

Sailing Towards Sustainability via Blue Economy

Unlocking Türkiye's Potential



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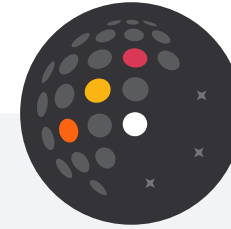
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Foreword

Coastal nations possess a distinct advantage over others by virtue of their proximity to oceans and seas, affording them the opportunity to capitalize on the socioeconomic advantages inherent in these bodies of water. Beyond their aesthetic appeal, oceans and seas not only provide a habitat for marine life but also contribute to the overall well-being and economic prosperity of the societies. The Blue Economy, defined as a holistic and sustainable approach to ocean and sea-based economic activities, enables countries to unlock the potential of their marine resources while ensuring long-term environmental sustainability and fostering inclusive economic growth.

Türkiye, with its extensive coastlines along the Mediterranean, Aegean, Marmara, and Black Sea, stands poised to unlock its vast potential in the Blue Economy.

With abundant marine resources, Türkiye holds promising opportunities across various sectors, including maritime transport, coastal tourism, aquaculture, offshore energy, marine biotechnology, and sustainable fisheries. By capitalizing on these sectors, Türkiye can not only drive economic growth but also foster environmental sustainability, promote responsible resource management, and contribute to the preservation of its coastal ecosystems.

Our “Sailing Towards Sustainability via Blue Economy: Unlocking Türkiye's Potential” report, delves into the concept of the Blue Economy and explores its potential in Türkiye. We examine global initiatives that promote sustainable practices and highlight use cases from around the world. Furthermore, we delve into the realm of blue finance and its role in supporting the growth of the blue economy.

To fully harness the potential of the blue economy in Türkiye, we present a set of policy recommendations for relevant stakeholders. These recommendations include strengthening regulatory frameworks, encouraging research and development, fostering public-private partnerships, promoting education and skill development, enhancing maritime infrastructure, supporting small and medium enterprises, promoting sustainable tourism, strengthening international cooperation, establishing monitoring and evaluation mechanisms, and raising awareness and stakeholder engagement. By implementing these recommendations, Türkiye can pave the way for a vibrant and sustainable blue economy, ensuring the long-term prosperity of its coastal communities and marine ecosystems.

Throughout this article, we also highlight successful initiatives and use cases from countries such as Portugal, Indonesia, and the Maldives, showcasing how they have embraced the blue economy and achieved remarkable progress in various sectors. These examples serve as inspiration and provide valuable insights for Türkiye as it embarks on its own blue economy journey.

The blue economy holds immense potential for Türkiye, and by adopting a comprehensive and sustainable approach, Türkiye can unlock economic opportunities, create jobs, and preserve its marine ecosystems for future generations. It is our hope that this article serves as a valuable resource for policymakers, stakeholders, and individuals interested in the development of the blue economy in Türkiye, and that it inspires collaborative efforts towards a prosperous and sustainable future.



What Do We Mean by Blue Economy?

The blue economy encompasses a comprehensive and sustainable strategy for engaging in economic activities related to oceans and seas, empowering nations to exploit their marine resources responsibly, prioritize long-term environmental preservation, and drive inclusive economic development.

The Blue Economy encompasses a diverse array of sectors and industries, including but not limited to fisheries and aquaculture, maritime transportation, renewable energy, coastal tourism, marine biotechnology, and ocean-based pharmaceuticals. These sectors not only contribute to economic growth and job creation but also promote sustainable practices, technological advancements, and the preservation of marine ecosystems, making the Blue Economy a crucial driver of sectoral and economic development.

According to the United Nations Environment Programme (UNEP), the blue economy generates more than \$1.5 trillion¹ each year, providing support to local communities and their economies. Taking this immense economic value of oceans and seas, the preservation of marine and coastal ecosystems become vital to sustain economic activities. Unfortunately, according to the UNEP, coastal regions, which accommodate 40% of the global population, are confronted with substantial perils arising from pollution and degradation of ecosystems caused by human activities.² This is further substantiated by the fact that approximately 80% of marine pollution originates from sources on land, resulting in detrimental effects on ecosystems and the well-being of nearby communities.³

The combination of human-induced pollution and climate-related pressures lead to the loss of biodiversity, impede the capacity of coastal areas to act as carbon sinks, and undermines their economic value and potential. Plastic pollution, overfishing, acidification, and ocean/sea warming persist as significant threats to marine ecosystems, undermining the ocean and seas' ability to mitigate climate change.

As economies commit for a sustainable economic development, they consider sustainability of the oceans and seas as parts of their growth equation in the face of pollution and biodiversity loss on the coastal areas.

On that point, the "Blue Economy" emerged as a broader term which, according to the World Bank means

“Sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of ocean ecosystem.”⁴

This concept implies boosting jobs and economic prosperity in marine-related sectors while taking care of the environment and preserving the sea and coastal ecosystems.

¹ UNEP. (2024). Ocean, seas and coasts. UNEP. <https://www.unep.org/topics/ocean-seas-and-coasts>

^{2,3} (Ibid.)

⁴ World Bank. (2017). What is the Blue Economy?. <https://www.worldbank.org/en/news/infographic/2017/06/06/blue-economy>

The term “Blue Economy” has evolved beyond its original definition of solely encompassing marine-related economic activities. It now encompasses a wider range of sustainability efforts that combine economic development with the preservation of marine ecosystems. Consequently, the concept of the “blue economy” includes sectors and economic activities that are conducted sustainably, taking into account the well-being of marine ecosystems and biodiversity.

The European Commission includes some of the blue sectors and economic activities within the scope of Blue Economy depending on being “established” and “emerging”, as illustrated along with exemplary activities that are sustainable (Figure 1). Notably, the sectoral classifications may vary across different institutional frameworks and programs depending on their broader objectives and geographical conditions of the location they are based in.

Marine related economic activities encompass a diverse range of sectors including both established ones such as maritime transport and coastal tourism as well as emerging sectors like water desalination, and blue biotechnology. However, it is important to note that not all of these economic activities can be classified as inherently “blue”. Nevertheless, they have the potential to contribute to the “Blue Economy” if conducted responsibly and sustainably.

The blue economy has the potential to expand further in various fields and contain more economic activities, particularly in fisheries and aquaculture, coastal tourism, marine biotechnology, and ocean energy as these sectors will develop in the future through sustainable practices. Some of these sectors will grow naturally with minimal guidance, but others may need more detailed planning and stronger oversight to reach their potential and ensure a more sustainable impact without harming the marine or coastal ecosystems.

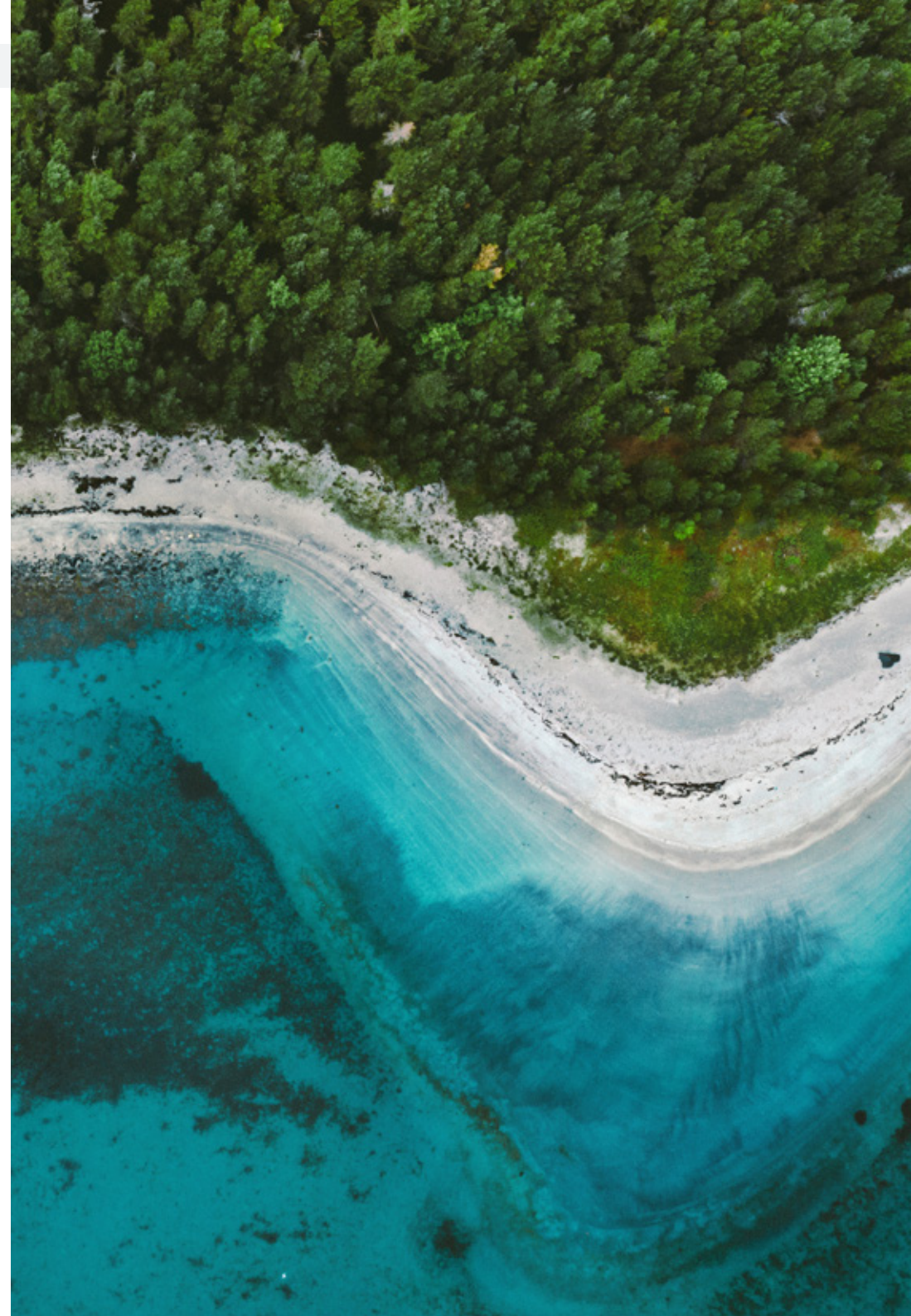


Figure 1 Blue Economy Sectors

Classification of European Commission and Exemplary Blue Economy Activities

Established Sectors

Marine Living Resources: Sustainable fishing practices, aquaculture, and marine conservation initiatives

Marine Non-living Resources: Responsible deep-sea mining practices, sustainable extraction of minerals and metals

Marine Renewable Energy: Setting up off-shore wind turbines and floating solar panels

Port Activities: Implementing eco-friendly port infrastructure and optimizing logistics to reduce emissions

Shipbuilding and Repair: Incorporating green technologies and circular methods in ship construction and repair processes

Maritime Transport: Transitioning to low-emission vessels, and investing in port electrification

Coastal Tourism: Promoting eco-friendly tourism practices

Emerging Sectors

Ocean Energy: Harnessing wave, tidal, and thermal energy to generate electricity

Blue Biotechnology: Developing pharmaceuticals, biomaterials, and enzymes derived from marine organisms while ensuring ecosystem conservation

Desalination: Implementing energy-efficient desalination technologies and minimizing the environmental impact

Maritime Defence, Security and Surveillance: Utilizing sustainable maritime security measures, such as renewable energy-powered surveillance systems

Research and Innovation: Investing in sustainable marine research and innovation to develop solutions for environmental challenges

Infrastructure: Constructing sustainable coastal infrastructure, such as green ports, resilient coastal defenses, and renewable energy installations



Source: European Commission Blue Economy Report 2021, PwC Analysis



Covered with Seas: Blue Economy Outlook of Türkiye

Nestled in a strategically advantageous geographical location, with a sprawling coastline stretching along the Mediterranean, Aegean, Marmara and Black Sea, Türkiye stands poised to unlock its vast potential in the Blue Economy. With its abundant marine resources, the country holds promising opportunities across various sectors, including maritime transport, coastal tourism, aquaculture, offshore energy, marine biotechnology, and sustainable fisheries. By capitalizing on these sectors, Türkiye can not only drive economic growth but also foster environmental sustainability, promote responsible resource management, and contribute to the preservation of its coastal ecosystems.

As an example, to the importance of maritime transport, Türkiye located in a major global shipping corridor. It handles substantial commercial traffic, raw material cargo, and fleet operations through its ports and logistics infrastructure.

The country contributes 0.14% of the world's new ship constructions⁵ and holds a notable share of global new ship orders, positioning itself as a key player in the shipbuilding and dismantling industries. Furthermore, Türkiye's advantageous position is further highlighted by its exceptional potential for coastal tourism, boasting an impressive 589 blue flag sites. This remarkable number positions Türkiye as the third-ranking country in the Mediterranean Sea, trailing only behind Spain with 730 sites and Greece with 620 sites, solidifying its status as an alluring and sought-after destination.

As Türkiye places significant emphasis on facilitating the green transformation across multiple industries that will be affected by Carbon Border Adjustment Mechanism (CBAM), it is crucial to acknowledge that the blue transformation also presents numerous opportunities for reducing emissions, mitigating pollution and coastal degradation, thereby supporting the overall national growth.

⁵ UNCTAD Statistics. Ships built by country of building, annual (2023)



With over 8000 km long coastline, and 28 coastal cities hosting over 47 million residents,⁶ Türkiye has a promising potential for blue economy. To have an estimated account of Türkiye's blue economy potential, the number of registered employees in sectors below are considered as the sectoral breakdown of Social Security Institution⁷ allows;

- Fishing and aquaculture,
- Water collection, treatment and supply,
- Waste collection, treatment and disposal activities; materials recovery,
- Remediation activities and other waste management services,
- Water transport
- Accommodation
- Food and beverage service activities
- Travel agency, tour operator and other reservation service and related activities

It is important to note that these sectors do not align with the established blue economy sector classification of the European Commission. Therefore, the estimation provided for Türkiye shows a descriptive baseline value for the country's blue economy potential.

Additionally, although not explicitly defined in the EU blue sector classification, sectors related to waste management have been included in the sector selection due to their involvement in coastal cleanup activities, which are crucial for Türkiye's ongoing efforts to further develop the blue economy in coastal areas. As of 2022, these above-named sectors collectively employ over 960 thousand registered workers across 28 coastal cities, constituting 8% of the total registered employment along the coastline.

In order to bolster the blue economy in a holistic manner in Türkiye, prominent sectors with a long-standing presence and the newly emerging sectors with promising blue economy potential should be considered simultaneously. By way of illustration, the implementation of efficient waste management practices both on land and at sea would yield long-term benefits, such as the enhancement of fisheries, aquaculture, and coastal tourism. Otherwise, some of the fisheries and aquaculture activities may hinder the coastal tourism opportunities in specific areas.

Figure 2 Main Indicators on Blue Economy Potential on the Turkish Coastline



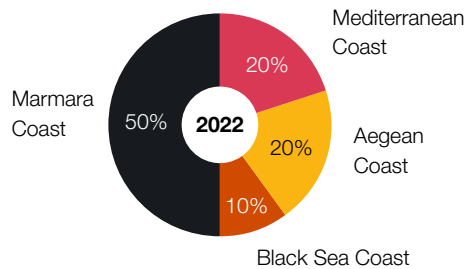
Source: RT Ministry of Environment, Urbanization and Climate Change, TurkStat, Social Security Institution; PwC Analysis

⁶ RT Ministry of Environment, Urbanization and Climate Change. (2024), TurkStat. Regional Statistics (2023)

⁷ Social Security Institution. Statistical Yearbooks (2022)

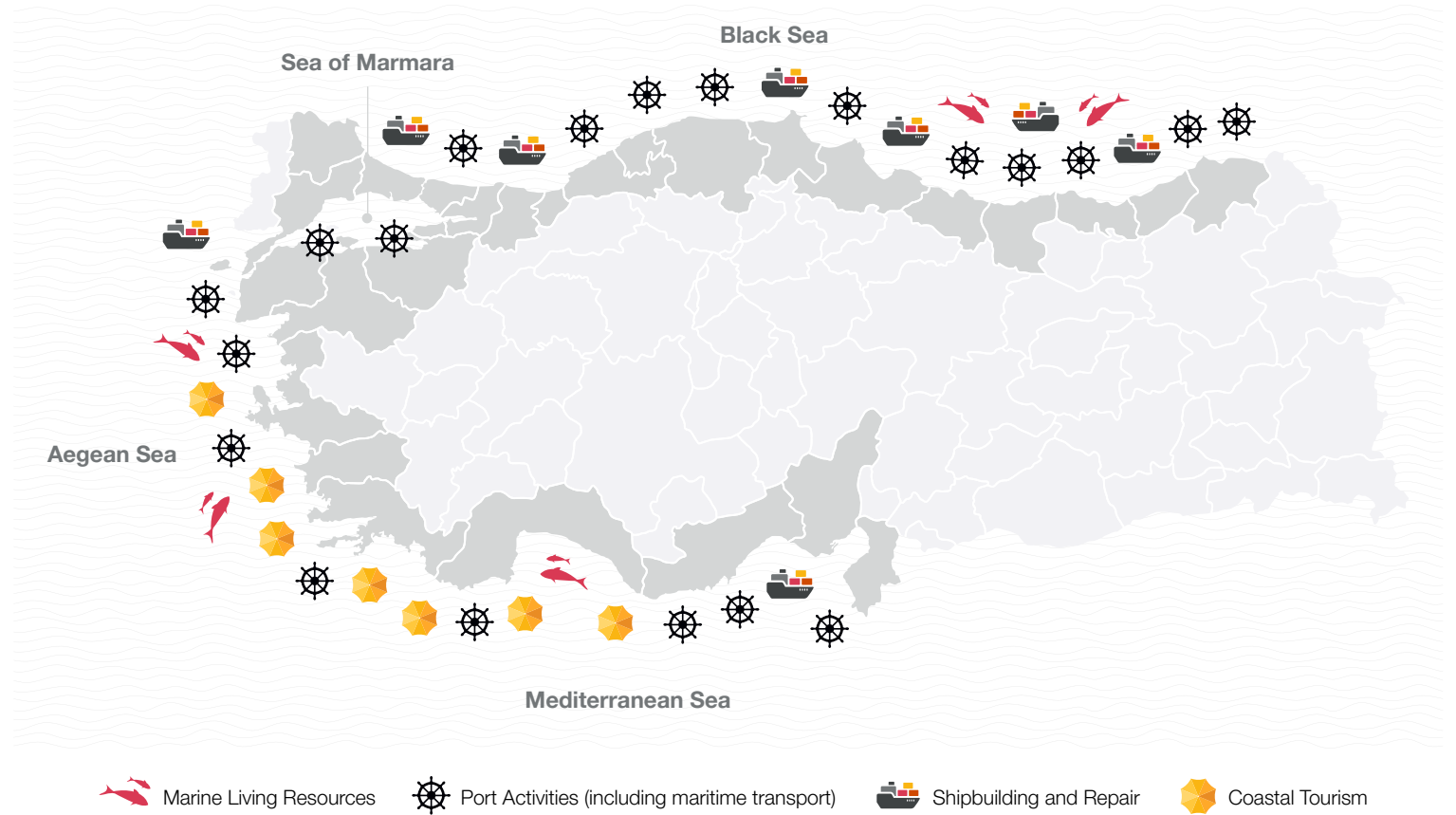
The coastline of Türkiye exhibits a dynamic sectoral outlook, which, if bolstered through strategic investments and blue economy initiatives (i.e., aiming for employment creation and sectoral diversification), is poised to witness a substantial growth in the size of its blue economy over the upcoming years. A preliminary analysis indicates that different coastal regions demonstrate diverse levels of blue economy potential in terms of composition and size. The most prominent sectors on the Mediterranean, Black Sea, Aegean and Marmara coasts are shown as below. Notably, these sectors would be transformed through sustainable conduct of economic activities into high value-added “blue sectors” without causing further coastal degradation.

Figure 3 Regional Breakdown of Registered Workers in Potentially Blue Sectors



Source: Social Security Institution; PwC Analysis

Figure 4 Overview of Coastal Economic Activities



Source: PwC Analysis

Countries like Türkiye possess considerable prospects for blue economic expansion. However, to fully harness this potential, it is imperative to raise awareness, channel substantial investments, and engage in strategic planning. Numerous global use cases show how such initiatives can be successfully implemented and activated.



Major Initiatives Fostering Blue Economy

Efforts to bolster the blue economy are spurred by the pressing need to confront climate change and counter the adverse effects of coastal degradation. The escalating risks posed by rising sea levels, ocean acidification, and the decline of marine ecosystems threaten environmental and economic equilibrium. In response, international organizations, international funding institutions and governments are acknowledging these challenges and taking proactive measures to address them.

The success of the Blue Economy hinges significantly on the awareness and involvement of communities and governments. On that point, PwC's Blue Economy Barometer platform plays a crucial role by consolidating data from various industry sub-sectors within the Blue Economy and conducting comparative analysis of key indicators among different countries. This initiative enables the sharing of data and information, while at the same time raising awareness on different economic activities of the Blue Economy.

Moreover, the platform offers specialized blue training through interactive data, aiming to foster the development of necessary skills for leveraging innovation and rapidly deploying blue technologies, attracting talent and enhancing competitiveness.

Through the cultivation of innovation and investment in marine-related sectors, both governmental and private initiatives are actively working towards stimulating economic growth while safeguarding the long-term well-being and resilience of the oceans, seas and coastal areas. This dual commitment to environmental sustainability and economic development is essential to create a more resilient future in the face of climate challenges. Consequently, the allocation of adequate funding is crucial, as the mobilization of blue finances is imperative to support blue economy related projects and foster the creation of employment opportunities across various regions worldwide.

Blue Finance Initiatives

Blue finance refers to financial mechanisms, instruments, and investments specifically designed to support sustainable economic activities related to oceans, seas, and coastal areas. It encompasses a range of financial tools aimed at promoting the conservation and sustainable use of marine resources, fostering the growth of marine-related industries, and addressing environmental challenges such as pollution and climate change in maritime sectors. Blue finance initiatives may include funding for marine conservation projects, sustainable fisheries, renewable energy projects, coastal infrastructure development, and initiatives to combat marine pollution etc. Overall, blue finance seeks to align financial flows with the principles of environmental sustainability and responsible ocean, sea or coastal area stewardship.

On top of funding from international financial institutions, initiatives in blue finance encompass various mechanisms such as blue bonds, blue carbon offsets, green-blue taxonomies, and financial instruments that channel investments towards marine conservation, sustainable fisheries, and other activities within the blue economy. These efforts mirror the focus on green financing, demonstrating a commitment to promoting sustainable practices and conservation in marine ecosystems.

Some examples of objectives of blue financial initiatives are;

- Assisting innovative start-ups, small and medium-sized enterprises (SMEs), and growing businesses in the blue economy to become investment-ready and gain access to financing.
- Offering technical assistance to governments, investors and companies to navigate pathways.
- Cultivating a community and investment environment to drive the shift towards more sustainable finance and impact investment.

While seas, oceans and marine-related economic activities gain prominence as a key environmental, social, and governance (ESG) theme, blue economy activities present unique investment opportunities for companies and investors. The blue investments on sustainable practices and blue transformation projects are expected to multiply the impact of blue transformation of coastal sectors towards more sustainable economic activities.

Along with increasing interest in blue economy and sustainable practices in coastal sectors, guidance and frameworks over financing blue activities is gaining importance. As the world's first global guiding framework for banks, insurers and investors to finance a sustainable blue economy, the Sustainable Blue Economy Finance Principles outlines fourteen key principles developed by the European Commission, WWF, the World Resources Institute (WRI) and the European Investment Bank (EIB) as part of the Sustainable Blue Economy Finance Initiative to guide investors on environmental compliance, protection of resources and the features of their investments.

The pillars mainly cover preservation of marine ecosystems, compliance with sustainable development frameworks, transparency, and diversification of financial instruments recognizing the importance of small to medium enterprises in the Blue Economy.⁸

As investment in green and blue economy activities and projects continues to grow, the development and implementation of taxonomies have become more important in providing a clearer framework for classifying what qualifies as green or blue activities. These taxonomies aim to streamline the allocation of resources towards a low-carbon economy. By setting clear standards and criteria for sustainable investments, these frameworks offer a transparent and consistent method for identifying eco-friendly projects. This attracts a broader range of investors, including those focused on supporting sustainability. By aligning financial investments with climate and environmental goals, green and blue taxonomies channel funding towards renewable energy, sustainable infrastructure, and climate resilience initiatives.

⁸ United Nations Environment Programme Finance Initiative. (2018). The principles. <https://www.unepfi.org/blue-finance/the-principles/>



With similar objectives, blue taxonomies and guidelines are also being developed over the recent years to introduce the conceptual framework and outline the main requirements for investments. To boost sustainable investment in ocean economies, the International Capital Market Association, in partnership with other industry bodies, has consolidated existing blue finance guidance and principles under one framework based on the existing resources such as the IFC's Guidelines for Blue Finance and the UN Global Compact's Practical Guidance to Issue a Blue Bond and Sustainable Ocean Principles. The International Capital Market Association guidance lays out eight eligible project categories for blue bonds as in Figure 5.

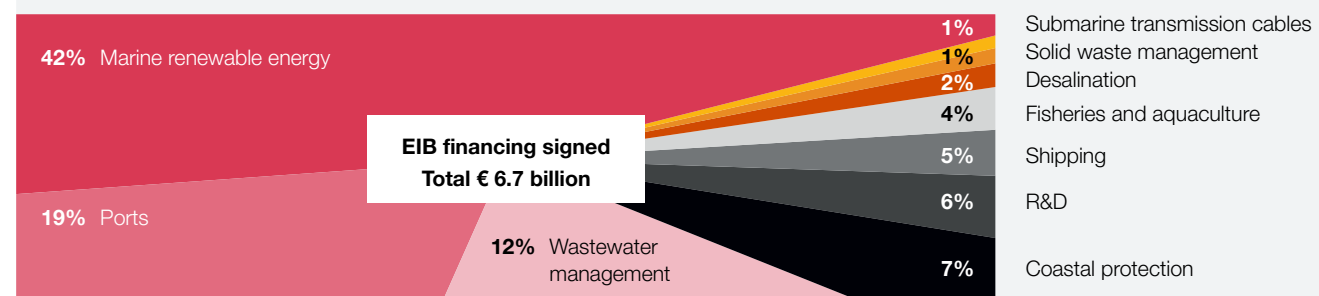
As one of the major investment initiatives of the European Commission, BlueInvest introduced in 2019 to expedite the development of innovative ocean technologies and solutions, it aims to stimulate investment opportunities within the sustainable blue economy. Its activities include fostering community engagement, organizing events, offering support for investment readiness and fundraising, providing coaching and matchmaking services, conducting investor training, and delivering market insights.

Figure 5 Indicative Blue Project Categories for Blue Bonds

Project Categories	Environmental Objectives
Coastal Climate Adaptation and Resilience	Support ecological and community resilience and adaptation to climate change including using nature-based solutions
Marine Ecosystem Management, Conservation, and Restoration	Manage, conserve, and restore the health of coastal and marine ecosystems
Sustainable Coastal and Marine Tourism	Improve the environmental sustainability of coastal and marine tourism
Sustainable Marine Value Chains	Improve the environmental sustainability of marine value chains
Marine Renewable Energy	Increase contribution of marine and offshore renewable energy to energy mix (eg. Offshore wind, wave, tidal, floating solar etc.)
Marine Pollution	Prevent, control, and reduce waste from entering the coastal and marine environments
Sustainable Ports	Increase environmental performance and sustainability of port functions and infrastructure
Sustainable Marine Transport	Increase environmental performance and sustainability of maritime transportation

Source: Asian Development Bank, Bonds to finance the Sustainable Blue Economy: A Practitioner's Guide 2023, PwC Analysis

Figure 6 EIB Support for the Blue Economy Sectors, 2018 - 2022



Source: European Investment Bank Group Sustainability Report 2022, PwC Analysis

In addition to BlueInvest, the commercial and central banks in Europe are also taking initiative in realizing blue objectives. In response to ocean threats, the EIB ramps up support for a sustainable blue economy. From 2018 to 2022, the bank invested €6.7 billion for low-carbon marine solutions, coastal resilience, preservation of ocean assets, and ocean-related innovation.

In an emerging economy context, a prominent example of blue finance initiative would be the “Blue Finance Accelerator” aiming to expedite the Indonesian government’s objectives in the marine-related sectors and meet the country’s SDGs targets. The Accelerator seeks to bolster the government’s capacity in implementing blue economy related projects, enhance financial access for Indonesian blue sector startups/SMEs, and foster the Blue Economy through joint training sessions, matchmaking activities, knowledge-sharing, and policy dialogues.

Blue Employment Initiatives

The blue finance have the potential to contribute to employment through developing blue economy sectors by supporting various thematic initiatives.

With increased financial opportunities and economic activation, “blue sectoral transformation” is expected to widen among the coastal regions and create “blue jobs” in the coastal areas. In accordance with the “blue economy” framework, blue jobs would be defined as employment opportunities that actively contribute to mitigating environmental risks or pollution that pose a threat marine spaces. Alternatively, blue jobs can encompass roles that do not directly exacerbate existing environmental problems in marine ecosystems. Therefore, the promotion of blue jobs in a wide range of marine-related sectors is expected to foster socio-economic development and enhance environmental quality in the coastal regions.

Around the world, there’s a growing focus on creating jobs through the blue economy. Nations and organizations are joining forces to tap into the employment potential offered by seas and oceans. In that sense, the blue economy offers a promising solution, providing sustainable livelihoods and addressing global issues. However, for blue employment to be widen among the working population, the awareness of blue career opportunities should be ensured, blue skill gaps in newly emerging sectors should be supported, and blue entrepreneurship should be promoted. Therefore, blue employment programs are mainly focused in these key areas.



Prominent Blue Employment Initiatives



Blue Skills Initiative

As an exemplary blue employment program, the Blue Skills initiative, led by the “Union for the Mediterranean” and co-funded by the European Union, aims to cultivate blue career pathways across Mediterranean countries. Through long-term training programs, including advanced master’s courses and professional traineeships, the initiative enhances the skills of potential employees, particularly young scholars.⁹ By fostering research and development activities, the initiative not only boosts employability but also supports the growth of emerging blue sectors such as marine biotechnology.

PROBLUE

The World Bank has also a comprehensive blue economy program (Multi-Donor Trust Fund) called PROBLUE supporting the development of integrated, sustainable and healthy marine and coastal resources. The PROBLUE program focusses on sustainable fisheries and aquaculture, combating marine pollution, developing oceanic sectors like tourism and renewable energy, and enhancing government capacities to manage marine resources, while addressing cross-cutting issues such as poverty, social inclusion, climate change, and financing for development.

PROBLUE initiative in Mozambique supports the development of blue employment by providing strategic recommendations to leverage private sector investments within the country’s Blue Economy Development Strategy (EDEA).¹⁰ These recommendations include investing in aquaculture along the entire value chain to enhance employment opportunities, particularly for women, while ensuring sustainability. It also advises on managing capture fisheries to prevent over-exploitation, promoting efficiency and sustainability, and adding value to the sector. Additionally, the initiative suggests developing tourism services to create job opportunities, especially in rural areas, and upgrading ports sustainably to meet growing market demands.

⁹ Blue Skills Initiative. (2023). Introduction | Blue Skills. <https://blueskills.ogs.it>

¹⁰ World Bank. (2023). PROBLUE Annual Report 2023

¹¹ Blue Generation Project. (2023). <https://www.bluegeneration.org/index.php/en/>



A significant regional initiative aimed at promoting blue employment and encouraging investments in the blue economy is the Blueing the Black Sea (BBSEA) Project, supported by the World Bank. The Black Sea Economic Cooperation (BSEC) serves as the executing entity of the project, which involves Georgia, Moldova, Türkiye, and Ukraine. However, the Project aims to gradually include all Black Sea countries through additional financing. The BBSEA is structured around three main pillars: “Save the Sea” (addressing pollution through waste management), “Connect the Region” (through spatial planning, energy, transport), and “Increase Prosperity” (supporting investments in blue economic activities and innovation). As part of the project, various initiatives focusing on marine litter, coastal pollution, blue employment opportunities, etc., are being implemented among the participating countries.

BlueGeneration Project

As another initiative of northern Europe, The Blue Generation Project, funded by Iceland, Liechtenstein, and Norway, focuses on engaging youth aged 15 to 29 in blue industries.¹¹ Implemented by a consortium of organizations from across Europe, the project offers conferences, mentoring programs, and study visits to expose young people to career opportunities in areas such as coastal tourism, aquaculture, and marine renewables. Additionally, the development of the Blue Career Job Platform provides accessible information on job opportunities and training programs, contributing to the project’s goal of reaching thousands of young community members and steering them towards blue career paths.

These initiatives facilitate knowledge and experience transfer between industry experts and youth, aiming to channel individuals into blue careers supporting national blue economy programs and overall labor market conditions.



Blue Economy Initiatives in Türkiye

Türkiye, with its extensive coastlines, is actively monitoring and engaging with global advancements in the field of blue economy. In this regard, the 22nd Conference of the Parties (COP22) to the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution, held in 2021, under the hosting and presidency of Türkiye, establishing collaborations with stakeholders during the ongoing process.

Türkiye also declared its preliminary vision for the 2053 Sustainable Blue Economy Action Plan which will ensure the protection and preservation of marine ecosystems. There's a pressing need to implement Maritime Spatial Planning, with the Blue Plan aimed at establishing necessary infrastructure and creating a roadmap. This effort will enhance collaboration among sectors and institutions utilizing marine areas.

Moreover, the declaration of "Marine Protected Areas" will serve to safeguard biodiversity in coastal areas that are particularly susceptible to environmental threats. Given the rich diversity of marine ecosystems, the establishment of additional more protected areas are imperative. Conducting Maritime Spatial Planning will unveil the potential for Blue Economy and Green Energy. Therefore, Integrated Coastal Zone Management Plans with Maritime Spatial Planning perspective will ensure comprehensive planning for coastal and offshore areas to account for relationship between different blue economy sectors and their overall environmental impact on marine ecosystems.

As mentioned before, although it is not included in the European Commission's blue sector classification, sectors related to waste management is crucial in coastal cleanup activities, especially for Türkiye's ongoing efforts to further develop the blue economy in coastal areas.

Accordingly, the Ministry of Environment, Urbanization and Climate Change published the "Zero Waste Management System Implementation Guideline" as part of its Zero Waste program and its implementation to coastal zones in 2022. The Zero Waste Implementation Guideline has been created to establish criteria for design and planning, assessment factors, and principles for implementing the Zero Waste management system. It covers administrative, financial, and technical aspects, guiding target audiences in developing, enhancing, and advocating for the Zero Waste Management system. This initiative would support the waste management and recycling activities on the coastline of Türkiye and facilitate the blue economic growth in the future.

Owing to its evident potential in the blue economy, Türkiye is actively engaged in prominent studies and collaborative initiatives.

One notable example is the Blue Economy Jobs Program for Pollution Reduction Study conducted by PwC Türkiye as part of the Blueing the Black Sea Project (BBSEA) which is supported by the World Bank. The Blue Economy Jobs Program for Pollution Reduction study aimed to identify the socio-economic, environmental and policy-related needs of the region and offer a pathway for addressing them by fostering 'blue jobs' on the Black Sea coast of Türkiye through a comprehensive employment program.

The design of the Blue Economy Jobs Program for Pollution Reduction in Türkiye's Black Sea region is rooted in facilitating regional development through the encouragement of blue sectors and employment opportunities in the region, while simultaneously fostering environmental preservation through coastal rehabilitation and pollution prevention. The study laid out the sectoral and labor market dynamics on the Black Sea coast and discussed blue economy opportunities.

Furthermore, the study profiled potential jobs in the selected sectors and compared skills needed to execute these jobs with the skillset of current graduates from institutes of higher education in the region.

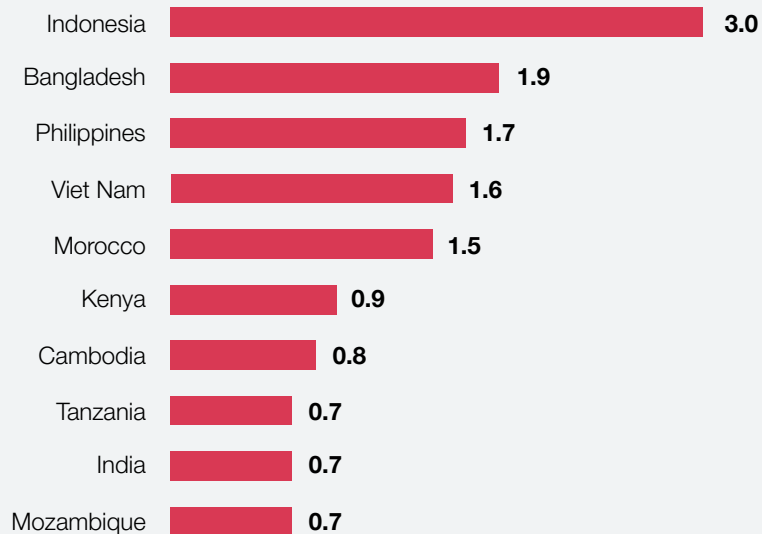
In this regard, the study stands as a pioneer in the country, as it evaluates blue economy prospects and explores associated employment possibilities comprehensively. Over the last years, there is a rising interest in blue economy and relevant international development initiatives specifically designed for ocean and sea related activities.

According to the OECD's database on 'Development Finance for the Sustainable Ocean Economy', although Türkiye is not among the top ten recipient countries of Ocean Economy Official Development Assistance (ODA) between 2013 and 2022, the country ranks second among the top recipients of ODA for curbing ocean pollution from land as well as for solid waste management.

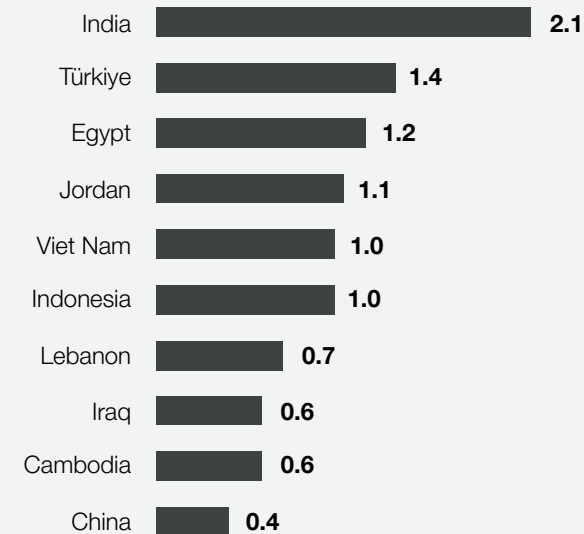
This points out the urgency of coastal pollution and relevant efforts for the coastline of Türkiye as the sectoral development and blue economic growth is highly dependent on clean coastline and a sustainable marine ecosystem. In that sense, addressing the coastal pollution effectively through sustainable waste management practices would unlock the hidden potential of blue economy in Türkiye.

Figure 7 Top 10 Recipients of Ocean Economy ODA and ODA for Curbing Ocean Pollution from Land, 2013-2022 (Billion \$)

Top 10 Recipients of Ocean Economy ODA, 2013-2022 (Billion \$)



Top 10 Recipients of ODA for Curbing Ocean Pollution from Land, 2013-2022 (Billion \$)





Enabling Blue Economy Progress: Use Cases

As the blue economy encompasses economic activities conducted in oceans and seas, direct influence (such as ecological degradation, pollution, excessive waste disposal etc.) of these activities on marine ecosystems constitute a need for sectoral transformation. Therefore, implementing environmentally considerate practices and changing the conduct of economic activities towards sustainable ones within these sectors are crucial. Blue economy practices that change the way of conducting economic activities are varied among marine-related sectors depending on the geographic and economic conditions. Below, some of the specific country initiatives for sectoral transformation are summarized as successful practices.

Portugal

Portugal's national commitment to the Blue Economy is exemplified by its Ocean Strategy 2013-2020, which aims to promote the sustainable use and protection of the ocean and its resources. The strategy focuses on four main areas: knowledge and innovation, competitiveness, environmental sustainability, and governance. One of the most successful examples of Portugal's Blue Economy initiatives is the Marine Renewable Energy Centre (MARE), a network of research centers and organizations established in 2010 to support research, development, and innovation in the field of marine renewable energy. MARE has been involved in several projects, including the installation of a wave energy converter off the coast of Aguçadoura and the development of floating wind turbines. These initiatives have not only helped to reduce carbon emissions but have also created new jobs and economic opportunities in coastal regions.

Madeira, off Portugal's coast, also showcases how the Blue Economy drives economic growth while protecting marine ecosystems. Through Marine Protected Areas (MPAs), Madeira preserves coastal biodiversity, promoting sustainable tourism activities like diving and whale watching, which benefit local communities economically while supporting marine conservation.¹² Sustainable fishing practices such as implementation of protected areas where fishing is prohibited sustain livelihoods and protect the environment. Additionally, Madeira invests in renewable energy, reduces reliance on fossil fuels, and conducts marine research, guiding sustainable policies.¹³ These efforts illustrate how the Blue Economy fosters prosperity while preserving marine ecosystems.



¹² Island Innovation. (2023). How Portugal is Developing a More Sustainable Economy Through Ocean Conservation and Innovation

¹³ (Ibid.)

Indonesia

As a pioneer country in blue economy, Indonesia has introduced a blue economy approach to develop its marine and fishing industries by emphasizing comprehensive policies that integrate economic growth and environmental protection, fostering regional development, and promoting clean production and innovative investments. The core elements of Indonesia's blue economy strategy include: enhancing marine fisheries, transportation, tourism, and energy and materials production; improving the coordination of national marine and land policies; creating blue economy demonstration zones; strengthening trade and infrastructure links and advancing technology and human resources.¹⁴ The country focuses on balancing the social, economic, and environmental aspects of sustainable development. This balance translates into three primary targets as: (i) Increasing the GDP contribution of the maritime sector to reach 15%, (ii) Boosting maritime employment to reach 12% of total employment, (iii) Expanding the percentage of Indonesia's marine environment designated as Marine Protected Areas to 30% of its waters by 2045.¹⁵

In 2018, Indonesia initiated the Integrated and Sustainable Tourism Development Program, integrating planning, business assistance, community empowerment, environmental and cultural resource management, and investment in tourism-related infrastructure and skills.¹⁶ By adopting a comprehensive strategy, Indonesia aims to enhance sustainability and create economic opportunities for local communities through ecotourism, community-based tourism, and nature-based tourism.

¹⁴ World Bank Blog. (2021). Four strategies for a blue economy in Indonesia: Reflections from the Oceans for Prosperity report

¹⁵ Ministry of National Development Planning/National Development Planning Agency (BAPPENAS). (2023). Indonesia Blue Economy Roadmap

¹⁶ World Bank. (2021). Oceans for Prosperity: Reforms for a Blue Economy in Indonesia.



Maldives

To protect its coastline and support its growing blue economy, the Maldives' Ministry of Environment, with support from the World Bank, has been implementing Coastal Protection Projects. These initiatives focus on safeguarding coral reefs and coastal wetlands, vital for marine biodiversity and erosion prevention. Since 2013, the Coastal Protection Unit has completed projects on fifteen islands. By preserving marine ecosystems, the Maldives safeguards its key economic sectors—tourism and fisheries—which contribute nearly 80 percent to its economy. Additionally, the government aims to modernize fisheries practices and explore mariculture potential for sector diversification.

The Maldives is also making significant strides towards carbon reduction and green energy by planning to construct one of the world's largest floating solar power plants.¹⁷ The country is also prioritizing “blue” tourism, with resorts increasingly focusing on eco-friendly practices such as not allowing single-use plastics to preserve marine life, requiring businesses to undertake environmental, social, and governance reporting, and conducting activities for increasing the awareness on sustainability issues among tourism workers.¹⁸ The national initiatives also include increasing income generation opportunities through sustainable purchases and fair-trade initiatives for local communities.



Evidently, initiatives with varied motivations (such as job creation, coastal clean-up, waste management, sectoral transformation, research and development etc.) are transforming marine-related sectors and the way of doing business to preserve marine ecosystems, and they mainly require sustainable and reliable “blue” finances and forward-looking planning for sustainable economic development and employment generation.

¹⁷ World Bank Blog. (2023). Why the Maldives 5 MW solar project is a game changer

¹⁸ Republic of Maldives Ministry of Tourism. (2023). Maldives fifth tourism master plan 2023–2027 goals and strategies



Brief Recommendations to Enhance Blue Economy in Türkiye

With its geographic and demographic advantage, Türkiye has a significant room for growth within the context of the blue economy. To fully harness the potential of blue economy and propel it towards sustainable growth, a comprehensive set of policies can be recommended as follow;

● **Strengthen Regulatory Frameworks**

Establish integrated and robust regulatory frameworks that promote sustainable practices within the blue economy. This should include clear guidelines for resource management, pollution control, and ecosystem conservation specific to prominent economic activities in different coastal zones.

● **Strengthen International Cooperation**

Foster collaboration with international organizations including financial institutions, neighboring countries, and regional initiatives to share best practices, exchange knowledge on coastal clean-up and preservation activities, and promote sustainable management of shared marine resources. This will enhance Türkiye's position as a responsible global player in the blue economy.

● **Foster Public - Private Partnerships**

Encourage collaboration between the government, private sector, and academia to leverage expertise, resources, and innovative technology for the sustainable development in Türkiye's coastline. This can be achieved through joint ventures, knowledge-sharing platforms, and hybrid funding mechanisms.

● **Raise Awareness and Stakeholder Engagement**

Conduct awareness campaigns and engage relevant stakeholders, including local communities, NGOs, and industry associations, to foster a sense of ownership, responsibility and environmental awareness towards the sustainable development of Türkiye's blue economy. This can be achieved through public consultations, stakeholder forums, and information-sharing platforms.

● **Promote Education and Skill Development**

Develop educational programs and vocational training initiatives to equip the workforce with the necessary skills and knowledge for blue economy sectors. This will ensure a blue upskilling that would facilitate innovation and sustainable growth. Furthermore, active labor policies addressing blue economy sectors would strengthen decent working conditions in especially highly informal sectors such as fisheries and aquaculture.

● **Support Small and Medium Enterprises (SMEs)**

Implement supportive programs and incentives to strengthen SMEs operating in blue economy sectors in line with set targets. This could include access to finance, capacity building programs and processes that encourage entrepreneurship.

● **Promote Sustainable Tourism Policy Design**

Develop sustainable tourism strategies that highlight Türkiye's unique marine ecosystems and cultural heritage. This should include measures to minimize the environmental impact of tourism activities, promote responsible tourism practices, and ensure the preservation of coastal and marine ecosystems.

● **Encourage Research and Development**

Invest in research and development initiatives to enhance understanding of Türkiye's marine resources, current ecologic threats and preservation of ecosystems.

● **Enhance Maritime Infrastructure**

Invest in the development and maintenance of maritime infrastructure, including ports, harbors, and ship building and repair facilities. Infrastructure initiatives can support economic growth through blue economy sectors by facilitating efficient transportation, logistics and trade.

● **Establish Monitoring and Evaluation Mechanisms**

Implement robust monitoring and evaluation systems to assess the effectiveness of policies and especially coastal clean-up and waste management initiatives related to the blue economy. This will enable evidence-based decision-making, identify areas for improvement, and ensure accountability in the sustainable development of Türkiye's blue economy.

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