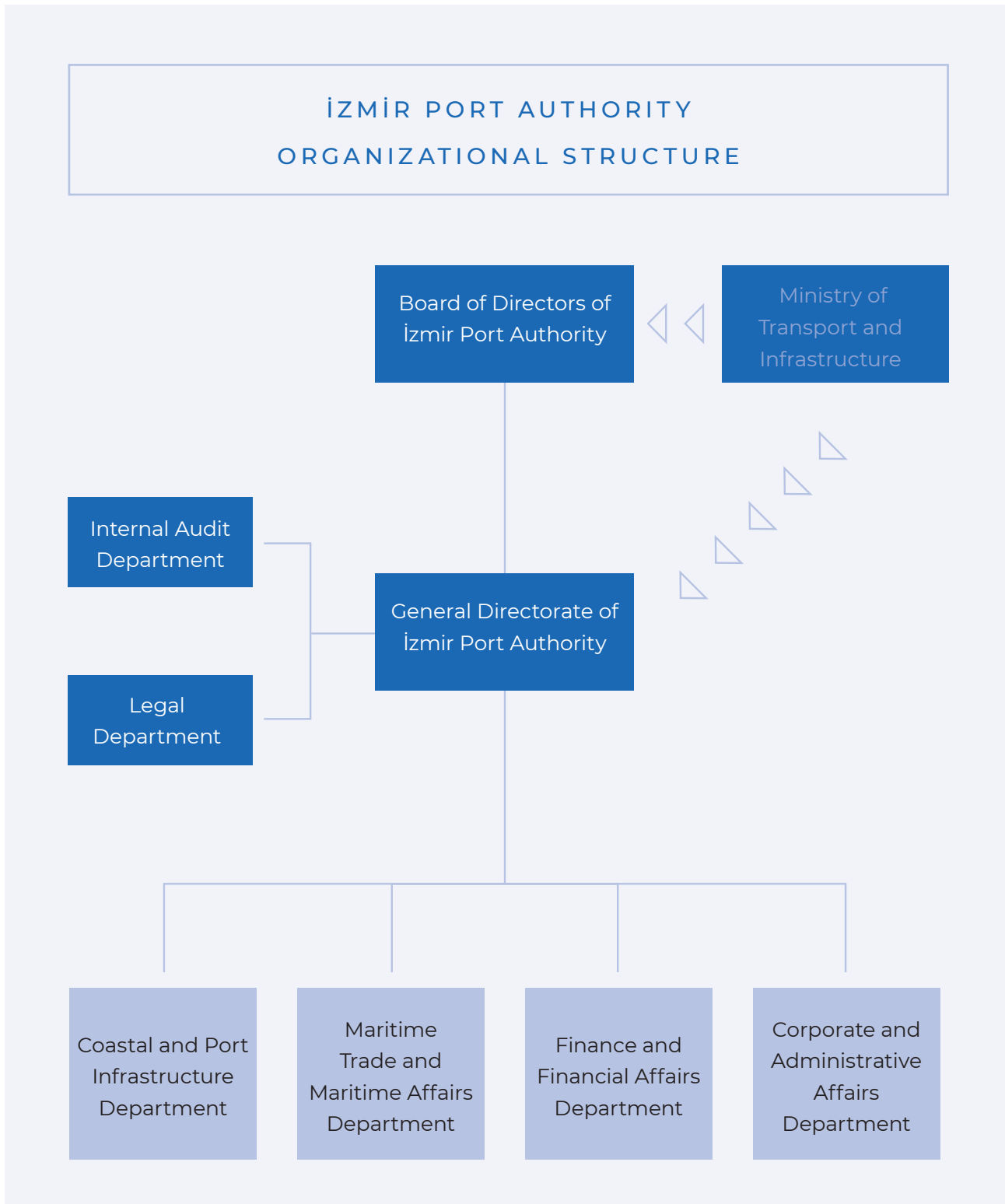
A. Areas of Authority and Responsibilities

- ▶ Assuming the role of creating a regional framework for port administration, determining and monitoring the development needs of the region's ports, and engaging in the necessary communication and follow-up with public institutions to meet these needs;
- ▶ Developing suggestions and approaches regarding marine and coastal land utilization plans for the development of maritime transport and port services, running simulations, informing the institutions and organizations with planning authority;
- ▶ Acting as a business incubator, helping operators improve their services and efficiency, working towards positioning the region as a national and international center of expertise in transport and logistics;
- ▶ Encouraging the development of maritime services and competitive field studies focused on R&D and technology, supporting the growth of the maritime ecosystem;
- ▶ Creating an operation plan for the TCDD Port of İzmir; ensuring the planning of port operations, leases, tariffs and investments; making predictions by considering cargo forecasts and the development of the region's existing ports;
- ▶ Coordinating the operation and investments of the port of Çandarlı, making predictions by considering cargo forecasts and the development of the region's existing ports.

B. Organizational Structure

The proposed organizational, executive and stakeholder structure for healthy operation of the port authority model is shown in Figure 16.

FIGURE 16. Administration Model of the İzmir Port Authority



Accordingly, the İzmir Port Authority may consist of two organs: “Board of Directors” as the decision-making organ, and “General Directorate” as the executive organ.

The Board of Directors of İzmir Port Authority may be the decision-making body of the model, may be chaired by the Governor of İzmir, and may consist of the Mayor of İzmir Metropolitan Municipality or the mayor’s authorized representative, Head of the port of İzmir, Head of the port of Aliğa, and the highest authorized supervisors of the ports handling at least 5 million metric tons of cargo or 200,000 TEUs per year.

It is recommended that the General Directorate of İzmir Port Authority General Directorate is made the main body responsible to the Board of Directors for the execution of board decisions. The General Manager may be appointed by the Ministry of Transport and Infrastructure, and undertake the duties of ensuring that the port authority departments operate in an efficient, organized and compliant manner; writing, protecting and keeping board decisions; issuing reports and conducting correspondence. The General Manager may also perform any similar duties to be assigned by the Head of the Port Authority. It is recommended that the works and services of the General Directorate are carried out by the directorate personnel, and the required qualifications are determined by private law provisions.

It is essential that the General Manager and the directorate personnel have the required academic and professional knowledge and experience in maritime transport and port services.

While no consultative body is proposed for the model, an “İzmir Regional Port Commission” may be established to strengthen governance in maritime studies, and to improve the collaboration and interactions between port community actors in

the region. Established in different names across Europe (the Interport Coordination Council in France, the Committee of Port Planning and Development in Greece, etc.), these commissions promote decision-making and industry collaboration processes. With the regional port commission to be established as part of the İzmir Port Authority model and chaired by the Ministry of Transport and Infrastructure, the goals may include the development of a prototype for regional policy development, and the creation of a pilot scheme for the nationalization of the model.

C. Financial Responsibility and Budget

It is recommended that the İzmir Port Authority should be subjected to special budget provisions and authorized to set its own budget as an independent local administrative authority. Accordingly, the revenues that may constitute the budget of the İzmir Port Authority include:

- ▶ Annual membership fees received from the ports represented in the Board of Directors;
- ▶ Fees for services rendered;
- ▶ Grants and aids;
- ▶ Fees, tariffs and fees arising from the operations and procedures carried out within the areas of authority and responsibilities;
- ▶ Operating income;
- ▶ Resources from the European Union and other international funds.

It is recommended that the İzmir Port Authority, as a public legal entity subject to private law provisions, is subjected to the audit principles and practices for public institutions.

The annual report to be prepared by the General Directorate may be shared with the public based on principles of impartiality and transparency.



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