Navigating the Blue Economy: A Comparative Analysis of Sustainable Growth and Marine Resource Management in Türkiye and Pakistan

Fazal Elahi Bilal
bilal.bau.turkiye@gmail.com
Doctoral Research Fellowship, Bahçeşehir University, Beşiktaş, Istanbul, Türkiye
Research Fellow, Centre for Security, Strategy and Policy Research (CSSPR)

Muhammad Akif Rashid
akifgujjar351@gmail.com
Doctoral Research Fellowship, Bahçeşehir University, Beşiktaş, Istanbul, Türkiye
Research Fellow, Centre for Security, Strategy and Policy Research (CSSPR)

Maria Javaid
mariajavaid05@gmail.com
Deputy Director, Government Sadiq College Women University Bahawalpur, Pakistan
Research Associate at GSCWU
Corresponding Author: * Fazal Elahi Bilal bilal.bau.turkiye@gmail.com

ABSTRACT

The blue economy presents a significant potential for sustainable growth and economic diversification in both Türkiye and Pakistan, two nations endowed with rich marine resources. This study analyzes the strategic approaches adopted by each country to take advantage of the benefits of their respective marine environments while guaranteeing sustainable practices in marine resource management. In Türkiye, the blue economy is integrated into national policies that emphasize the conservation of marine biodiversity, ecotourism and fishing management, which reflects a commitment to balance economic development with environmental administration. On the contrary, Pakistan's blue economy initiatives focus mainly on improving fishing, aquaculture and shipping industries, although the challenges remain in governance and the allocation of resources. By using a comparative framework, this analysis evaluates the effectiveness of each country's strategies to achieve economic benefits and sustainable growth. The key indicators such as the generation of coastal employment, gross contributions to the domestic product of marine activities and community participation in resource management are examined. The results indicate that, although both nations recognize the economic potential of their marine resources, Türkiye exhibits a more cohesive and advanced approach to integrate sustainability within its framework of the blue economy. On the contrary, Pakistan, despite its emerging strategies, deal with institutional challenges that hinder the optimal use of resources. This research underlines the need for both countries to foster collaboration, share the best practices and improve institutional frameworks to carry out all the potential of their blue economies. Ultimately, the analysis requires a holistic approach that prioritizes the sustainable management of marine resources as a cornerstone to promote economic resilience and environmental sustainability in both nations. As far as theoretical framework Sustainable Development Theory (Triple Bottom Line Approach), will be employed. The Blue Economy is built on balancing economic growth, environmental sustainability, and social equity.

Key words: Blue Economy; Sustainable Growth; Marine Resources; Türkiye; Marine Ecosystem Sustainability; Pakistan; Marine Resource Governance

INTRODUCTION

The concept of blue economy emerged as a crucial structure for nations that aim to take advantage of the economic potential of their marine and coastal resources, ensuring environmental sustainability.

For Türkiye and Pakistan, the Blue Economy offers a unique way to sustainable growth, integrating economic development with ecological administration. Since both countries have extensive coasts and rich marine biodiversity, there is an incomparable opportunity to capitalize on these resources in a way that promotes long -term resilience and prosperity. The work of Butt et al. (2024) emphasizes the importance of maximizing the benefits derived from coastal and maritime assets, revealing that strategic management of these resources not only has the potential to generate significant economic returns, but also plays a critical role in maintaining ecological integrity. This double focus is imperative, as both nations continue to face pressing environmental challenges, including marine pollution, habitat degradation and unsustainable fishing practices.

To navigate these challenges effectively, Mahmod and there (2023) emphasize that good marine resource management practices must be adopted. By implementing integrated coastal management practices and sustainable fishing, Türkiye and Pakistan can promote the inclusion that benefits local communities and increasing the resilience of the ecosystem throughout the Asia region. This requires a collaborative approach between stakeholders, including government entities, local communities and private sectors, ensuring that the various voices and needs of those dependent on maritime resources are recognized and approached. In addition, the focus of the blue economy in innovation and sustainable technologies can facilitate the transition to more environmental friendly practices, thus mitigating the impacts of anthropogenic pressures on marine ecosystems.

In light of the foregoing, the potential of the blue economy in Türkiye and Pakistan is further amplified by its strategic geographical positions, which facilitate trade and access to global markets. Both nations are ready to position themselves as leaders in sustainable maritime practices, with policies that emphasize environmental sustainability as a central pillar of their economic agendas. However, in order for these policies to be effective, there must be a joint effort to deal with the regional disparities inherent in resource access and management practices. By proactively involving training initiatives and prioritizing education on sustainable practices, Türkiye and Pakistan can nourish a well -informed population that is equipped to participate in blue economy activities.

Finally, the successful realization of the potential of the Blue Economy in Türkiye and Pakistan depends on a balanced approach that harmonizes economic growth with the conservation of marine resources. Through collaboration, innovation and strict management practices, both countries may not only unlock economic opportunities, but also ensure the longevity and health of their marine ecosystems, paving the way for a sustainable future., When exploring the current panorama of the blue economy, it is clear that sustainable growth strategies are essential to capitalize on marine resources effectively. The transformative potential of ocean -based economic activities for both Türkiye and Pakistan has attracted considerable attention. For example, Hasan emphasizes that the maritime sector of Pakistan has an immense potential that can be unlocked through specific policies and innovative management frameworks (Hasan, 2024).

The country is endowed with a rich variety of marine resources, however, the lack of marks of coherent policies and robust regulatory environments have hindered progress. When implementing sustainable fishing practices and developing coastal tourism, Pakistan can take advantage of these resources while prioritizing environmental administration. Similarly, Türkiye's growing approach in marine transport and fishing introduces promising roads for development, as Arlı et al. (2025) Türkiye's strategic position as a bridge between Europe and Asia allows the optimization of maritime trade routes, potentially improving their economic growth through the blue economy. The nation is also blessed with a diverse marine ecosystem that, if managed sustainably, can generate economic benefits through aquaculture and marine biotechnology. However, the realization of these opportunities requires a systemic approach to overcome significant challenges (Arlı et al., 2025).

Both countries must navigate complex challenges and risks identified in several studies (Geng et al., 2024; Gul et al., 2021) to ensure that their marine resources are handled sustainably. Issues such as

overfishing, habitat destruction and pollution raise risks to marine biodiversity and livelihoods that depend on these resources. The implementation of science -based management practices and adaptive regulatory frameworks will be crucial to mitigate these threats and align economic activities with environmental conservation.

Participate in cooperative initiatives and share experience, as suggested by Chang et al. (2024), could improve resilience throughout the region, underlining the relevance of the blue economy to achieve sustainable development objectives (SDG). The improved regional collaboration can allow both countries to group resources and knowledge, promoting a collective approach to manage their maritime assets responsible. This is particularly pertinent given the growing pressures of climate change and urbanization (Islam et al., 2024; Mollaoglu et al., 2024).

Climate -related risks for marine environments require immediate actions; otherwise, the long -term sustainability of the blue economy in both nations is at stake. Addressing these challenges through innovative and inclusive strategies can lead to a prosperous blue economy that respects ecological limits while promoting socio -economic prosperity for current and future generations. As far as theoretical framework, Sustainable Development Theory (Triple Bottom Line Approach), will be employed. The Blue Economy is built on balancing economic growth, environmental sustainability, and social equity.

LITERATURE REVIEW

In recent years, the concept of blue economy has acquired impetus as a sustainable approach to the management of ocean resources, underlining economic growth by safeguarding marine ecosystems. This picture is particularly relevant for countries such as Türkiye and Pakistan, both of whom have extended coasts and rich marine resources that can contribute significantly to their economies. The concept of blue economy has attracted significant attention as a catalyst for sustainable growth in various regions, highlighting the importance of integrating ocean resources into economic paintings. Türkiye and Pakistan, with their unique geographical advantages, find themselves at a crossroads to exploit their marine resources; however, the approaches adopted by these nations differ prominently. Türkiye's commitment to align its economic policies with sustainable development objectives (SDG) positions it to strictly pursue ecological growth. This alignment is exemplified by Kocakaya (2024), which underlines the importance of global regulations that not only promote marine conservation but also stimulate ecologically sustainable economic activities. These regulations aim to reduce marine pollution, improve fishing management and promote sustainable tourism, thus creating a favorable environment for sustainable economic growth.

Türkiye's maritime strategy is mainly oriented towards sustainable development objectives (SDG), in particular SDG 14, which focuses on the conservation and sustainable use of oceans, seas and marine resources. Kocakaya (2024) stresses that Türkiye has adopted fundamental measures to integrate sustainable practices in various key sectors, thus positioning the nation as a leader in the setting of blue resources for economic growth. The government has recognized the potential of the blue economy to contribute to inclusive growth, aiming for an economy that embraces sustainable management of marine resources while guaranteeing socio-economic inclusiveness (Kocakaya, 2024).

On the contrary, Pakistan faces distinct challenges in pursuing a sustainable blue economy. Tagar et al. (2021) they note that the economic growth of Pakistan in the 21st century can significantly benefit from the effective use of the resources of the blue economy. However, marine resources management practices in Pakistan are hindered by a series of problems, including excessive fishing, pollution and lack of regulatory application, which threaten marine biodiversity. Hasan (2024) also stresses that while the potential for the marine sector in Pakistan exists, the gap between existing practices and optimal sustainable management is significant.

Both nations are faced with similar challenges regarding the exhaustion of marine resources, climate change and socio-economic disparities, which require a comparison of their sustainable growth strategies within the blue economy framework. Mahmood and Ali (2023) argue that an inclusive blue economy approach can facilitate better management of marine resources and increase resilience in both countries. In Türkiye, the initiatives aim to involve communities in coastal development, promoting the participation of the local interested parties in the management of resources, improving the events of sustenance by preserving the ecosystems (Eyüboğlu & Akmermer, 2023).

On the other hand, Pakistan dependence on traditional fishing practices poses sustainability problems. Akhtar et al. (2025) have provided insights on the ecological footprints associated with these practices and support a move to innovative management methodologies that consider ecological limits. Government initiatives, such as those related to the economic corridor China-Pakistan (CPEC), present unique opportunities to exploit coastal development projects anchored in the principles of the blue economy (Butt et al., 2024).

The comparative analysis also reveals that Türkiye has established more robust policies and paintings for maritime sustainability than Pakistan. AMLARAGLU et al. (2024) they note that Türkiye research trends indicate a proactive position to deal with sustainability problems in maritime and fishing, which contrasts with the regulatory challenges faced by Pakistan. An assessment of the fishing production of Pakistan reveals that although there is a growth potential, systematic challenges must be addressed to improve sustainable collection and processing methods (Qazi et al., 2024).

However, both countries have considerable opportunities for collaboration and exchange of knowledge to improve the practices of the blue economy. Shahzad (2020) explores the economic opportunities in the transition from green to blue financing, underlining that cooperation between developing nations relating to technological and financial resources could strengthen the development of skills both in Türkiye and Pakistan. Initiatives such as joint research on marine biodiversity and sustainable fishing management could prove to be mutually advantageous, improving not only fishing returns but also by preserving marine environments.

In addition, regional cooperation is essential for dealing with cross -border marine issues. Chang et al. (2024) they underline the importance of collaborative efforts in environmental governance, supporting shared marine policies that reflect the largest commitments for international agreements such as the BBNJ treaty (biodiversity beyond national jurisdiction). This is particularly crucial in the context of growing threats from climate change and pollution, which do not know boundaries. The emerging sectors within the blue economy, such as marine tourism and renewable energy, have roads for economic diversification for both nations. Eyüboğlu and Akmermer (2023) highlight the potential of tourism in the Türkiye coastal management, which can be replicated in Pakistan, where the tourism sector has yet to reach its full potential. Developing responsible tourist initiatives that focus on ecological sustainability can generate significant revenues by promoting conservation efforts.

The evolving speech on sustainable blue economies underlines the need for both Türkiye and Pakistan to perfect their policies to embrace more inclusive and ecologically informed practices. Karakas et al. (2024) clarify that proactive maritime policies should be developed on the basis of scientific research and local knowledge, ensuring that economic benefits are not at the expense of the integrity of the marine ecosystem. The challenge remains to harmonize economic development with ecological sustainability, a complicated task from interest in competition within both nations.

The blue economy presents a model of sustainable growth that emphasizes the responsible use of ocean resources and its impact on sustainable development in the analysis of Türkiye's merits. As Kocakaya (2024), Türkiye's initiatives in alignment with sustainable development objectives (SDG), in particular SDG 14, have gained traction, advanced marine conservation and economic growth.

Kocakaya (2024) processes the critical sectors involved, highlighting marine tourism and fishing as fundamental for the nation growth strategy.

In the context of comparative analysis, Bangladesh's blue economy strategies offer in -depth parallelisms and contrasts. Islam et al. (2024) they say that while Bangladesh embraced similar policies aimed at SDGs, the results reveal substantial differences influenced by regional economic structures and governance paintings. The challenges outlined by Martínez-Vázquez et al. (2021) are indicative of the wider difficulties faced by the nations that pursue blue economy initiatives, including regulatory inconsistencies and resource management conflicts.

The evolution panorama of aquaculture in the Mediterranean and black seas, as explored by Massa et al. (2017), underlines the potential for sustainable practices within the Türkiye marine sectors. This aligns with the results of Silvestri et al. (2024), which underline the resilience of aquaculture between disruptive events such as pandemic, showing off growth opportunities continuing to adhere to sustainable practices.

In addition, Karlı (2024) discusses the political paintings in Türkiye who defend the blue economy, identifying both the challenges and the opportunities for an effective implementation. In addition, Yılmaz and lal (2024) provide evidence of the fact that tourist research linked to the blue economy is essential to model sustainable practices in the coastal regions. Critically, the concept of blue degrowth, as highlighted by Hadjimichael (2018), raises questions about the balance between economic growth and ecological sustainability, an evident tension both in Türkiye and in comparative houses of other nations, including Bangladesh (Bhuyan et al., 2021). Therefore, the exploration of Türkiye's blue economy strategies provides a rich path to understand sustainable development paths in a global context.

On the contrary, the use of the resources of the blue economy in Pakistan highlights an emerging recognition of the importance of sustainable practices for economic resilience. As discussed by Tagar et al. (2021), Pakistan has to face significant socio-economic challenges that require a pivot towards the blue economy as a path to achieve economic sustainability. The nation approach provides for the capitalization of its large coastal resources to promote fishing, aquaculture and marine tourism, also striving to face urgent issues such as poverty and unemployment. This strategy reflects a growing awareness of the potential of marine resources in transforming the economic panorama, but is still in the early stages of implementation compared to the most consolidated framework of Türkiye.

When comparing the two countries, distinct differences emerge in facing the economic, environmental and social dimensions associated with their blue economy initiatives. Mahmood and Ali (2023) point out that Türkiye's holistic approach takes advantage of a regulatory framework that not only gives priority to economic benefits, but also integrates environmental protection and social equity, thus creating a balanced model for sustainable growth. On the contrary, Pakistan's initiatives often face challenges relating to limited resources and infrastructure deficit, which affect the effective implementation of its blue economy strategies (Geng et al., 2024). For sustainable development, Pakistan has to empower women as well and provide a favorable environment free from all kinds of violence, whether domestic or otherwise, to contribute towards the national economy. (Abbas et al., 2022), despite these challenges, there is a palpable sense of momentum since Pakistan increasingly recognizes the potential contributions of its marine sector to wider economic objectives.

In addition, the strategic paintings of both countries reflect their priorities and ability to promote sustainable growth through the blue economy. Türkiye's investment in research and innovation, in particular in sustainable fishing practices and marine biotechnology, acts as a model to be considered for Pakistan while trying to improve its ability to manage marine resources. Investment disparities, development of the skills and commitment of the parties concerned in the initiatives of blue economy

between the two countries reveal the different phases of development and adaptation of marine economic strategies.

While Türkiye seems to go on with a more structured and integrated approach to a global level, the nascent efforts of Pakistan could benefit from learning and adaptation of the best practices to optimize its marine resources for sustainable development. These comparative analyzes underline the complexities of exploiting the blue economy for sustainable growth, revealing critical insights on the different paths that emerging economies can undertake. The evaluation of opportunities for sustainable development within the framework of the blue economy reveals a variety of strategies used in both nations. In Türkiye, recent analyzes highlight significant advances in the maritime transport sector, where the integration of sustainable practices not only improves efficiency but also encourages ecological operations (Mollaogu et al., 2024).

The promotion of renewable energy, particularly through wind and solar energy projects in the high seas, emphasizes Türkiye's commitment to take advantage of their marine resources for sustainable growth. These strategies are indicative of a broader understanding of the blue economy as a multifaceted approach that intertwines economic viability with environmental administration.

In contrast, Pakistan exhibits a different approach within his Blue Economics initiatives, predominantly emphasizing remittances and technological innovation to take advantage of his marine potential. The entry of remittances has been fundamental to finance several projects related to the sailor and promote socioeconomic development in coastal communities (Ali et al., 2022).

In addition, Pakistan's commitment to technological advances, including digital platforms for the management of marine resources, illustrates an innovative approach to improve ecological conservation (Ali et al., 2022). This combination of social and technological facets indicates a personalized strategy aimed at maximizing the benefits derived from maritime resources while addressing environmental concerns. Examining environmental sustainability practices adopted in both contexts reveals a notable contrast in strategies. In Türkiye, the legislation and policy frames have aligned with international standards to regulate marine biodiversity, with the aim of mitigating the challenges related to overweight and habitat degradation (Buyan et al., 2022).

The establishment of protected marine areas (MPA) serves as a critical aspect of this regulatory landscape, promoting not only the conservation of biodiversity but also the sustainable harvest of marine resources. These initiatives are an integral part of Türkiye's strategy to address negative externalities associated with economic expansion within the blue economy. On the contrary, Pakistan's efforts are largely focused on the commitment and defense of the community for sustainable fishing practices. Local fishing management systems are being adopted to promote the responsible use of resources, ensuring that the economic benefits of marine environments do not compromise ecological integrity (Buyan et al., 2021).

Although these initiatives are in their nascent stages, they represent a growing awareness and commitment to sustainable practices among local stakeholders. This basic approach is vital to promote a culture of environmental responsibility, highlighting a big difference in the institutional strategies versus promoted by the community deployed in Türkiye and Pakistan. It is evident from this comparative analysis that, although Türkiye adopts a more regulated and institutionally driven approach to the opportunities to take advantage of the blue economy, Pakistan is still evolving its strategies, focusing on initiatives led by the community and innovative trends. Both countries, despite their different frameworks, share a common goal of aligning economic growth with environmental sustainability; However, their paths diverge significantly based on socio -economic contexts and governance structures (Buyan et al., 2022; Buyan et al., 2021).

This variation underlines the importance of the specific strategies of the context to maximize the potential benefits of the blue economy within the sustainable development paradigm., The

opportunities associated with the blue economy in Türkiye are juxtaposed the challenges faced by Pakistan, indicating significant discrepancies in their respective socio -economic environments as well facing terrorism, ethnicity and other issues as well (Abbas et al., 2022).

The strategic geographical positioning of Türkiye, which borders the Mediterranean, Egeanos and Negros seas, offers a unique advantage in the development of its blue economy. This proximity facilitates access to European markets, creating ways for trade and investment improved in maritime sectors, maritime transport and fishing (Ahmed et al., 2016). The Turkish government has recognized this potential, implementing various policies aimed at promoting sustainable marine practices that are aligned with the integrated maritime policy of the EU. Subsequently, Türkiye's initiatives can act as a reference point for the blue economy frames that contribute to sustainable growth, promoting economic diversification and resistance.

In contrast, Pakistan's ambition to take advantage of the blue economy is prevented by systemic challenges, including energy dependencies and inadequate infrastructure, which are critical for the effective exploitation of marine resources (Waheed, 2023). The nation fights with the shortage of energy, which exacerbates problems related to sustainable economic development. Together with infrastructure bottlenecks, such as poor port facilities and transport networks, these challenges inhibit Pakistan's ability to fully perform the benefits of the blue economy. Addressing these restrictions requires innovative solutions that prioritize technological advancement, strategic investment in infrastructure and policy reforms aimed at improving productivity in marine sectors. However, sometimes Pakistan faced disputes on the issue of foreign direct investment, which hampered the national economy agenda. (Abbas et al., 2022). A holistic approach that intertwines social equity with economic and environmental considerations is vital to improve the sustainability and inclusion of the blue economy in Pakistan (Jabeen and Khan, 2022).

As both nations strategy for future developments, there is a critical need to understand the interconnection of social inclusion, environmental protection and economic growth within the frameworks of their respective blue economies. Literature suggests that sustainable blue economy strategies should not only focus on economic metrics, but also incorporate social equity and ecological preservation (Cavallo et al., 2023). The successful implementation of such integrated strategies depends on the participation of multiple interested parties, including government agencies, private sector actors and local communities, to promote inclusion and ensure that the benefits of marine resources are distributed equally.

Future research agendas should focus on delineating comprehensive strategies that can be customized for Türkiye and Pakistan to improve their blue economy frames while fostering a sustainable development trajectory. A comparative analysis of policy frames, governance mechanisms and community participation in both countries will provide invaluable information. In addition, exploring the potential of regional cooperatives and international associations could also produce mutually beneficial results, promoting knowledge exchange and resources optimization (Herman, 2023; Tennakoon et al., 2024).

This collaborative approach not only facilitates the exchange of best practices, but also strengthens the commitments shared with the sustainability objectives, ultimately contributing to the resistance and growth of the blue economy in both nations.

In conclusion, the comparative exploration of Türkiye and Pakistan within the Blue Economy Framework reveals both unique challenges and significant opportunities. Türkiye seems to be in the lead with established framework for the sustainable management of marine resources, while Pakistan is in a critical moment in which the integration of effective blue economy practices could make its maritime sector advance significantly. By exploiting their respective strengths and engaging in

regional collaborations, both countries can encourage resilient and sustainable economic paths that raise their blue economies protecting invaluable marine ecosystems. As highlighted by Bhuyan et al. (2021), the global push towards sustainable development paths requires shared knowledge, integrated policies and prolonged commitment by all interested parties, in particular in the regions in which marine resources are an economic lifeblood.

Theoretical Framework

Sustainable Development Theory (Triple Bottom Line Approach), The Blue Economy is built on balancing economic growth, environmental sustainability, and social equity. The most straightforward way to assess whether managing marine resources promotes long-term ecological and economic health is via the lens of sustainable development theory, which has its roots in the Brundtland Report and the UN SDGs. Examine how Pakistan and Turkey incorporate UN SDG 14 (Life Below Water) into their policies in relation to this study. Examine fisheries management, ocean-based sectors, and marine governance frameworks in relation to sustainable growth standards. Draw attention to the trade-offs between environmental preservation and economic exploitation (ports, shipping, fisheries, and energy).

Research Questions
- How do Türkiye and Pakistan conceptualize and implement the blue economy within their national development frameworks?
- What similarities and differences exist in the marine resource management strategies of Türkiye and Pakistan?
- To what extent do governance mechanisms in both countries address the balance between economic growth and marine ecosystem sustainability**?**
- How effective are the current policy and institutional frameworks in promoting sustainable fisheries, maritime trade, and coastal development in Türkiye and Pakistan?
- How are climate change, marine pollution, and overexploitation of resources affecting the sustainability of the blue economy in both contexts?
- What lessons and policy innovations can Türkiye and Pakistan adopt from each other to strengthen sustainable marine resource governance?

DISCUSSION

Both Türkiye and Pakistan are actively seeking sustainable growth and effective management of marine resources within the structure of the blue economy. Türkiye emphasizes the integrated management of the coastal zone, prioritizing the balance between economic development and ecological preservation. Its approach includes political initiatives directed to the sustainability of fishing and the conservation of marine biodiversity, although challenges such as overfishing and pollution remain predominant. On the other hand, Pakistan's strategy involves community -based resources management, with the objective of improving local subsistence means and addressing the sustainability of marine ecosystems. The country faces significant obstacles, including inadequate application of regulations and the limited infrastructure to monitor resources. Although both nations recognize the need to involve stakeholders, the results differ; Türkiye has seen some improvements in marine health through regulatory structures, while Pakistan results are characterized by inconsistent resource management practices. Finally, comparative analysis highlights the importance of adaptive strategies to overcome challenges and increase sustainable growth in the blue economy for both countries.

How do Türkiye and Pakistan conceptualize and implement the blue economy within their national development frameworks?

Navigating the blue: a comparative analysis of blue economy integration in türkiye and Pakistan's national development strategies. The integration of the principles of the blue economy in national

development structures is a critical border for countries such as Türkiye and Pakistan, which depend on marine resources for economic growth and sustainability. The concept of blue economy covers the sustainable use of ocean resources for economic growth, improved subsistence means and jobs, preserving the health of oceanic ecosystems. The analysis of strategies and policies in both nations reveals different approaches, as well as some significant similarities.

In Türkiye, the government started a holistic view designed to use marine resources efficiently while protecting the marine environment. The country's strategy emphasizes sustainable fishing, marine tourism, ocean -based renewable energy sources and coastal development. Türkiye's Blue Economy strategy, established in 2020, highlights the importance of Marine Space Planning (MSP) and the Integrated Coastal Zone (ICZM) (Karakas, Acar and Kirmizi, 2024). This strategic plan is combined with participatory governance, allowing local communities to engage in decision -making processes. This engagement is critical to meeting local needs and taking advantage of indigenous knowledge, maximizing the socioeconomic benefits derived from marine resources (Jattak et al., 2023).

The approach of Pakistan, by sharing a similar view for the sustainable use of marine resources, faces different challenges attributed to socioeconomic conditions and governance structures. Terrorism in Pakistan is also a major challenge (Bilal et al., 2022). The country's coastal and marine ecosystems are under significant stress due to overweight, pollution and climate change, requiring a rigorous political structure for the effective management of these resources (Mahmood & Ali, 2023).

The government has progressed in the development of national policies that articulate the Blue Economy agenda, such as Pakistan Maritime Policy of 2020, which emphasizes sustainable fishing, aquaculture and oceanographic research (AKHTAR, 2024). However, there is often a disconnection between formulation and policy implementation, influenced by institutional weaknesses and resource restrictions.

Türkiye and Pakistan recognize the economic potential of marine resources and made commitments to align their national development structures with the principles of the blue economy. For example, both countries are actively seeking marine spatial planning and the development of sustainable fishing. Türkiye's maritime strategy incorporates stakeholders' collaboration between government agencies, private sectors and NGOs to optimize resource allocation and minimize environmental impacts (YAVAŞ, 2025). Similarly, Pakistan has started coastal development programs under the China-Pakistan Economic Corridor (CPEC), which aims to leverage marine resources to stimulate local economies and promote sustainable practices (Butt et al., 2024).

A remarkable similarity in its approaches is the emphasis on promoting technological innovation to improve marine resource management. Türkiye has invested in sea research and technological advances designed to monitor ocean health and biodiversity. This includes the use of satellite technology and Big Data analysis to improve decision making for sustainable fishing management (UDDIN et al., 2021). On the other hand, the focus of Pakistan in the digitization of fishing and aquaculture sectors through data collection and analysis illustrates a shared view between the two countries to use technology to improve governance and resource management (Chang, Javid and Khan, 2024). Despite these efforts, there are significant differences in the scale and effectiveness of policies. Türkye's longtime commitment to marine conservation, supported by its robust institutional structure, allows effective monitoring and application mechanisms in relation to coastal protections and sustainable fishing management (Alam & Azam, 2023). On the other hand, Pakistan marine policies often face bureaucratic obstacles, lack of cohesive legislative structures and insufficient financial resources that make it difficult to complete the objectives of the Blue Economy (Alam et al., 2023).

In addition, the dependence on foreign investments through initiatives such as CPEC has raised concerns about sustainability and long -term socioeconomic impacts on local communities. Cultural

factors also influence the respective approaches of these two nations in relation to the blue economy. Türkiye, with a diverse variety of indigenous practices and a strong tourism sector, presents an integrated approach to the use of marine resources that incorporates local traditions and modern economic strategies (BHUYAN et al., 2022). On the other hand, in Pakistan, cultural ties with the sea are less pronounced, which may affect the involvement of stakeholders and conservation initiatives led by the community (Islam et al., 2024).

The active participation of local fishing communities in Türkiye represents a model that Pakistan could imitate to create more inclusive governance structures. Another important difference can be found in international collaboration and engagement in blue economy issues. Türkiye proactively participated in several international agreements and partnerships, focusing on regional cooperation in the Mediterranean and beyond, with the aim of addressing broader concerns, such as marine pollution and habitat degradation (Adíbelli et al., 2022).

On the other hand, while Pakistan is involved with regional structures, such as those developed under the Asia Regional Cooperation Association (SAARC), the country's geopolitical landscape usually limited its ability to forge robust international partnerships (Bhatti, 2024). This situation can create challenges in the adoption of best practices and improving technical skills for sustainable management of marine resources.

Aspect	Türkiye	Pakistan
Conceptualization	Views blue economy as part of EU Green Deal alignment, maritime trade, fisheries, renewable energy, and tourism.	Frames blue economy around sustainable fisheries, ports, coastal resilience, and CPEC-linked maritime trade.
National Strategy	Integrated into National Development Plans; policies on marine spatial planning, aquaculture, offshore wind.	Included in Maritime Doctrine & Vision 2047, National Maritime Policy, and fisheries development programs.
Key Sectors	Shipping (Istanbul as hub), fisheries, offshore energy, tourism (Aegean/Mediterranean).	Gwadar port development, fisheries, shipbreaking, coastal tourism, mangrove protection.
Institutional Setup	Ministry of Transport & Infrastructure + Ministry of Environment coordinate; alignment with EU maritime frameworks.	Ministry of Maritime Affairs leads; provincial fisheries departments and Navy also play roles.
Implementation Challenges	Overfishing, pollution, climate stress, need for greater innovation and investment.	Weak governance, limited technology, coastal degradation, dependence on external finance.
Opportunities	Leverage EU market, expand renewables, sustainable coastal tourism.	Enhance CPEC maritime trade, expand aquaculture, and strengthen coastal adaptation.

Table. 01

The urgency of climate change also plays a key role in the formation of the policies of both nations. Türkiye is actively adopting the challenges placed by climate change, incorporating climate resilience into its blue economy strategies, especially in relation to marine biodiversity conservation (Qadir et al., 2025). Meanwhile, Pakistan, being one of the most vulnerable countries to climate impacts, is trying to align their coastal and marine policies with climate adaptation strategies, although with varying degrees of success due to the limited implementation capacity and integrated planning (Bhuyan et al., 2021).

In conclusion, while Türkiye and Pakistan exhibit a growing commitment to integrate the principles of the Blue Economy into their respective national development structures, their strategies reflect remarkable differences. Türkye's advanced institutional structures, emphasis on stakeholder involvement and proactive international collaboration contrasts with Pakistan's efforts, which are often impaired by implementation challenges and various resources.

However, the challenges shared in marine resource management and the imperative of sustainable practices provide common ground for both nations to improve cooperation, learn from each other's experiences, and work toward sustainable socioeconomic development through the blue economy. Improved bilateral dialogue and partnership can further facilitate mutual learning and innovation in these critical areas.

What similarities and differences exist in the blue economy & marine resource management strategies of Türkiye and Pakistan?

Comparative analysis of blue economy strategies and marine resource management: sustainability and economic impacts in Türkiye and Pakistan. The blue economy is an evolving paradigm focusing on the sustainable use of oceanic resources for economic growth, the improvement of livelihoods and jobs while preserving the health of ocean ecosystems. Türkiye and Pakistan adopt this concept, although variable strategies and implications for sustainability, implementation of economic policies and impacts.

In Türkiye , the blue economy is closely integrated into its national development plans, reflecting a commitment to achieve the objectives of sustainable development (SDG), in particular the ODD 14 which emphasizes the conservation and sustainable use of marine resources (Kocakaya, 2024). Türkiye's approach has incorporated various maritime activities, including fishing, marine tourism and expedition, in its economic framework (Ağırkaya, 2021).

The government has recognized the important role in the management of marine resources in economic growth and environmental sustainability (Eyüboğlu and Akmermer, 2023). For example, the fishing sector has been identified as a crucial contributor both for food security and revenue generation (Arlı, Saygılı and Güneş, 2025). In addition, the strategic location of Türkiye connecting Europe and Asia presents unique opportunities for maritime trade, as has pointed out in recent studies on the maritime economy (Asif, 2022).

Conversely, the Pakistan blue economy strategy is still in development and is influenced by wider regional dynamics and interior challenges such as overfishing, pollution and coastal erosion (Butt et al., 2024). The country has made progress to exploit its maritime resources, but faces the challenges of politicians and implementation (Gul, Admiral and Shah, 2021). The coastal line of Pakistan along the Oman Sea offers potential for fisheries, aquaculture and marine tourism; however, the exploitation of these resources has not been managed effectively. In particular, the Chine-Pakistan Economic Corridor (CPEC) presents a framework to improve the maritime sector of Pakistan, aimed at strengthening coastal development and integrating the blue economy into its economic program (Zulfiqar, Butt and Chang, 2023).

In terms of sustainability, the two countries are starting to recognize the importance of aligning environmental health with economic interests. Türkiye has made significant progress in the formulation of policies which promote sustainable fishing practices and the protection of marine biodiversity, as well as initiatives aimed at improving marine spatial planning (Kocakaya, 2024). The Turkish government has set out legal frameworks aimed at regulating the fishing industry to protect ecological balance while allowing economically productive marine activities (Mahmood & Ali, 2023).

In Pakistan, the sustainability of the blue economy depends strongly on international collaborations and local community engagement. The efforts to strengthen the fishing sector highlighted the

importance of sustainable practices; however, systemic overexploitation remains a significant obstacle (Butt et al., 2024). There is growing recognition of the need for community management approaches to ensure the long -term viability of marine resources (Gul et al., 2021). For example, the incorporation of local Fisherfolk into decision -making processes is crucial to obtaining lasting results, which contrasts with the most descending political frameworks in Türkiye (Gul et al., 2021).

On the economic level, the blue economy presents both Türkiye and Pakistan with important opportunities, but with various degrees of preparation and capacity. Türkiye effectively exploited its maritime economy to generate considerable national income, sectors as marine tourism playing a vital role in economic diversification (Ağırkaya, 2021). The strength of infrastructure, such as ports and shipping routes, has made it an attractive destination for international trade and tourism (Islam, M. R. et al., 2024). In addition, the Türkiye government has strategically positioned the blue economy as a cornerstone of its economic future, promoting investments in marine research and innovation (Mahmood & Ali, 2023).
In Pakistan, although there is recognition of the potential economic advantages of a flourishing blue economy, the country is faced with important challenges concerning infrastructure and investment (Gul et al., 2021). Economic impacts are currently limited by factors such as inadequate research, the limited adoption of technologies and underdeveloped market systems for marine products (Butt et al., 2024).

Hence without proper marine resource management and sustainable Growth, even the free market economy does not offer benefits for the grassroots level or promote sustainable development (Bilal et al., 2022). For example, the lack of cold storage installations for fish has limited the export potential of the peaches. The development of policies tends to lack coordination between the sectors, which reduces the effectiveness of the initiatives of the blue economy (Geng et al., 2024). The two nations face common challenges related to pollution and the impacts of climate change on marine ecosystems. Türkiye and Pakistan are facing the increase in sea level, acidification of oceans and the degradation of coastal habitats, which endanger their respective blue economy frameworks (Islam, M. S., 2024).

The collaborations and cooperative strategies supervised in regional dialogues, in particular concerning maritime policies and practices, would be beneficial to meet these cross -border challenges. Despite these challenges, there are ways to a constructive commitment. For Türkiye, promoting partnerships with neighboring countries and engaging in the management of transformative resources could improve the sustainability of its blue economy while positioning Turkish companies as leaders of marine innovation (Ağırkaya, 2021).

Blue Economy & Marine Resource Management, Türkiye vs. Pakistan:

Aspect	Türkiye	Pakistan	Similarities / Differences
Strategic Vision	Integrated into EU Green Deal alignment; focus on sustainable shipping, fisheries, and offshore energy.	Centered on Maritime Doctrine & Vision 2047 and CPEC-linked port development.	Both see blue economy as part of national growth; Türkiye leans toward EU integration, Pakistan toward CPEC connectivity.
Marine Resource Management	Marine spatial planning, aquaculture expansion, pollution control, and ecosystem restoration.	Fisheries development, mangrove protection, and coastal adaptation projects.	Both emphasize sustainable fisheries; Türkiye more advanced in planning & aquaculture, Pakistan prioritizes ecosystem resilience.
Key Economic Sectors	Shipping (Istanbul hub), offshore wind, coastal tourism, aquaculture.	Gwadar Port, shipbreaking, fisheries, coastal tourism.	Shared focus on ports & fisheries; Türkiye stronger in renewables, Pakistan in strategic trade

Aspect	Türkiye	Pakistan	Similarities / Differences
			corridors.
Institutional Framework	Coordinated by Ministries of Transport, Environment, and Agriculture, aligned with EU maritime frameworks.	Led by Ministry of Maritime Affairs with support from Navy and provincial fisheries departments.	Both have central ministries; Türkiye's governance is EU-aligned, Pakistan's is more security/strategic-oriented.
Challenges	Overfishing, marine pollution, climate stress on seas.	Weak governance, limited technology, climate vulnerability, coastal degradation.	Both face climate and environmental threats, but institutional and capacity gaps are more severe in Pakistan.
Opportunities	Renewable energy, sustainable tourism, stronger EU market access.	CPEC-driven trade, aquaculture growth, coastal community resilience.	Both see potential in trade and fisheries, but Türkiye leverages EU/renewables, Pakistan focuses on geostrategic trade.

Table. 02

Pakistan, on the other hand, benefits from the adoption of the best practices of integrated maritime policies in Türkiye, in particular in community participation and sustainable resources management practices (Butt et al., 2024).

In conclusion, while Türkiye seems to be more advanced in its blue economy and its management strategies of marine resources, characterized by coherent policies and a solid economic impact, Pakistan always sails on the fundamental elements of this paradigm. Understanding and taking up their unique challenges, taking advantage of cooperative executives and adopting best practices will be essential for the two nations, because they strive to balance economic growth with sustainability in their marine environments.

To what extent do governance mechanisms in both countries address the balance between economic growth and marine ecosystem sustainability?

Steering dual objectives, governance mechanisms in Türkiye and Pakistan for economic growth and marine ecosystem sustainability. The governance mechanisms of Türkiye and Pakistan have a complex balance between promoting economic growth and ensuring the sustainability of marine ecosystems. The two countries are strategically positioned, with access to significant maritime routes which strengthen their economic potential. However, this economic opportunity is linked to the responsibilities of marine environment management.

In Türkiye, the governance of marine resources is characterized by a framework which incorporates environmental regulations into maritime economic activities. Thanks to initiatives aimed at improving blue economy, Türkiye promotes sustainable practices that take advantage of its rich marine biodiversity. Aşkun and Erkoyuncu (2023) highlight the role of government policies in the facilitation of human development while advancing economic objectives. The governance framework includes protective measures for marine ecosystems and encourages sustainable fisheries, which have proven to contribute positively to economic growth (Eyüboğlu and Akmermer, 2023). As shown in the transport and fisheries sectors, economic activities must align with the principles of sustainability to ensure long -term ecological health and economic viability (Arlı, Saygılı and Güneş, 2025).

Conversely, Pakistan faces distinctive challenges in its maritime governance. The consistency of its national maritime policy through the framework of governance requires a robust approach which addresses both economic development and sustainability (Aslam et al., 2023). The country's strategies

for the blue economy emphasize the inclusiveness and environmental protection while aimed at exploiting the potential of marine resources (Mahmood & Ali, 2023). For example, the economic corridor established within the framework of the Chinese-Pakistani Economic corridor (CPEC) prioritizes sustainable development thanks to investments in infrastructure which also explain the conservation of marine ecosystems (Butt et al., 2024). Commitment to sustainability is obvious in political frameworks which regulate marine environmental conditions and promoted renewable energy resources while promoting economic growth (Uddin et al., 2021).

The two countries face various degrees of ecological degradation resulting from economic activities. In Türkiye, research indicates that increased economic growth, in particular in peaches and maritime transport, can cause significant environmental deterioration if it is not properly managed (Karakas, Acar and Kirmizi, 2024). This highlights the imperative of effective maritime governance in order to ensure that economic growth does not occur at the expense of marine environments. In Pakistan, the link between economic growth, social inclusion and environmental management plays a crucial role in the assessment of the story of green growth (Jabeen and Khan, 2022).

Maintaining a balance between these facets is essential to promote resilience to ecological challenges. Emphasis on economic growth and marine sustainability can be elucidated in the Pakistan regulatory landscape. Government policies underline the need for a structured approach to the sustainable use of marine resources, which includes legal frameworks governing pollution control and sustainable fishing practices (Zhang et al., 2025).

Using methodologies such as Crill Framework to assess marine environmental legislation, Pakistan works to formulate an ocean governance regime which encompasses the economic and ecological dimensions (Zhang et al., 2025). The intersection of these governance mechanisms with sustainable development objectives highlights the continuous commitment to achieve a balance in the use of maritime resources (Zhang et al., 2025).

While Türkiye and Pakistan share common challenges, their approaches to governance mechanisms differ in execution and accent. For example, while Türkiye incorporates sustainability in broader economic policies, Pakistan's attention includes the need to adapt its governance structures to the realities of economic pressures on marine ecosystems (Shahzad, 2019). This divergence reflects the distinct socio-economic landscapes of each country and environmental obligations.

In addition, regional cooperation and marine diplomacy play a central role in the influence of governance in the two countries. Türkiye's strategic maritime diplomacy in the Black Sea region promotes collaborative commitments on ecological issues while aimed at guaranteeing economic interests (Islam, 2024). Meanwhile, in Bengal Bay, the approach of Pakistan implies regional cooperation mechanisms to meet shared environmental challenges and improve institutional frameworks for marine environmental governance (Chang, Javid and Khan, 2024). The impacts of globalization and technological innovation still complicate the dynamics of governance in the two countries. Faizi et al. in 2024, argue that interrelation between renewable energies and globalization must be taken into account in marine resources management strategies. Countries like Türkiye and Pakistan are increasingly influenced by global trends, which requires a reactive governance framework that harmonizes local needs with international standards for sustainable maritime practices (Faizi et al., 2024).

The way these nations tackle the problems of ecological fingerprints associated with urbanization and economic development also have an impact on the sustainability of their marine ecosystem (Ullah, Tekbaş and Doğan, 2023). The harmful effects of urban growth on marine systems highlight the need for holistic governance measures that integrate ecological concerns into economic planning (Shakoor et al., 2023). These integrated approaches can help alleviate negative impacts while promoting economic vitality.

Governance Mechanisms Balancing Economic Growth & Marine Sustainability:

Aspect	Türkiye	Pakistan	Extent of Balance Achieved
Legal & Policy Framework	Climate Law (2025), Marine Spatial Planning, EU Green Deal alignment, fisheries regulations.	National Maritime Policy (2019), Maritime Doctrine 2047, provincial fisheries acts, coastal protection policies.	Türkiye's frameworks are more EU-aligned and enforcement-oriented; Pakistan's laws exist but are weaker in enforcement.
Institutional Setup	Ministries of Environment, Transport, and Agriculture coordinate; linked to EU compliance.	Ministry of Maritime Affairs leads; provincial fisheries departments and Navy engaged.	Türkiye shows coherent inter-ministerial governance; Pakistan faces overlap and fragmented coordination.
Marine Resource Management	Stronger focus on aquaculture regulation, pollution control, biodiversity monitoring.	Focus on fisheries licensing, mangrove restoration, and coastal adaptation.	Both address ecosystems; Türkiye emphasizes regulation & monitoring, Pakistan emphasizes restoration & resilience.
Economic Growth Drivers	Shipping hubs, offshore wind, tourism, aquaculture expansion.	CPEC-driven trade, Gwadar Port, shipbreaking, fisheries.	Economic priorities often override sustainability in both; Türkiye leans toward green growth, Pakistan toward strategic trade.
Sustainability Tools	EIA/SEA mandatory, carbon market framework, alignment with EU Marine Strategy.	Limited EIA enforcement, donor-driven projects for resilience, weak monitoring.	Türkiye has structured sustainability mechanisms; Pakistan relies more on project-based interventions.
Stakeholder Engagement	Business chambers, NGOs, EU platforms participate in policy dialogue.	Civil society active in mangrove conservation; limited role in policy decisions.	Türkiye has institutionalized consultation, Pakistan more grassroots-driven but less integrated.
Overall Balance	Moderate–High: governance pushes green growth but faces challenges (pollution, overfishing).	Low–Moderate: policies exist but weak capacity and competing priorities limit balance.	Türkiye achieves more systemic balance; Pakistan still struggles with growth-first vs. sustainability trade-offs.

Table. 03

It is essential to involve discourse around the socioeconomic aspects of governance mechanisms. The inclusiveness of local communities in decision -making processes concerning the use of marine resources is essential for achieving successful sustainability results both in Türkiye and Pakistan. Participatory governance models facilitate the commitment of stakeholders, ensuring that local knowledge and practices shed light on the development of policies (Mahmood and Ali, 2023).

In conclusion, Türkiye and Pakistan illustrate contrasting but convergent paths to reconcile economic growth with the sustainability of marine ecosystems. As they sail in the complexities of their respective maritime governance frameworks, it is obvious that a collaborative approach which favors

the integrity of the environment and economic resilience is vital. In the end, the success of governance mechanisms will depend on their adaptability and the extent to which they incorporate the principles of sustainability in economic programs, guaranteeing a flourishing marine ecosystem alongside solid economic growth.

How effective are the current policy and institutional frameworks in promoting sustainable fisheries, maritime trade, and coastal development in Türkiye and Pakistan?

Channelizing sustainability: a comparative evaluation of Türkiye and Pakistan's policy frameworks in fisheries, maritime trade, and coastal development. The policies governing sustainable peaches, maritime trade and coastal development in Türkiye and Pakistan have a complex mixture of success, challenges and areas that need improvement. The two nations are strategically located along the critical maritime routes and have large coastal areas that significantly contribute to their economies. However, the effectiveness of their political frameworks in improving sustainable practices remains very debated and varied considerably.

In Türkiye , the maritime economy was a focal point to improve national growth. The effectiveness of fishing policies has been noted in the relationship between economic growth and fishing production, which aligns with sustainable development objectives (Eyüboğlu and Akmermer, 2023).

The government offers various incentives to adopt sustainable fishing practices, actively regulating fish captures to prevent overexploitation. Such measures have led to an increase in fish stocks in certain regions, reflecting successful integration of environmental objectives with economic incentives (Arlı, Saygılı and Güneş, 2025). However, the challenges persist, in particular concerning illegal fishing and the destruction of housing due to industrial activities. The ineffectiveness of application mechanisms has been criticized, requiring holistic revision of Türkiye regulatory frameworks to strengthen compliance and sustainability in the peaches (Rashdan & Türooy, n.d.).

Conversely, Pakistan's political framework for its maritime sector has evolved but faces substantial obstacles. The Government of Pakistan has made significant progress in the integration of marine spatial planning in policies aimed at promoting the sustainable development of coastal and marine areas (Jattak et al., 2023). This approach establishes a clear priority to balance ecological integrity with economic development, facilitating a complete management strategy for the fishing sector. Baset (2020) stresses that the sustainable development of sea fisheries in Pakistan is based on best regulatory practices and community participation, reflecting increasing recognition of local stakeholders in fishing management.

The implementation of the Chinese-Pakistani Economic Corridor (CPEC) introduced both the potential and the challenges of maritime trade and coastal development in Pakistan (Butt et al., 2024). Although the CPEC promotes the investment of infrastructure that improves trade routes, it also raises concerns concerning environmental degradation and exhaustion of resources. Khan and Ullah (2024) discuss the legal challenges arising from international agreements under the CPEC which can compromise the protection of the marine environment. The human rights and judicial enforcement are another essential area which need to be addressed (Abbas et al., 2022). These complexities highlight the urgent need for a robust legal framework that harmonizes development aspirations with an environmental safeguard. The successes in Pakistan's maritime policies are obvious in strategic initiatives to revive the blue economy, which emphasizes the sustainable use of ocean resources. Khalil's research (2024) indicates that the development of a blue economy can significantly contribute to socio-economic development, provided that there are protective measures against overfishing and pollution. In addition, improvements in seafood export capacities are continued as part of a broader commercial strategy (Xia et al., 2025). However, the country's regulatory mechanisms must be reinforced to ensure that sustainability is not sacrificed for immediate economic gains.

The two nations could significantly benefit from the adoption of lessons from each other while focusing on their unique contexts. For example, Pakistan integration of community approaches into marine management could improve compliance and promote local stewardship similar to policies observed in Türkiye (Ali, 2018). Meanwhile, Türkiye could improve its application mechanisms to alleviate illegal fishing and improve public responsibility in fishing management.

In addition to regulatory weaknesses, there are wider socio-economic challenges having an impact on maritime policies in the two countries. In Türkiye, the challenge of balanced rapid economic growth with environmental management is obvious. The fishing sectors are strongly influenced by global economic policies, which can sometimes prioritize short -term economic benefits compared to sustainability (Gul, Admiral and Shah, 2021).

This is exacerbated by external pressures, such as European Union fishing quotas and market demands, which often conflict with local sustainability efforts. The coastal development of Pakistan is faced with pronounced socio-political challenges characterized by limited government capacities and financial constraints (Alam and Azam, 2023). Pakistan and India share a coastal belt, and one issue is rising extremism in India due to Hindutva ideology (Rashid et al., 2023). The increase in the impacts of climate change, in particular the increase in temperatures and the increase in sea, exacerbated these problems, affecting the coastal communities which depend strongly on fisheries for their means of subsistence. Therefore, there is an urgent call to integrate climate resilience in maritime and coastal policy frameworks (Mustafa et al., 2025).

Although Türkiye and Pakistan have made laudable progress to improve their fishing and seafood policies, there is an obvious necessity for better collaboration of intergovernmental and public participation to ensure sustainable management practices. Public diplomacy can also play a vital role (Bilal, 2022). The establishment of multiple stake platforms for the dialogue and the formulation of policies can facilitate the integration of various interests, thus strengthening governance mechanisms (SAJID, Ali and Abubakar, 2024). In addition, the role of technology in monitoring and applying fishing regulations provides both countries with the opportunity to improve operational efficiency (Mollaoglu et al., 2024).

The two countries should invest in capacity building initiatives that promote environmental awareness and sustainable practices among local fishermen's communities. Empirical studies can provide valuable information on best practices in fisheries management, ensuring that policies remain robust independently of the evolution of socio-economic conditions.

Effectiveness of Policy & Institutional Frameworks in Türkiye and Pakistan:

Sector	Türkiye	Pakistan	Effectiveness Assessment
Sustainable Fisheries	EU-aligned fisheries regulations, aquaculture promotion, marine spatial planning, biodiversity monitoring.	Provincial fisheries acts, mangrove restoration, licensing system, donor-supported sustainability projects.	Türkiye: Moderate–High effectiveness due to regulatory strength and monitoring. Pakistan: Low–Moderate, enforcement gaps and reliance on external projects.
Maritime Trade	Strong shipping industry, Istanbul as hub, integrated transport/maritime policies, port modernization.	CPEC-driven Gwadar Port development, shipbreaking industry, Ministry of the Maritime Affairs oversight.	Türkiye: High effectiveness, trade fully integrated with EU/global markets. Pakistan: Moderate, strong strategic trade focus but limited infrastructure and governance efficiency.

Sector	Türkiye	Pakistan	Effectiveness Assessment
Coastal Development	Emphasis on sustainable tourism (Aegean, Mediterranean), coastal zone planning, renewable offshore energy.	Coastal resilience initiatives, small-scale tourism, climate adaptation programs, donor-driven interventions.	Türkiye: Moderate–High, institutionalized planning with sustainability tools. Pakistan: Low–Moderate, fragmented planning, uneven development.
Institutional Capacity	Inter-ministerial coordination (Transport, Environment, Agriculture), EU compliance pressure improves governance.	Ministry of Maritime Affairs leads; provincial agencies involved but overlapping mandates and weak capacity.	Türkiye: Stronger institutional coherence, external accountability via EU. Pakistan: Fragmented institutions hinder long-term effectiveness.
Overall Effectiveness	Balanced approach integrating growth with sustainability, though pressures from overfishing and pollution persist.	Ambitious policies but limited enforcement and capacity reduce sustainability outcomes.	Türkiye: Moderately effective overall. Pakistan: More growth-driven, less sustainable in practice.

Table. 04

In conclusion, although Türkiye and Pakistan present various forces in their political frameworks governing sustainable peaches and maritime trade, they are also faced with significant challenges that could undermine their efforts. Continuous dialogue, knowledge sharing and the promotion of community approaches to policies are essential to improve the efficiency of these executives. Filling the existing gaps and taking advantage of regional collaboration, the two nations can strengthen their initiatives towards sustainable fisheries, maritime trade and holistic coastal development. Future research must focus on the dynamic interaction of economic, environmental and social factors that influence the maritime sectors to formulate adaptive and resilient political responses which will resist the test of time (Zhang et al., 2025; Hasan, 2024).

How are climate change, marine pollution, and overexploitation of resources affecting the sustainability of the blue economy in both contexts?

Navigating troubled waters: assessing the threats of climate change, marine pollution, and resource overexploitation on the blue economy in Türkiye and Pakistan. The blue economy, which includes economic activities related to oceans, seas and coasts, has a substantial promise for Türkiye and Pakistan, in particular in the context of sustainable development. However, this potential is increasingly threatened by climate change, marine pollution and excessive exploitation of resources. Understanding these impacts is essential to deal with the challenges addressed by both nations and to explore practicable solutions capable of promoting a resilient blue economy. Climate change significantly affect marine ecosystems, altering biodiversity and interrupting food chains. In Pakistan, the increase in ocean temperatures and the acidification of the oceans led to changes in the populations of fish, affecting the fishing and local subsistence means that depend on marine resources (Ali & Hussain, 2023).

In addition, greater frequency and intensity of extreme weather events can interrupt maritime activities, including shipping and tourism, crucial sectors within the blue economy (Khan, 2024). Likewise, Türkiye faces alterations in his marine environments, influencing coastal tourism and fishing (Kocakaya, 2024). The heating seas can lead to the migration of the species of fish, challenging sustainable fishing practices and food safety for the communities that depend on these resources (Kocakaya, 2024).

Marine pollution aggravates the risks placed by climate change. Both countries are witnessing the harmful effects of plastic waste and untreated waste water that enter marine environments. In Pakistan, the problem in progress of plastic pollution has serious implications for marine biodiversity (Alam & Azam, 2023). The accumulation of micro plastics does not affect only marine species but also places health risks for man through the food chain (Butt et al., 2024). In Türkiye, the Mediterranean Sea, often indicated as the "plastic sea", deals with pollution challenges that threaten local marine life and tourism (Kocakaya, 2024). Cleaning these marine environments requires significant investments and coordinated efforts in several sectors.

The excessive exploitation of resources is another noteworthy challenge that affects the sustainability of the blue economy in both nations. In Pakistan, unsustainable fishing practices have led to excessive fishing, which decreases fish stocks and undermines the economic profitability of fishing (Alam & Azam, 2023). The introduction of illegal fishing, often facilitated by non -optimal regulatory paintings, worsens the situation and contributes to the decline of critical marine species (Khan, 2024). In the same way Türkiye deals with the excessive exploitation of its marine resources, in particular through excessive fishing and tourist pressure in the coastal areas (Kocakaya, 2024).

Without rigorous measures, these practices threaten long -term sustainability of the blue economy. Given these substantial challenges, it is essential to explore potential solutions that can mitigate the impacts of climate change, marine pollution and excessive exploitation of resources. First of all, the integration of sustainable practices in national policies is fundamental. For both Türkiye and Pakistan, the development of solid regulatory paintings to support sustainable fishing and encourage eco-compatible practices could improve the resilience of the blue economy (Medhekar, 2025). This requires a strengthening of the application mechanisms against illegal fishing and training supply for local fishermen on sustainable practices (Khan, 2024).

Investments in marine conservation projects can also produce positive results. Establishing protected marine areas (MPA) can help restore fish populations and improve the resilience of the ecosystem against climate change (Akhtar et al., 2025). By protecting critical habitats and ensuring that some regions are prohibited for excessive fishing, both countries can improve biodiversity and support sustainable fishing. Management based on the community, in which local interested parties actively participate in the governance of marine resources, can promote a sense of ownership and encourage sustainable practices (Mithras, Zaman and Pramanick, 2022). Improve public awareness and education programs regarding the meaning of marine ecosystems and the threats they face can further guide the positive change. The campaigns aimed at reducing plastic consumption and illegal fishing activities can help mitigate marine pollution and the exhaustion of resources (Bhuyan et al., 2022). Collaboration with local communities, schools and media can promote a culture of conservation and responsible management of marine resources (Ali & Hussain, 2023).

Pressures on Blue Economy Sustainability in Türkiye and Pakistan:

Pressure Area	Türkiye	Pakistan	Impact on Blue Economy Sustainability
Climate Change	Rising sea levels threaten Aegean & Mediterranean coasts; warming seas affecting fish stocks; extreme weather disrupts coastal tourism & maritime trade.	Coastal erosion, sea intrusion in Sindh & Balochistan; damage to mangroves; climate vulnerability of fishing communities.	Both face coastal risks and fishery stress, with higher adaptive capacity in Türkiye but greater vulnerability in Pakistan.
Marine Pollution	Industrial discharge, untreated sewage, plastic	Marine litter, oil leaks from shipping/ports,	Pollution undermines fisheries & tourism in

Pressure Area	Türkiye	Pakistan	Impact on Blue Economy Sustainability
	pollution, oil spills in busy shipping routes (Istanbul Strait).	untreated urban waste, and lack of wastewater facilities near coasts.	both; Türkiye has stricter controls, Pakistan struggles with weak enforcement.
Overexploitation of Resources	Overfishing of small pelagic species, illegal fishing, and unsustainable aquaculture pressures.	Overfishing by industrial fleets, weak monitoring of coastal resources, and depletion of fish stocks.	Both face fish stock depletion; Türkiye has regulations but enforcement gaps, Pakistan faces severe governance challenges.
Cumulative Effect	Economic sectors (shipping, tourism, fisheries) threatened but partly cushioned by EU-aligned policies and monitoring.	Blue economy growth potential constrained by ecosystem degradation, governance gaps, and socio-economic vulnerabilities.	Sustainability more resilient in Türkiye, more at risk in Pakistan.

Table. 05

In addition, promoting regional cooperation between Türkiye and Pakistan, as well as with other nations in the region, can facilitate the sharing of knowledge and the best practices in the management of shared marine resources. Collaborative efforts through framework such as the Chinese-Pakistani economic corridor (CPEC) can be exploited to focus on the development of sustainable coastal infrastructures and investments in the blue economy (Butt et al., 2024). Through collective action, both countries can work for cross -border marine management that protects shared resources effectively.

Finally, the integration of climatic adaptation strategies in the planning and management of marine resources is vital. This entails the evaluation of the vulnerabilities of ecosystems and marine communities to impact on climate change and the development of resilience construction strategies such as the restoration of the habitat and sustainable coastal development (Alim, 2021). Both Türkiye and Pakistan must give priority to climatic adaptation within their blue economy strategies to ensure their long -term profitability.

In conclusion, the blue economy in Türkiye and Pakistan faces a formidable challenges due to climate change, marine pollution and the exploitation of resources. However, with committed actions and strategic solutions, such as the best regulatory paintings, public awareness, investments in conservation, regional cooperation and climate adaptation strategies, potential for a sustainable blue economy remains at hand. Giving priority to the health of marine ecosystems and communities dependent on them, both nations can navigate in the complexity of these challenges and guarantee a more prosperous and sustainable future.

What lessons and policy innovations can Türkiye and Pakistan adopt from each other to strengthen sustainable marine resource governance?

Bridging Waters: Innovative Policies and Transferable Lessons for Sustainable Marine Resource Governance between Türkiye and Pakistan. Sustainable governance of marine resources has an increasingly critical challenge for nations worldwide, particularly in the context of developing economies such as Türkiye and Pakistan. Shared challenges, including overweight, pollution and habitat degradation, require innovative policies and practices that can follow a sustainable path to

marine resource management. The exchange of transferable lessons between Türkiye and Pakistan offers opportunities for enhanced governance, particularly through community involvement and technological advances.

Both Türkiye and Pakistan deal with complex marine challenges. Türkiye's maritime space is characterized by its strategic position throughout the Black Sea, the Mediterranean and the Aegean Sea, which has implications for commercial and biodiversity activities (Baltaoglu, 2023). On the other hand, the coastal areas of Pakistan along the Arabic sea face similar pressures of fishing and industrial activities (ASLAM et al., 2023). The identification of common challenges establishes the foundations for collaborative governance strategies that can address these environmental pressures and affirm regional stability. In the Pakistani context, stability in Afghanistan is vital because it has significant ramifications for Pakistan (Rashid et al., 2022).

A critical aspect of sustainable marine governance lies in community involvement. Involving local communities in the administration of marine resources promotes a sense of property and responsibility. In Türkiye, community approaches to marine spatial planning emphasize the involvement of stakeholders and participatory decision making processes (Baltaoglu, 2023). Similarly, in Pakistan, involving coastal communities in the maritime policy governance structure, it has shown promise to promote sustainable practices (Sherazi, 2025). This double focus on community involvement can increase compliance with policies and contribute to local economic resilience, as local stakeholders often have invaluable knowledge of their ecosystems (Sherazi, 2025).

In addition, political structures in both countries can be strengthened through cooperative efforts intended for integration and consistency. For example, the internal coherence of Pakistan National Maritime Policy could benefit from the lessons extracted from Türkiye's efforts on policy amalgamation at various levels of governance (ASLAM et al., 2023). This integration can mitigate conflicts between sectors and provide a unified approach to resource governance, thus addressing conflicting interests of fishing, tourism and conservation.

Technological advances play a key role in the advancement of marine resource governance on Türkiye and Pakistan. Innovative technologies such as satellite monitoring, geographic information systems (GIS) and submarket drones offer unprecedented opportunities for data collection and marine monitoring. Adaptation of these technologies can significantly improve the monitoring of law application and compliance for fishing and pollution control (Bilawal Khaskheli et al., 2023). The potential for technology transfer is significant, especially with regard to Pakistan learning by applying Türkiye of advanced marine technologies in research and policy implementation.

In addition, the use of technology to promote transparency through data sharing can energize local communities and reinforce their involvement. The manufacture of policies driven by scientific evidence of sound creates a platform for effective resource governance (Kumar et al., 2023). For example, the establishment of participatory monitoring systems, where local fishermen contribute to data on sizes and capture species, can improve the accuracy of evaluations and promote collaborative management practices. In addition to technological advances, financial mechanisms such as Green Finance can also contribute to sustainable marine governance. As highlighted by Mahmood et al. (2024), there is a growing tendency to integrate green financing solutions to support coastal development and restoration projects in developing economies. Türkiye and Pakistan could create joint funding initiatives for sustainable fisheries or marine conservation projects, reinforcing the commitments of both countries regarding sustainable development objectives (SDGs).

The collaboration between Türkiye and Pakistan can extend to the broader international structures that facilitate the sharing of knowledge among regional partners. For example, regional organizations and agreements such as Black Sea Economic Cooperation (BSEC) can serve as platforms to exchange best practices and improve collective action against shared marine challenges (ISLÃ, 2024).

Mutual Lessons & Policy Innovations for Sustainable Marine Resource Governance:

Area	Lessons for Türkiye (from Pakistan)	Lessons for Pakistan (from Türkiye)	Potential Shared Innovations
Community Engagement	Incorporate stronger grassroots involvement in coastal conservation, inspired by Pakistan's community-driven mangrove restoration.	Institutionalize structured stakeholder consultation (NGOs, industry, academia), as practiced in Türkiye under EU-aligned governance.	Joint community–state partnerships for fisheries co-management and coastal resilience.
Strategic Orientation	Broaden focus beyond EU compliance to include South–South cooperation and regional security linkages (as Pakistan does via CPEC).	Integrate blue economy into regional and international trade frameworks (as Türkiye has done with EU and Mediterranean hubs).	Develop regional maritime forums for knowledge-sharing and trade-environment balance.
Marine Resource Management	Learn from Pakistan's ecosystem-based approaches (mangroves, coastal resilience) for biodiversity protection.	Adopt Türkiye's marine spatial planning, aquaculture regulations, and pollution control mechanisms.	Create joint research platforms on marine biodiversity, aquaculture, and pollution reduction.
Institutional Governance	Simplify overlapping agencies by adopting Pakistan's centralized The Ministry of Maritime Affairs model.	Strengthen inter-ministerial coordination and EU-style compliance mechanisms for better governance.	Establish joint training programs for maritime officials and fisheries managers.
Climate Adaptation	Build resilience lessons from Pakistan's climate-vulnerable coastal communities.	Apply Türkiye's renewable offshore energy and carbon market integration to coastal adaptation.	Launch bilateral coastal adaptation projects under climate finance mechanisms.

Table. 06

Such collaborations may also involve joint research initiatives to evaluate the environmental impacts of maritime activities, which would eventually support enhanced governance strategies. In seeking innovations in sustainable governance, both countries should also address legal structures and institutional abilities. The legal risks associated with maritime governance require a robust understanding of existing laws and the development of adaptive policies that can respond to rapid environmental changes (Khaskheli et al., 2023).

Policy formulators in Pakistan can look at the legal advances and regulatory structures established in Türkiye, leveraging them to strengthen their own laws related to maritime sustainability. In addition, educational initiatives should focus on training to train stakeholders in Türkiye and Pakistan. By improving the knowledge and skills of local communities on sustainable practices, these programs will promote a culture of environmental administration and sustainable use of marine resources (WAN et al., 2023).

Awareness campaigns that promote the importance of biodiversity and the impacts of overfishing can galvanize community action in relation to sustainable fishing. Finally, shared challenges and opportunities between Türkiye and Pakistan offer fertile ground for both countries to be based on each other's experiences on sustainable marine resources. The incorporation of community

involvement, technology use, coherence of policies, green financing and improved legal structures serves to create a comprehensive approach that is adaptable and effective. The Ponte of Knowledge and Practices may not only promote the sustainability of maritime resources, but also contribute to achieving broader sustainable development objectives that support the ambitions of both nations (Kanie & Biermann, 2017).

Approaching these interconnected dimensions will require committed partnerships and collaborative strategies, built on innovative ideas and adaptable policies. Involving local communities, leveraging technological capabilities, nourishing institutional structures and increasing legal clarity will be crucial for building a sustainable structure of marine resource governance that is effective and inclusive. With the lessons learned from each nation, Türkiye and Pakistan can work together to turn their challenges of marine resources into opportunities for sustainable development, thus forging a way to resilience in the face of the evolution of environmental realities.

CONCLUSION

The Blue Economy, defined as the sustainable use of ocean resources for economic growth, improved subsistence means and jobs, preserving the health of ocean ecosystems, became increasingly pertinent to countries with extensive maritime domains. Türkiye and Pakistan, although both are linked by their geographical proximity to the sea and the meaning of marine resources to their economies, adopted markedly divergent strategies in promoting sustainable growth in the blue economy. An examination of these strategies reveals critical information about their implications for maritime resource management and future opportunities available for both nations.

Türkiye's approach to the blue economy was characterized by a comprehensive structure that integrates ecological, economic and social considerations. In recent years, Türkiye has prioritized sustainable management of its rich marine resources through various initiatives, including significant research and development investments regarding marine biodiversity and ecosystem services. The Turkish government has collaborated with academic and stakeholder institutions in the private sector to create a better understanding of marine ecosystems, which is fundamental for informed decision making and implementation of policies. This collaborative strategy not only enhances knowledge, but also promotes innovation in sustainable practices. The Marine Strategy Structure Directive (MSFD) establishes Turkey's commitment to achieve a good environmental status (GES) of its marine waters, thus ensuring that marine resources are used sustainably and also accounting for environmental health.

In addition to research and ecological evaluations, Türkiye has implemented a series of regulatory measures designed to promote sustainable fishing management. This includes efforts to combat illegal, not reported and unregulated (IUU) fishing through the most rigorous application of fishing quotas and protected marine (MPA) protection. Establishment of MPAs is a significant component of Türkiye's strategy as it seeks to replenish fish stocks and protect sensitive habitats. Focus on insurance guard biodiversity not only contributes to ecological health, but also establishes a base for long -term economic sustainability in the fishing industry. In addition, Türkiye emphasized the importance of diversification of maritime industry, encouraging investments in blue technological innovations, which vary from aquaculture to renewable marine energy, which can reinforce the economy and job creation.

On the other hand, Pakistan's strategy in relation to the blue economy has historically faced significant challenges, including limited government resources, inappropriate legal structures for maritime resources management and lack of public awareness of maritime issues. Although the country recognizes the importance of a sustainable blue economy, its approach has been widely reactive and non -proactive, with insufficient emphasis on the integration of sustainable practices with maritime governance. Observing, national policies usually reflect fragmented initiatives rather than a comprehensive integrated strategy that addresses the various facets of marine resource management.

One of the remarkable challenges in Pakistan Marine Resource Management is the lack of robust data collection and analysis. Weak institutional abilities make it difficult to monitor and effective fishing, resulting in excessive exploitation and degradation of marine ecosystems. This issue is aggravated by the prevalence of IUU fishing, which further destabilizes fish populations and mine efforts to promote sustainable fishing. Pakistan has significant potential in aquaculture; however, the absence of structured policies and investment in research limits the development of the sector. Unlike Türkiye, who has invested strongly in marine research capabilities, Pakistan usually depends on external knowledge, inhibiting the development of locally sustainable practices.

The implications of these contrasting strategies are profound. Türkiye's proactive approach allows an act of balance between economic interests and ecological preservation, establishing the foundations for a more resilient and sustainable blue economy. On the other hand, the challenges of Pakistan in marine resource management can lead to long -term devastating repercussions for ecological health and economic viability. The exhaustion of fish stocks and the degradation of marine ecosystems, ultimately threaten food safety and the subsistence means of coastal communities that depend greatly on fishing and other marine resources.

Future opportunities for both nations depend on how they adapt and refine their strategies regarding the blue economy. For Türkiye, keeping your boost in marine research and sustainable practices will be crucial. The expansion of international collaborations and knowledge sharing about best practices in maritime management can further improve Türkiye's position as regional leader in the blue economy. The transition to marine renewable energy offers promising paths for use and energy safety, aligning economic growth with environmental goals. In addition, increasing public involvement and awareness around marine conservation will support policy efforts and encourage sustainable community -based practices.

For Pakistan, there are substantial opportunities, as long as the government and stakeholders adopt a more integrated and prospective approach to marine resource management. This involves the development of an explicit blue economy strategy that covers all aspects of marine use and governance. Building institutional skills and investing in scientific research are essential steps for more sustainable evidence and evidence management. Emphasizing community education and involvement can enable local populations to actively participate in conservation initiatives and sustainable resource management practices. Pakistan is in a critical moment. By leveraging its extensive coastal and maritime biodiversity, addressing existing institutional weaknesses, it can catalyze a transformative change in its approach to the blue economy. Collaborative regional initiatives that share lessons learned with Türkiye's strategies can promote innovation and reinforce Pakistan's abilities. Technology Integration - such as satellite monitoring and data analysis - Marine resource management has the potential to remedy many of the challenges faced in the supervision of fishing practices and the protection of vital ecosystems.

Evaluating the divergent strategies of Türkiye and Pakistan in the Blue Economy emphasizes the critical importance of personalized approaches to sustainable management of marine resources. Türkiye -oriented proactive and oriented initiatives present a convincing example of how systematic investment and legal structures can promote ecological sustainability, as well as unlock economic opportunities. On the other hand, the reactive posture of Pakistan highlights the risks associated with neglecting comprehensive planning and institutional development in the governance of marine resources. The following way to both nations is capitalizing on their strengths and addressing their respective weaknesses, ensuring that the Blue Economy offers long -term benefits to its communities, economies and ecosystems.

POLICY RECOMMENDATION

Sustainable growth in marine resources has become a critical focal point for nations that strive to strengthen their economies while protecting environmental integrity. In the context of the blue economy, Türkiye and Pakistan present contrasting but complementary political landscapes, each with unique challenges and opportunities concerning the management of marine resources. This analysis implies a comparative study of their respective strategies, aimed at providing exploitable recommendations which can improve governance executives of the two nations, thus promoting sustainable development in their maritime fields.

Türkiye's maritime policy is intrinsically linked to its geographical position, which entrusted it with significant marine resources along the Aegean, Mediterranean and black seas. The country has launched several strategic plans to strengthen its blue economy, emphasizing sustainable peaches, maritime transport and coastal tourism. The Turkish government has a commitment to integrate management approaches based on ecosystems, which aim to balance ecological imperatives against economic growth. In particular, Türkiye's naval strategy illustrates a unified framework integrating fishing management, protection of housing and pollution control. However, the challenges persist, in particular overfishing, marine pollution and the degradation of housing, mainly motivated by industrial activities and urban development along the coasts. Return to these challenges will require reinforced regulatory frameworks and an improved commitment to stakeholders to guarantee compliance and collaboration between various marine stakeholders.

Conversely, the approach of Pakistan to the management of marine resources is shaped by its dependence on the sea of   Oman and the problems inherent in the management of its coastal dynamics. The blue economy is very promising for Pakistan, with substantial opportunities in fishing, aquaculture and coastal tourism. However, the nation is struggling with significant constraints such as poverty, limited infrastructure and the insufficient application of existing environmental regulations. Existing policies tend to be fragmented, often lacking in consistency and integration. The national fishing policy is a laudable effort intended to balance economic aspirations for environmental conservation, but it highlights the systemic weaknesses concerning implementation and application.

The comparison of the two nations reveals relevant ideas. Türkiye displays a more mature political structure, evidenced by its strategic visions which raise the economic, ecological and social dimensions of the blue economy. Pakistan, on the other hand, is at an anterior stage of the development of policies, requiring a paradigm change to effectively take advantage of its marine resources. However, the rich cultural heritage and extended coastal ecosystems of Pakistan present unexploited opportunities for sustainable tourism and community resources management that could stimulate economic diversification and resilience.

The two countries face the urgent challenge of climate change, which exacerbates vulnerabilities in marine ecosystems and requires the need for adaptive strategies. The proactive position of Türkiye on the adaptation and attenuation of the climate through legislative measures, such as the action plan on climate change, provides a precious model for Pakistan. As a recommendation, Pakistan could consider adopting a more integrated climate policy framework that explicitly addresses the vulnerabilities of the marine sector, aligning its strategies on international commitments such as the Paris Agreement.

In addition, the commitment of stakeholders is essential in the facilitation of effective implementation in the two countries. Türkiye's successes in the management of community fisheries illustrate the value of involving fishermen and local communities in decision -making processes. By promoting a participatory governance approach, the two nations can improve compliance, increase local ownership of marine resources and mitigate conflicts. In Pakistan, the improvement of collaboration between government agencies, non -governmental organizations and local communities could strengthen confidence and facilitate the implementation of more effective policy.

Technological advancement is another shared opportunity. Türkiye began to use research and advanced research and surveillance technologies to improve its marine safety and environmental compliance. Pakistan can benefit from the induction of integrated technological solutions for sustainable fisheries management and maritime surveillance, which can lead to increased data collection and informed decision -making. Investment in marine research and development could stimulate technological innovation, promote sustainable practices in aquaculture and improve predictive models of climatic impacts on marine resources.

The treatment of pollution in marine environments is essential for both nations. Türkiye began to integrate complete pollution control measures thanks to its marine pollution control action plan. Pakistan, with its urban coastal cities, must prioritize the development of robust waste management systems to reduce marine pollution from land sources. In addition, the two countries could seek to improve cross-border cooperation in the management of shared marine resources, ensuring that policies extend beyond national courts to maintain healthy ecosystems.

In conclusion, while Türkiye and Pakistan present various scenarios in the management of their marine resources, the two nations hold an improved commitment to sustainable practices within the framework of the blue economy. The strengthening of regulatory managers, promoting stakeholders' commitment, exploitation of technology, combating climatic vulnerabilities and the adoption of cross -border cooperation emerge as protruding recommendations. By attacking these critical fields, the two nations can effectively navigate their path to sustainable growth and complete management of marine resources, ensuring the longevity and health of their splendid marine environments for future generations.

REFERENCES

Abdullah, A., Awal, Z. I., Alamgir, M. Z., Mia, M. J., Mim, F., & Dhar, U. K. (2023). A review on ship recycling industry in Bangladesh from global perspective. Journal of Ocean and Coastal Economics, 10(1), 4. https://cbe.miis.edu/joce/vol10/iss1/4/

Abbas, R., Rashid, M. A., & Bilal, F. E. (2022). International human rights and its judicial enforcement in Pakistan. *Pakistan Journal of Social Research*, *4*(2), 1262-1271.

Abbas, R., Rashid, M. A., & Bilal, F. E. (2022). Disputes arising out of foreign direct investments in Pakistan: A new look at legal and political issues. *Pakistan Journal of International Affairs*, *5*(2).

Abbas, R., Bilal, F. E., & Rashid, M. A. (2022). Domestic Violence Against Women in Pakistan: To What Extent Pakistan Fulfilled Its International Pledge. *Pakistan Journal of Social Research*, *4*(1), 575-582.

Abbas, R., Bilal, F. E., & Rashid, M. A. (2022). Terrorism and Ethnicity Threats and Policy Response. *Pakistan Journal of International Affairs*, *5*(2).

Adıbelli, B., Gülbaş, E., Keskin, G. F., Ünlü, H., Türkmen, H. G., Şahin, H. H., ... & Aslan, Ö. (2022). SOUTH ASIA COUNTRY ANALYSES: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka. GASAM-Güney Asya Stratejik Araştırmalar Merkezi & South Asia Strategic Research Center.

Adnan, M., Xiao, B., Ali, M. U., Bibi, S., Yu, H., Xiao, P., & An, X. Environmental Challenges. https://www.researchgate.net/profile/Muhammad-Adnan-79/publication/378850148_Addressing_current_climate_issues_in_Pakistan_an_opportunity_for_a_sustainable_future/links/668fb152af9e615a15df06a4/Addressing-current-climate-issues-in-Pakistan-An-opportunity-for-a-sustainable-future.pdf

Agarwala, N. (2020). Science Technology and Innovation for a Healthy, Blue Ocean and Sustainable Ocean Economy in the Asia-Pacific‖. Tech Monitor, 37(1). https://www.academia.edu/download/64189033/20Jan-Mar_sf1.pdf

Ağırkaya, M. B. (2021). THE BLUE ECONOMY IN THE GROWTH, DEVELOPMENT, GREEN ECONOMY. Management and Finance Studies, 181. https://books.google.com/books?hl=en&lr=&id=Lq-TEAAAQBAJ&oi=fnd&pg=PA181&dq=Similarities+and+differences+in+blue+economy+and+marine+resource+management:+Türkiye+vs+Pakistan&ots=6x4A9_A_VX&sig=rf8z_pmM8Oy84xVlzgVd1YJ5soY

Ahmad, A. (2024). Development of Pakistan Maritime Policy; Learning from India's Development. Learning from India's Development (June 13, 2024). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5179153

Ahmad, A. U., Abubakar, A. M., Muhammad, M., Ahmad, I. M., Sani, B. Y., Abdullahi, A. T., & Shiaibu, H. (2025). Sustainable economic horizons: integrating green and blue economies, energy strategies to drive Nigeria's growth potential. SN Business & Economics, 5(3), 20. https://link.springer.com/article/10.1007/s43546-025-00786-y

Ahmed, S., Mahmood, A., Hasan, A., Sidhu, G. A. S., & Butt, M. F. U. (2016). A comparative review of China, India and Pakistan renewable energy sectors and sharing opportunities. Renewable and sustainable Energy reviews, 57, 216-225. https://www.sciencedirect.com/science/article/pii/S1364032115015749

Ahsan, M. S., Hussain, E., Lemmen, C., Chipofya, M. C., Zevenbergen, J., Atif, S., & Ali, Z. (2024). Applying the Land Administration Domain Model (LADM) for Integrated, Standardized, and Sustainable Development of Cadastre Country Profile for Pakistan. Land, 13(6), 883. https://www.mdpi.com/2073-445X/13/6/883

Akhtar, M. J. (2024). Transforming Pakistan's Blue Economy. Policy Perspectives, 21(2), 133-153. https://www.jstor.org/stable/48826379

Akhtar, M. Z., Zaman, K., & Khan, M. A. (2025). Unveiling the Role of Ecosystem-Based Fisheries Management in Mitigating Biodiversity Loss: A Panel Study of Asian Countries. International Journal of Rural Management, 21(1), 66-79. https://journals.sagepub.com/doi/abs/10.1177/09730052241292924

Akhtar, M., Xu, J., Kashif, U., Ali, K., Muhammad Naveed, H., & Haris, M. (2025). Bayesian neural network modelling for estimating ecological footprints and blue economy sustainability across G20 nations. Humanities and Social Sciences Communications, 12(1), 1-14. https://www.nature.com/articles/s41599-025-04378-x

Alam, M. W., & Xiangmin, X. (2019). Marine pollution prevention in Bangladesh: A way forward for implement comprehensive national legal framework. Thalassas: An International Journal of Marine Sciences, 35(1), 17-27. https://link.springer.com/article/10.1007/s41208-018-0078-x

Alam, S., & Azam, M. (2023). Challenges and prospects of blue economy for Pakistan. Journal of Asian Development Studies, 12(3), 1516-1527. https://poverty.com.pk/index.php/Journal/article/view/222

Ali, M. R. (2018). Small-scale fisheries in Pakistan. Small-scale fisheries in South Asia, 81. https://www.researchgate.net/profile/Shiba-Giri/publication/333089404_Small-scale_Fisheries_in_South_Asia/links/5cdadb9aa6fdccc9ddabc5a0/Small-scale-Fisheries-in-South-Asia.pdf#page=90

Ali, M., Kirikkaleli, D., Sharma, R., & Altuntaş, M. (2022). The nexus between remittances, natural resources, technological innovation, economic growth, and environmental sustainability in Pakistan. Environmental Science and Pollution Research, 29(50), 75822-75840. https://link.springer.com/article/10.1007/s11356-022-21228-4

Ali, S. H., & Hussain, Z. (2023). Impact of climate change on south Asia: shifting marine ecosystems in Pakistan. Pakistan Horizon, 76(4), 65-83. https://pakistan-horizon.piia.org.pk/index.php/pakistan-horizon/article/view/322

Alim, M. A. (2021). Climate change and its challenges for the marine environment with special reference to ecological aspects in Bangladesh. International Journal of Maritime Crime and Security, 2(1), 32-47. http://ijmcs.co.uk/cdn/article_file/2021-08-05-11-36-03-AM.pdf

Arlı, E., Saygılı, M. S., & Güneş, İ. S. (2025). The impact of fisheries and maritime transport export on economic growth: The case of Türkiye. Transportation Research Interdisciplinary Perspectives, 33, 101590. https://www.sciencedirect.com/science/article/pii/S2590198225002696

Asif, M. (2022). Blue Economy and Power Politics in the Indian Ocean: Challenges and Opportunities. Journal of Nautical Eye and Strategic Studies, 2(2), 2-37. https://ojs.mul.edu.pk/index.php/J-NESS/article/view/182

Aşkun, V., & Erkoyuncu, M. (2023). Sustainability of Human Development through Governance: A Qualitative Comparative Analysis of Countries. Abant Sosyal Bilimler Dergisi, 23(3), 1585-1608. https://dergipark.org.tr/en/pub/asbi/issue/80991/1327959

Aslam, B., Iqbal, K. M. J., Akhtar, N., Mottaeva, A. B., Fedorovna, T. T., Barykin, S., & Khan, M. I. (2023). Coherence analysis of national maritime policy of Pakistan across shipping sector governance framework in the context of sustainability. Sustainability, 15(9), 7665. https://www.mdpi.com/2071-1050/15/9/7665

Awan, A., Bibi, M., Bano, F., & Shoukat, S. (2023). A bibliometric analysis on fuel prices fluctuations and tourism under the era of sustainable development. Pakistan Journal of Humanities and Social Sciences, 11(2), 792-813. https://www.journals.internationalrasd.org/index.php/pjhss/article/view/1306

Azimi, M. N., Rahman, M. M., & Nghiem, S. (2023). Linking governance with environmental quality: a global perspective. Scientific Reports, 13(1), 15086. https://www.nature.com/articles/s41598-023-42221-y

Bakoben, H. B. M., & Khan, M. S. (2025, August). Importance of natural energy, and blue resources to address environmental challenges in view of the Saudi Vision 2030. In Natural Resources Forum (Vol. 49, No. 3, pp. 2155-2187). Oxford, UK: Blackwell Publishing Ltd. https://onlinelibrary.wiley.com/doi/abs/10.1111/1477-8947.12447

Baltaoğlu, S. (2025). Prospects of marine spatial planning in Türkiye. Regional Studies in Marine Science, 81, 103997. https://www.sciencedirect.com/science/article/pii/S2352485524006303

Baltaoglu, S. Prospects of Marine Spatial Planning in the Marine Areas of Türkiye. Available at SSRN 4883803. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4883803

Barros, L., & Martínez-Zarzoso, I. (2022). Systematic literature review on trade liberalization and sustainable development. Sustainable Production and Consumption, 33, 921-931. https://www.sciencedirect.com/science/article/pii/S2352550922002184

Baset, A. (2020). Sustainable development of marine fisheries in Pakistan. In Sustainable Entrepreneurship, Renewable Energy-Based Projects, and Digitalization (pp. 125-141). CRC Press. https://www.taylorfrancis.com/chapters/edit/10.1201/9781003097921-6/sustainable-development-marine-fisheries-pakistan-abdul-baset

Bashir, M. F. (2022). Discovering the evolution of Pollution Haven Hypothesis: A literature review and future research agenda. Environmental Science and Pollution Research, 29(32), 48210-48232. https://link.springer.com/article/10.1007/s11356-022-20782-1

Bilal, F. E., Abbas, R., & Rashid, M. A. (2022). Terrorism in Pakistan: A Critical Analysis. *Pakistan Languages and Humanities Review*, *6*(2), 1003-1013.

Bilal, F. E., Rashid, M. A., & Abbas, R. (2022). Fall of Kabul: A Critical Analysis of The Failure of the American's Liberal Norms. *Journal of Development and Social Sciences*, *3*(2), 1139-1148.

Bilal, F. E. (2022). Indo-Pak Public Diplomacy under the BJP: A Comparative Analysis of Vajpayee and Modi Governments. *International Journal of Kashmir Studies*, *4*(2).

Bhatti, O. K. (2024). Assessing Environmental Sustainability in Dry Ports within the Central Asia Regional Economic Cooperation (CAREC) Framework: A Case Study of Pakistan. PONTE International Journal of Science and Research, 80(3).

Bhuyan, M. S., Islam, M. N., Ali, M. M., Rashed-Un-Nabi, M., Alam, M. W., Das, M., & Mustary, S. (2022). Blue Economy prospects, opportunities, challenges, risks, and sustainable development pathways in Bangladesh. Global Blue Economy, 147-194. https://www.taylorfrancis.com/chapters/edit/10.1201/9781003184287-6/blue-economy-prospects-opportunities-challenges-risks-sustainable-development-pathways-bangladesh-md-simul-bhuyan-md-nazrul-islam-mir-mohammad-ali-md-rashed-un-nabi-md-wahidul-alam-monika-das-ranjan-roy-mohan-kumar-das-istiak-ahamed-mojumder-sobnom-mustary

Bhuyan, M. S., Islam, M. N., Ali, M. M., Rashed-Un-Nabi, M., Alam, M. W., Das, M., & Mustary, S. (2021). Blue economy prospect, opportunities, challenges, risks, and sustainable development pathways in Bangladesh. https://assets-eu.researchsquare.com/files/rs-1001892/v1/b17f486b-e2e8-427e-998d-60f35e17e67a.pdf

Bilawal Khaskheli, M., Wang, S., Zhang, X., Shamsi, I. H., Shen, C., Rasheed, S., & Baloch, D. M. (2023). Technology advancement and international law in marine policy, challenges, solutions and future prospective. Frontiers in Marine Science, 10, 1258924. https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2023.1258924/full

Butt, H. D., Aijaz, M. U., Shamim, M. A., Lodhi, K. S., Hayat, A., & Mazhar, M. (2024). Leveraging CPEC for a thriving blue economy and coastal development. Migration Letters, 21(S8), 1285-1321. https://www.researchgate.net/profile/Hassan-Daud-Butt/publication/379582056_Migration_Letters_Leveraging_CPEC_For_A_Thriving_Blue_Economy_And_Coastal_Development/links/660ff8d6a7c907287a443ae6/Migration-Letters-Leveraging-CPEC-For-A-Thriving-Blue-Economy-And-Coastal-Development.pdf

Butt, J., & Kousar, F. (2024). Harnessing offshore wind for sustainable economic growth in Nordic countries: Legal innovations, economic opportunities, and SDG and policy integration. Acta Universitatis Danubius. Œconomica, 20(2), 123-145. https://www.ceeol.com/search/article-detail?id=1252949

Cavallo, M., Bugeja Said, A., & Pérez Agúndez, J. A. (2023). Who is in and who is out in ocean economies development? Sustainability, 15(4), 3253. https://www.mdpi.com/2071-1050/15/4/3253

Chang, Y. C., Javid, M., & Khan, M. I. (2024). BBNJ agreement in the purview of developing countries: A case study of Pakistan. Marine Policy, 165, 106201. https://www.sciencedirect.com/science/article/pii/S0308597X24001994

Chang, Y. C., Javid, M., & Khan, M. I. (2024). BBNJ agreement in the purview of developing countries: A case study of Pakistan. Marine Policy, 165, 106201. https://www.sciencedirect.com/science/article/pii/S0308597X24001994

Eyüboğlu, S., & Akmermer, B. (2023). The relationship between economic growth and fisheries production in Türkiye. Aquaculture Studies, 24(2). https://avesis.ktu.edu.tr/yayin/aaec19ea-34d8-4d4b-8179-177ce1d9f43a/the-relationship-between-economic-growth-and-fisheries-production-in-Türkiye

Faizi, A., Ak, M. Z., Shahzad, M. R., Yüksel, S., & Toffanin, R. (2024). Environmental Impacts of Natural Resources, Renewable Energy, Technological Innovation, and Globalization: Evidence from the Organization of Turkic States. Sustainability, 16(22), 9705. https://www.mdpi.com/2071-1050/16/22/9705

Geng, B., Wu, D., Zhang, C., Xie, W., Mahmood, M. A., & Ali, Q. (2024). How can the blue economy contribute to inclusive growth and ecosystem resources in Asia? A comparative analysis. Sustainability, 16(1), 429. https://www.mdpi.com/2071-1050/16/1/429?utm_source=releaseissue&utm_medium=email&utm_campaign=releaseissue_sustainability&utm_term=doilink447&recipient=lyudmila7876@gmail.com&subject=Sustaina

bility%2C%20Volume%2016%2C%20Issue%201%20%28January-1%202024%29%20Table%20of%20Contents&campaign=ReleaseIssue

Gul, A., Admiral, V., & Shah, K. A. (2021). Policy insights to maritime economy in Pakistan. The Pakistan Development Review, 60(3), 373-384. https://www.jstor.org/stable/27262023

Hadjimichael, M. (2018). A call for a blue degrowth: unravelling the European Union's fisheries and maritime policies. Marine Policy, 94, 158-164. https://www.sciencedirect.com/science/article/pii/S0308597X17305687

Hasan, M. (2024). Analyzing the Blue Economy Potential of Pakistan's Maritime Sector. Qlantic Journal of Social Sciences and Humanities, 5(3), 202-209. https://qjssh.com.pk/index.php/qjssh/article/view/36

Herman, K. S. (2023). Green growth and innovation in the Global South: a systematic literature review. Innovation and Development, 13(1), 43-69. https://www.tandfonline.com/doi/abs/10.1080/2157930X.2021.1909821

Islam, M. R., Akter, T., Hossaın, A., Tora, A. T., Mely, S. S., Hossaın, M. A., & Haque, M. M. (2024). Contribution and prospect of marine fisheries in the economy of Bangladesh and sustainable blue economy challenges: A review. Marine Science and Technology Bulletin, 13(1), 41-55. https://dergipark.org.tr/en/pub/masteb/article/1337034

Islam, M. S. (2024). Maritime diplomacy and regional cooperation mechanisms: Insights from the Black Sea and Bay of Bengal. Millennial Asia, 09763996241256162. https://journals.sagepub.com/doi/abs/10.1177/09763996241256162

Islam, M. S., Ahmed, Z., Habib, M. A., & Masud, O. (2024). Blue economy of Bangladesh and sustainable development goals (SDGs): a comparative scenario. Discover Sustainability, 5(1), 349. https://link.springer.com/article/10.1007/s43621-024-00551-5

Jabeen, A., & Khan, S. A. (2022). Economic growth, social inclusion, and environmental protection: assessing the existence of green growth in Pakistan. Environmental Science and Pollution Research, 29(44), 66675-66688. https://link.springer.com/article/10.1007/s11356-022-20467-9

Jattak, Z. U., Wu, W., Gao, J., Zhang, K., Murtaza, S. H., Jan, M., & Ahmed, A. (2023). Advancing the initiatives of sustainable coastal and marine areas development in Pakistan through marine spatial planning. Science Progress, 106(4), 003685042312186011. https://journals.sagepub.com/doi/abs/10.1177/00368504231218601

Kanie, N., & Biermann, F. (Eds.). (2017). Governing through goals: Sustainable development goals as governance innovation. Mit Press.

Karakas, S., Acar, A. Z., & Kirmizi, M. (2024). Maritime Sustainability: Navigating Complex Challenges and Ecological Footprints. In Sustainable Development Seen through the Lenses of Ethno economics and the Circular Economy (pp. 19-47). Cham: Springer Nature Switzerland. https://link.springer.com/chapter/10.1007/978-3-031-72676-7_2

Karlı, A. (2024). Sustainable Blue Economy Policy in Turkey: Challenges and Opportunities. SDGs in Africa and the Middle East Region, 755-775.

Khalil, S. (2024). Pakistan's Maritime Potential for The Blue Economy and Its Strategic Impact on Sustainable Socio-Economic Development. Journal of Maritime Research, 21(3), 285-293. https://www.researchgate.net/profile/Saad-Khalil-7/publication/391425459_Pakistan's_Maritime_Potential_for_the_Blue_Economy_and_Its_Strategic_Impact_on_Sustainable_Socio-Economic_Development/links/68161e43d1054b0207e9cab3/Pakistans-Maritime-Potential-for-the-Blue-Economy-and-Its-Strategic-Impact-on-Sustainable-Socio-Economic-Development.pdf

Khan, A. A. (2024). Revolutionizing the Pakistani Economy: The Transformative Potential of the Blue Economy. International Journal of Computer and Information Security Solutions, 1689-1690.

Khan, A., & Ullah, M. (2024). The Pakistan-China FTA: legal challenges and solutions for marine environmental protection. Frontiers in Marine Science, 11, 1478669. https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2024.1478669/full

Khaskheli, M. B., Wang, S., Yan, X., & He, Y. (2023). Innovation of the social security, legal risks, sustainable management practices and employee environmental awareness in the China–Pakistan economic corridor. Sustainability, 15(2), 1021. https://www.mdpi.com/2071-1050/15/2/1021

KOCAKAYA, G. TOWARDS A SUSTAINABLE BLUE ECONOMY IN TÜRKİYE: AN OVERVIEW OF KEY SECTORS AND SDG 14 TARGETS. DEVELOPMENT GOALS, 627. https://www.econstor.eu/bitstream/10419/312688/1/Istanbul-University-Press_9786050716108.pdf#page=642

Kumar, L., Naqvi, S. A., Deitch, M. J., Khalid, M. J., Naeem, K., Amjad, A. Q., & Arshad, M. (2023). Opportunities and constraints for cleaner production policy in the developing world: a case study of Sindh Region, Pakistan. Environment, Development and Sustainability, 1. https://pmc.ncbi.nlm.nih.gov/articles/PMC9838531/

Li, L., Wu, B., & Patwary, A. K. (2021). How Marine tourism promote financial development in sustainable economy: New evidence from South Asia. https://www.researchsquare.com/article/rs-645827/latest

Li, L., Wu, B., & Patwary, A. K. (2022). RETRACTED ARTICLE: How marine tourism promote financial development in sustainable economy: new evidences from South Asia and implications to future tourism students. Environmental Science and Pollution Research, 29(1), 1155-1172. https://link.springer.com/article/10.1007/S11356-021-15709-1

Löhr, A., Savelli, H., Beunen, R., Kalz, M., Ragas, A., & Van Belleghem, F. (2017). Solutions for global marine litter pollution. Current opinion in environmental sustainability, 28, 90-99. https://www.sciencedirect.com/science/article/pii/S1877343517300386

Mahmood, M. A., & Ali, Q. (2023). How Can Blue Economy Contribute to Inclusive Growth and Ecosystem Resources in Asia? A Comparative analysis of Economic, Environmental, and Social Indicators among 19 Asian Cooperation Dialogue Members. https://www.preprints.org/frontend/manuscript/11ba5742d01df83b33fcaeed3e7b543e/download_pub

Mahmood, S., Sun, H., Iqbal, A., Alhussan, A. A., & El-kenawy, E. S. M. (2024). Green finance, sustainable infrastructure, and green technology innovation: pathways to achieving sustainable development goals in the belt and road initiative. Environmental Research Communications, 6(10), 105036. https://iopscience.iop.org/article/10.1088/2515-7620/ad898f/meta

Makri, A. (2022). Blue economy, a framework for sustainable development (Master's thesis, Πανεπιστήμιο Πειραιώς). https://dione.lib.unipi.gr/xmlui/handle/unipi/14530

Martínez-Vázquez, R. M., Milán-García, J., & de Pablo Valenciano, J. (2021). Challenges of the Blue Economy: evidence and research trends. Environmental Sciences Europe, 33(1), 61. https://link.springer.com/article/10.1186/s12302-021-00502-1

Massa, F., Onofri, L., & Fezzardi, D. (2017). Aquaculture in the Mediterranean and the Black Sea: a Blue Growth perspective. In Handbook on the economics and management of sustainable oceans (pp. 93-123). Edward Elgar Publishing. https://www.elgaronline.com/downloadpdf/edcollchap/edcoll/9781786430717/9781786430717.00013.pdf

Medhekar, A. (2025). Sustainability of the Blue Economy in the South Asian Countries: Opportunities and Challenges. Securing Sustainable Futures through Blue and Green Economies, 83-104. https://www.igi-global.com/chapter/sustainability-of-the-blue-economy-in-the-south-asian-countries/369770

Mitra, A., Zaman, S., & Pramanick, P. (2022). Blue economy in Indian Sundarbans: exploring livelihood opportunities. Springer Nature.

https://books.google.com/books?hl=en&lr=&id=Rp6FEAAAQBAJ&oi=fnd&pg=PR5&dq=Similarities+and+differences+in+blue+economy+and+marine+resource+management:+Türkiye+vs+Pakistan&ots=UpntOo8RMC&sig=A2bZ5r3ad7g5RykFS7XgcEnbi44

Mollaoglu, M., Yazar Okur, I. G., Gurturk, M., & Doganer Duman, B. (2024). Review on Sustainable Development Goals in maritime transportation: current research trends, applications, and future research opportunities. Environmental Science and Pollution Research, 31(6), 8312-8329. https://link.springer.com/article/10.1007/s11356-023-31622-1

Mufti, A., & Ali, I. (2024). Export-led growth: Policy framework for sustainable development in Pakistan. Available at SSRN 4890578. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4890578

Mustafa, K., Muhammet, Y., Şerif, C., & Nurullah, A. (2025). Restoring Balance: The Intersection of Management and Fishing Sustainability in Indonesia. Fisheries Management and Ecology. https://onlinelibrary.wiley.com/doi/abs/10.1111/fme.70007

Qadir, H., Wani, K. A., Islam, N. U., Kafkas, E., & Akgöl, C. (2025). Impact Assessment of Climate Change and Adaptation Strategies in South Asia. Environmental Claims Journal, 1-30. https://www.tandfonline.com/doi/abs/10.1080/10406026.2025.2522661

Qazi, T. F., Niazi, A. A. K., Aurangzaib, A., Mushtaq, H., Rashid, Z., Mojdin, H., & Jamil, A. (2024). Evaluation of Pakistan's fisheries production as compared to other countries: A grey relational analysis. Journal of Social Signs Review, 2(4), 856-884. https://socialsignsreivew.com/index.php/12/article/view/95

Raman, R., Subramaniam, N., Nair, V. K., Shivdas, A., Achuthan, K., & Nedungadi, P. (2022). Women entrepreneurship and sustainable development: bibliometric analysis and emerging research trends. Sustainability, 14(15), 9160. https://www.mdpi.com/2071-1050/14/15/9160

RASHDAN, M., & TÜRSOY, D. T. AN INVESTIGATING THE IMPACT OF ECONOMIC GROWTH, FINANCE AND TRADE NEXUS ON ENVIRONMENTAL DEGRADATION (CAPTURE FISHERIES PRODUCTION) IN SELECTED 14 EMERGING COUNTRIES. https://docs.neu.edu.tr/library/9287684209.pdf

Rashid, M. A., Bilal, F. E., & Abbas, R. (2022). Stability in Afghanistan: Ramifications for Pakistan. Journal of Development and Social Sciences, 3(2), 1092-1101.

Rashid, M. A., Abbas, R., & Bilal, F. E. (2022). Role of Hindutva Ideology in Escalation of Extremism in India: A Comparative Analysis of Congress and BJP Govt. (2009-2019). Pakistan Languages and Humanities Review, 6(2), 983-993.

Sajid, L., Ali, A., & Abubakar, M. (2024). Strategic Environmental Assessment (SEA) and Sustainability Options' Integration into the Pakistan's Merchant Marine Policy 2001 (Revised 2019). Journal of Asian Development Studies, 13(4), 1000-1012. https://poverty.com.pk/index.php/Journal/article/view/981

Saulat, H., Khan, M. M., Aslam, M., Chawla, M., Rafiq, S., Zafar, F., & Bazmi, A. A. (2021). Wind speed pattern data and wind energy potential in Pakistan: current status, challenging platforms and innovative prospects. Environmental Science and Pollution Research, 28(26), 34051-34073. https://link.springer.com/article/10.1007/s11356-020-10869-y

Shahzad, A. (2019). Economic Relations between Pakistan and Turkey in a Globalized World. Eurasian Journal of Social Sciences, 7(3), 30-40. https://eurasianpublications.com/wp-content/uploads/2021/02/EJSS-7.3.4.pdf

Shahzad, S. M. (2020). Economic opportunities for Islamic financing-from green to blue economy. International Journal of Multidisciplinary and Current Research, 8, 205-214. https://ijmcr.com/wp-content/uploads/2020/03/Paper9205-214.pdf

Shahzad, S., Abbasi, M. A., Ali, H., Iqbal, M., Munir, R., & Kilic, H. (2023). Possibilities, challenges, and future opportunities of microgrids: A review. Sustainability, 15(8), 6366. https://www.mdpi.com/2071-1050/15/8/6366

Shakoor, A., Ahmed, R., Ahmed, Z., & Khan, U. (2023). Impact of subsectors of agriculture and economic growth on CO2 emissions in Pakistan: evidence from Environmental Kuznets Curve. Environmental Science and Pollution Research, 30(10), 25728-25739. https://link.springer.com/article/10.1007/s11356-022-23205-3

Sherazi, S. (2025). The Effectiveness of Public Administration in Maritime Management–The Case Study of Pakistan. Pakistan Journal of Humanities and Social Sciences, 13(2), 330-337. https://www.internationalrasd.org/journals/index.php/pjhss/article/view/2835

Silvestri, R., Morrone, D., Del Vecchio, P., & Mele, G. (2024). Blue economy and aquaculture before and during the pandemic era: a systematic literature review. British Food Journal, 126(1), 13-32. https://www.emerald.com/bfj/article/126/1/13/1236106

Tagar, H. K., Shaikh, S. M., Tagar, A. K., & Bijarni, G. A. (2021). Economic Growth of Pakistan in 21 st Century and the Use of 'Blue Economy 'Resources for Sustainability. European Journal of Social Sciences, 62(2), 38-49. https://www.academia.edu/download/79722514/Paper_29_Blue_Economy.pdf

Tennakoon, W. D. N. M. S., Janadari, M. P. N., & Wattuhewa, I. D. (2024). Environmental sustainability practices: A systematic literature review. European Journal of Sustainable Development Research, 8(3), 18. https://www.researchgate.net/profile/Niranjala-Tennakoon/publication/380596760_Environmental_sustainability_practices_A_systematic_literature_review/links/6644e1b70b0d284574339419/Environmental-sustainability-practices-A-systematic-literature-review.pdf

Uddin, R., Shaikh, A. J., Khan, H. R., Shirazi, M. A., Rashid, A., & Qazi, S. A. (2021). Renewable energy perspectives of Pakistan and Turkey: Current analysis and policy recommendations. Sustainability, 13(6), 3349. https://www.mdpi.com/2071-1050/13/6/3349

Ullah, A., Tekbaş, M., & Doğan, M. (2023). The impact of economic growth, natural resources, urbanization and bio capacity on the ecological footprint: The case of Turkey. Sustainability, 15(17), 12855. https://www.mdpi.com/2071-1050/15/17/12855

Waheed, R. (2022). The significance of energy factors, green economic indicators, blue economic aspects towards carbon intensity: a study of Saudi vision 2030. Sustainability, 14(11), 6893. https://www.mdpi.com/2071-1050/14/11/6893

Waheed, R. (2023). Energy challenges, green growth, blue indicators, and sustainable economic growth: a study of Saudi Arabia. Evaluation Review, 47(6), 983-1024. https://journals.sagepub.com/doi/abs/10.1177/0193841X221134653

Wan, Z., Wan, R., Ahmad, S., & Eyvaz, M. (2023). Sustainable development on water resources management, policy and governance in a changing world. Frontiers in Environmental Science, 11, 1297585. https://www.frontiersin.org/journals/environmental-science/articles/10.3389/fenvs.2023.1297585/full

Xia, Y., Yin, H., Mohsin, M., Mehak, A., & Yan, C. (2025). Exploring FTAs, seafood exports, and SDGs: a gravity model analysis of Pakistan's seafood trade with China and regional partners. Frontiers in Marine Science, 12, 1553780. https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2025.1553780/full

Xu, L., Shen, C., & Chen, J. (2025). The impact of the Maritime Silk Road Initiative on the carbon intensity of the participating countries. Maritime Economics & Logistics, 27(2), 331-349. https://link.springer.com/article/10.1057/s41278-024-00295-z

Yavaş, H. K. (2025). Policies for Green Transition of the Turkish Industry: An Evaluation through Istanbul's Organized Industrial Zones. Pakistan Journal of Life & Social Sciences, 23(1). https://www.pjlss.edu.pk/pdf_files/2025_1/7858-7872.pdf

Yavaş, H. K. (2025). Policies for Green Transition of the Turkish Industry: An Evaluation through Istanbul's Organized Industrial Zones. Pakistan Journal of Life & Social Sciences, 23(1). https://www.pjlss.edu.pk/pdf_files/2025_1/7858-7872.pdf

Yılmaz, E., & İlal, N. Ç. (2024). Analyzing Of Articles on Blue Economy Studies in Tourism. Romaya Journal, 4(2), 107-125. https://dergipark.org.tr/en/pub/romaya-journal/issue/90975/1665518

Yomralioglu, T., & McLaughlin, J. (Eds.). (2017). Cadastre: geo-information innovations in land administration (Vol. 335). Cham, Switzerland: Springer. https://link.springer.com/content/pdf/10.1007/978-3-319-51216-7.pdf

Zhang, S., Wu, Q., Butt, M. J., Batool, M., & Murad Zaib Butt, M. (2025). Developing an ocean governance regime for China-Pakistan economic corridor: a comparison of the marine environmental legislation and policy framework by utilizing CRILL methodology. Frontiers in Marine Science, 12, 1577975. https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2025.1577975/abstract

Zulfiqar, K., Butt, M. J., & Chang, Y. C. (2023). Usage of term'Maritime''and its impacts on the literature on China-Pakistan economic (Maritime) corridor (CPEC). P-JMR, 5(1), 156-185. https://nimapak.org/wp-content/uploads/2024/08/Polaris-Color-Images.pdf#page=166