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Blue Economy Development in Pakistan: Employment Potential and Policy Readiness

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Abstract
Pakistan's blue-economy is strategically important but immensely underutilized. The country possesses a major Arabian Sea coastline, three commercial ports, significant fisheries resources, globally important mangroves and a long underused Makran coast, yet policy rhetoric has moved faster than implementation.
The study focuses on the sectors most likely to produce real jobs rather than speculative headlines: fisheries and post-harvest value chains, aquaculture and mariculture, coastal tourism, ports and logistics, shipping support services, ship recycling and repair, blue carbon and coastal ecosystem restoration. It uses comparative policy analysis, legal framework, sector diagnostics and official statistical evidence to test not only where employment may emerge along-with capacity whether the legal and institutional architecture is ready to support. Pakistan is not starting from zero, but it is not governing the blue economy at an internationally credible standard either. Ports and maritime security institutions are relatively stronger; fisheries governance remains only partly effective; aquaculture, tourism management and ship-recycling compliance remain underprepared; and climate adaptation is still insufficiently integrated into economic planning. Recent federal and provincial policy moves in 2025-26 show greater seriousness than before, especially in Balochistan, but implementation remains uneven. The country can make the most realistic employment gains from disciplined upgrading of existing value chains through traceability, harbour modernization, better cold chain, skills, environmental compliance, coastal service systems and community inclusion. Pakistan does not lack maritime assets. It lacks coordinated execution, investable project pipelines and credible federal-provincial delivery arrangements.
Keywords: Blue Economy, Sindh Coast, Balochistan coast, Fisheries, Coastal Tourism, Maritime Policy

INTRODUCTION

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The term Blue Economy coined by scholar and entrepreneur; Gunter Pauli in 2004 but later on this term was first used in 2012 at Rio + Earth Summit. Blue economy became known worldwide around 2012. Blue Economy is the sustainable use of ocean and coastal resources for economic growth, improved livelihoods and jobs while preserving the health of the ocean ecosystems and it covers a broad range of economic activities ranging from marine and coastal ecosystems which include fisheries and aquaculture. It also covers the maritime transport for trade, tourism, renewable energy, ship building, ship breaking, development of ports and jetties, exploitation of mineral wealth below the sea and Bio-technology (London School of Economics and Political Science, 2024). Globally, the blue economy is the sustainable use of ocean resources for growth, employment and livelihoods, while ensuring the health of the ocean ecosystems. According to international reporting, ocean trade is presently valued at around US$2.2 trillion and accounts for around 7% of the world trade. Ocean-related activities support more than 600 million jobs. The same reporting also warns that unmanaged extraction, weak governance and climate stress can quickly turn marine assets into ecological liabilities. Pakistan therefore confronts a simple but uncomfortable truth: maritime potential is real, but is economically worthless unless institutions can convert it into competitive, lawful and climate-resilient activity (Bukhari et al., 2024; Kausar et al., 2021).

The case of Pakistan is of strategic importance. The country has a coastline of about 1,000 and 1,050 kilometers, EEZ of about 240,000 square kilometers and more rights over a vast extended continental shelf that were internationally recognized in 2015. It also sits directly across the Arabian Sea. The Karachi Port, Port Qasim and Gwadar Port forming the backbone of its maritime gateway. Yet the maritime economy is still narrowly based. Ports are large cargo-handling facilities, but their spillovers into coastal employment are less than the potential. Fisheries are important to major livelihood chains, however, much of the catch continues to flow through low-value and low-hygiene channels. Tourism in coastal Sindh and Balochistan is still aesthetically attractive but commercially unripe (Bukhari et al., 2025). Ship recycling existed at historic scale at Gadani but still has issues with environmental and labor standards. Blue carbon and mangrove restoration have become a growing topic of interest in the climate context, without yet a developed local benefit sharing architecture.

The coast belt of Sindh and Balochistan is an example of the contrast in the maritime space of Pakistan. Sindh has the highest maritime-industrial concentration in the

Volume 5 Issue No 2 (2026)
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country: Karachi Port, Port Qasim, Karachi Fish Harbour, Korangi Fisheries Harbour, extensive processing and trading systems and the mangroves of the Indus Delta. Balochistan has the longer coastline, the Makran tourism lane, Gwadar's strategic position, mariculture potential, Pasni and Ormara fisheries area and the cluster for breaking up of ships in Gadani (Mehmood et al., 2025; Rabbani et al., 2020). In reality, however, Sindh is plagued by extreme pollution, estuarine deterioration and urban stress, while Balochistan is plagued by distance, thin infrastructure, poor service delivery and low investor confidence. It is no lack of opportunity in either province. Both provinces do not have sufficiently integrated coastal development.

Pakistan has to develop its blue economy based on disciplined upgrading of existing sectors within the blue economy (Shabbir et al., 2021). Employment is more likely to grow on the basis of improved fisheries control, mariculture, acceptable processing, coastal tourism services, maritime training, logistics, repair and ecosystem reclamation, than grand but thinly prepared expectations around offshore minerals or trickle-down mega- projects. The fundamental policy issue, therefore, is not whether or not Pakistan has maritime potential; but whether federal and provincial institutions are prepared to govern the potential in ways that generate jobs, exports and environmental sustainability simultaneously.

Statement of the Problem

Despite recurring public emphasis on maritime opportunity, Pakistan is still lacking a delivery model on blue economy. The legal framework is in pieces; the policy conversation is more recent than the implementation architecture; and the employment dimension is something that is assumed rather than measured. Fisheries, tourism, shipping, coastal climate adaptation and local community welfare are dealt with in separate institutional silos. After the Eighteenth Amendment, devolution of several functions took place, albeit devolution was not accompanied by the automatic creation of coordination. The result is a familiar Pakistani pattern: multiple authorities, overlapping mandates, poor horizontal integration and propensity to start policy narratives before addressing operational basics, like data, enforcement, safety and local participation.

The problem for coastal belt of Sindh and Balochistan is particularly that high potential sectors have been stuck in low productivity equilibria. Fish is landed in ways that fall below hygienic and traceability standards, devaluing exports; tourism sites don't have a tour management, sanitation and rescue systems; the strategic discourse in Gwadar exceeds the actual depth in terms of cargo and services; Gadani's industrial importance is limited by deficits in compliance; and climate resilience projects are yet to be adequately linked to livelihoods and finance. The policy system is therefore being pushed toward contradiction on two fronts simultaneously: it has to accelerate growth and jobs, but also to help repair the ecological foundations - mangroves, fish stocks, coastal habitats and shoreline resilience - on which long-run growth in the ocean depends.

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Scope of the Study

This study is limited to the employment potential, policy readiness and legal institutional architecture of the blue economy in the coastal belt in Sindh and Balochistan. It takes stock of the sectors that are most pertinent to the current Pakistani situation: capture fisheries, aquaculture and mariculture, seafood processing and exports, ports and logistics, shipping support services, ship recycling and repair, coastal tourism, blue carbon, coastal resilience and selected enabling institutions. It does not attempt a full national-income estimate of the blue economy nor does it treat frontier sectors such as seabed minerals, offshore wind or marine biotechnology as immediate employment engines. The time horizon is therefore practical instead of speculative.

Significance of the Study

The importance of the study is that it avoided confusing maritime rhetoric with maritime readiness. Pakistan's coastal economy has an importance for employment, food security, exports, climate resilience and strategic geography but in so far as that depends on the state's ability to govern the management of its fisheries, coastal infrastructure, tourism and ecosystem protection at a level consistent with international standards. The study is therefore relevant not only in the context of maritime policy, but also in the context of intergovernmental coordination as well as provincial development planning and coastal-community welfare.

Research Questions

How is the blue economy to be conceptualized for Pakistan in a manner that is economical, yet defensible for the environment?

What are the sectors in the coastal belt of Sindh and Balochistan that have the most realistic potential of providing near term and medium term employment?

How coherent are the federal-provincial legal and institutional frameworks regardingfisheries, tourism, ports and shipping, ship recycling, climate resilience and coast ecosystems?

What are the bottlenecks severely limiting employment creation and value addition in the fisheries, tourism and related maritime sectors?

What short-term, medium-term and long-term reforms would best increase the policy readiness of Pakistan?

Research Objectives

To chart the key sectors of the blue economy that are applicable to coastal Sindh and Balochistan

To determine where there is the greatest opportunity for employment and where existing evidence is weakest.

To help measure policy readiness through a comparative review of the laws, institutions, infrastructure, enforcement capacity and climate resiliency.

To filter out from among seriously prepared claims what is politically attractive and weakly prepared

Volume 5 Issue No 2 (2026)
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Print ISSN: 3006-2039

To make phased recommendations which are implementable in Pakistani Federal as well as Provincial context.

Hypotheses

H1: Employment potential of Pakistan's blue economy is huge but the readiness of its policies lies only partially and unevenly across different sectors and provinces.
H2: That the biggest realistic job gains from the coastal belt will be based on upgrading current marine value chains, and not on speculation fringe sectors.
H3: Federal-provincial fragmentation resulting from devolution is a key constraint in the quality of implementation.

Research Methodology

The study is a qualitative policy-analysis design based on the logic of comparative case studies. The unit of analysis is coastal belt in Sindh and Balochistan and the sectoral sub-units are fisheries, aquaculture and mariculture, ports and maritime logistics, shipping and seafaring, ship recycling and repair, coastal tourism, blue carbon/coastal ecosystems. The method involves a combination of documentary review, descriptive statistical interpretation, legal-institutional mapping and a policy- readiness diagnostic. The approach is appropriate because the research problem is not merely one of output levels, but whether the rules, organizations and delivery mechanisms necessary for the sustained growth of the blue economy actually exist and interact in a coherent manner. Primary sources include: questionnaires from naval and civil authorities, federal and provincial statutes, rules, official policies, ministry year books, departmental mandates, the Pakistan Economic Survey 2024-25, Pakistan Bureau of Statistics trade releases, and official material from the Ministry of Maritime Affairs, Ministry of Climate Change and Environmental Coordination, Pakistan Tourism Development Corporation, provincial fisheries departments, port authorities, the Pakistan Maritime Security Agency and the National Hydrographic Office. Secondary interpretive material is used only where it helps synthesize the issues of the sector, particularly on fisheries employment and framing of the

A policy-readiness framework is applied to assess sectors across the eight dimensions of: (1) legal basis, (2) institutional clarity, (3) infrastructure and services, (4) environmental safeguards, (5) data and monitoring, (6) skills and human capital, (7) finance and investment pathways, and (8) community inclusion.

The research is comparative on two levels. First, it compares sectors within the blue economy to identify which is a labour absorber, capital intensive, ecologically sensitive or institutionally immature. Second, it also compares the Provinces as coastal spaces having different endowments . Sindh, on the one hand, has better market access, port activity and processing infrastructure and institutional density, but is heavy polluted and under urban pressures. Balochistan has the longer coastline less congested and more room to tourism and mariculture, although thinner infrastructure, coverage of services and investors confidence. The different dynamics require a different policy approach for both provinces.

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

The proposed empirical strategy is a mixed sample in key coastal nodes in Karachi, Ibrahim Hyderi, Rehri, Keti Bandar, Thatta, Badin, Gadani, Kund Malir, Ormara, Pasni, Gwadar and Jiwani. Respondent groups would include fishers, boat owners, fish processors, transporters, harbor officials, tourism operators, hotel & restaurant managers, local government officials, environmental NGOs, women's livelihood groups and representatives of maritime agencies. Such a design would be a test to see if official policy assumptions are in line with lived coastal realities.

Three limitations should be clearly mentioned. First, data related to coastal employment in Pakistan are scattered and often unorganized. This makes it difficult to get job forecasting right. Second, there are several sector claims that are made in public debate, in particular on the topic of macroeconomic potential, which are of an aspirational nature rather than audit-ready. Third, the blue economy spans federal and provincial jurisdictions so documentary consistency is not necessarily available. These constraints do not negate the study, they just require a more discriminate approach to the separation of evidence, inference and policy wish lists.

SECTION - I
BLUE ECONOMY AND THE REST OF THE WORLD

A serious analysis of the blue economy starts with removal of the illusion that all the activities linked to the sea are necessarily sustainable. It is not. The blue economy, subsequently used by the World Bank, is defined as growth - ocean-based - that enhances livelihoods and jobs while maintaining the health of ecosystems. A fisheries policy which destroys the breeding grounds, a tourism model which pollutes the beaches or a port expansion which disregards coastal resilience could expand quickly within a short period of time but would not survive the blue economy test. The concept therefore needs to be viewed through a double lens, that of economic productivity and ecological sustainability.

Global evidence highlights the opportunity and the caution. As per UNCTAD, the trade in ocean has reached an approximate US$2.2 trillion in 2023 and it accounted for around 7 percent of the total world trade, where the services constituting a major share of the trade. Ocean-linked sectors support more than 600 million jobs globally. According to the arguments presented in the new report, published by the Organization for Economic Cooperation and Development (OECD), the future of the ocean economy less depends on identifying new sectors than on better governing old ones - notably with improved data, integrated planning, pollution control, technological upgrading and climate adaptation. In other words, the quality of governance means the difference between marine activity becoming a lasting engine of development or yet another extractive frontier.

The rest of the world, however, has a lot more to offer in practice even without engaging in country-by-country tourism. First, shipping and ports tend to dominate value but fisheries and tourism tend to dominate employment. Second, export success becomes less and less dependent on the specific structures of production and sale - it is more about compliance - food safety, traceability, environmental standards, labor conditions and digital documentation. Third, integrated coastal zone management and

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

marine spatial planning is important as there is competition between sectors to use the same coast: fishing, tourism, ports, conservation, industry, housing and military use. Fourth, the role of climate finance and carbon markets is becoming more pertinent to coastal ecosystems and mangroves and restoration ecosystems in particular. A blue-economy strategy that does not take these trends into account at the global level is not strategic, it is provincial.

Pakistan's blue-economy deficit vis-a-vis its regional counterparts needs to be discussed with greater disciplinarianism than what happens in the entire official discourse. The often repeated statement that the potential of Pakistan's blue economy is in excess of US$100 billion is a policy aspiration and not a settled national account. What can be said more confidently is that Pakistan is still far behind India and Bangladesh in terms of scale of fisheries, export values capture, traceability, harbour quality and disciplines of implementation. It is not just geography that is the problem. It is the disconnect between the declared maritime ambition and administrative capacity to implement enforcement of standards, management of stocks and development of investable coastal value chains.

Table 1. Global Blue Economy Signals and its importance for Pakistan

Indicator	Current international signal	Implication for Pakistan
Blue economy definition	Sustainable use of ocean resources for growth, jobs and livelihoods while preserving ecosystem health	Economic expansion must be linked to ecological stewardship, not treated as a separate agenda
Ocean trade	About US$2.2 trillion in 2023	Pakistan's coastline is strategically placed in a trade-intensive region and should target higher domestic value capture
Share of world trade	Around 7 percent	Maritime sectors are too large globally for Pakistan to remain institutionally casual
Ocean-linked jobs	More than 600 million worldwide	Employment arguments are credible, but only where value chains and services are organized
Governance lesson	Integrated planning, standards and climate resilience are decisive	Pakistan must prioritize enforcement, data and coordination over narrative inflation

Source: compiled from World Bank, UNCTAD and Organisation of Economic Cooperation and Development material.

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Regional and Comparative Benchmarking

International and regional comparison is only useful if it is specific. At the most general level, even beyond any kind of rhetoric on the matter of the oceans, IMF and World Bank instruments already have a degree of developed policy for a blue economy in the form of a formal Framework of the Blue Economy and an implementation plan is under work that views the blue economy as an integrated cross-sectoral and cross-stakeholder agenda. Pakistan has not yet reached such a level of institutional coherence. It has individual laws, and sectoral mandates and several new policy documents, but not a consistently operational blue economy delivery framework.

The comparison with India and Bangladesh is more uncomfortable since it is practical and not theoretical. India's fisheries sector is now operating at a much larger scale than Pakistan comes close to: official Indian reporting for the FY2023-24 the total fish production is around 18.40 million metric tons and seafood exports are valued at 7.38 billion in the same year. Bangladesh, even though it is far removed from grand strategic narratives, has developed a much more explicit inspection and quality control regime for export products.

The quality standards are higher India has moved in the direction of traceability, notified landing infrastructure and aquaculture certification; Bangladesh is a party to the FAO Port State Measures Agreement and operates under a dedicated law on fish inspection and quality control; Pakistan is outside the Port State Measures Agreement and still struggles to bring landing, inspection, traceability and enforcement at the provincial level into one coherent system. It is one reason Pakistan is continuing to underperform in value capture, market access and credibility.

Table 2. Comparative Matrix of Blue Economy Benchmark

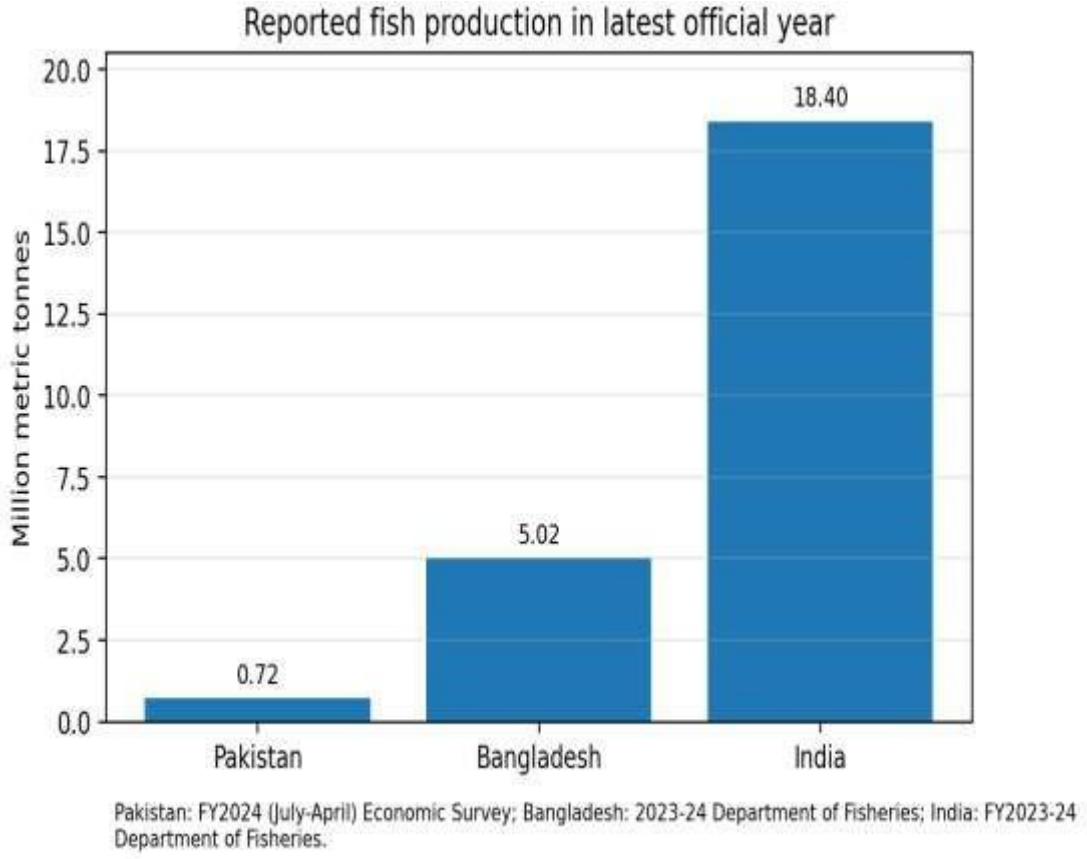
Dimension	Pakistan	Regional / international benchmark	Implication
Fisheries production scale	Official production remains below 1 million tonnes and export value capture is modest.	India reported 18.40 MMT in FY2023-24; Bangladesh reported 50.18 lakh MT in 2023-24.	Pakistan's coastal economy is operating at a much smaller commercial scale than its rhetoric suggests.
Seafood export performance	Official export value remains in the hundreds of millions of dollars.	India reported US$7.38 billion of seafood exports in 2023-24.	The core deficit is value addition, compliance and market competitiveness, not merely resource access.
Traceability and certification	Inspection law exists, but catch documentation and traceability remain	India has moved toward a national traceability framework and expanded	Export growth will remain constrained unless Pakistan can prove chain-of-custody

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

	uneven.	certification tools.	and compliance.
Port-state / IUU controls	Pakistan is not presently a party to the FAO Port State Measures Agreement.	Bangladesh is a party to PSMA; international trend is toward tighter anti-IUU controls.	Pakistan risks lagging in credibility if port, landing and licensing controls remain fragmented.
Integrated blue-economy governance	Policy activity is increasing, but coordination remains segmented.	ASEAN adopted a formal Blue Economy Framework and implementation pathway.	Pakistan still needs a real cross-sector delivery model, not another slogan.

Source: collated from: ASEAN blue economy material, India Department of Fisheries / MPEDA, Bangladesh Department of Fisheries and FAO material.

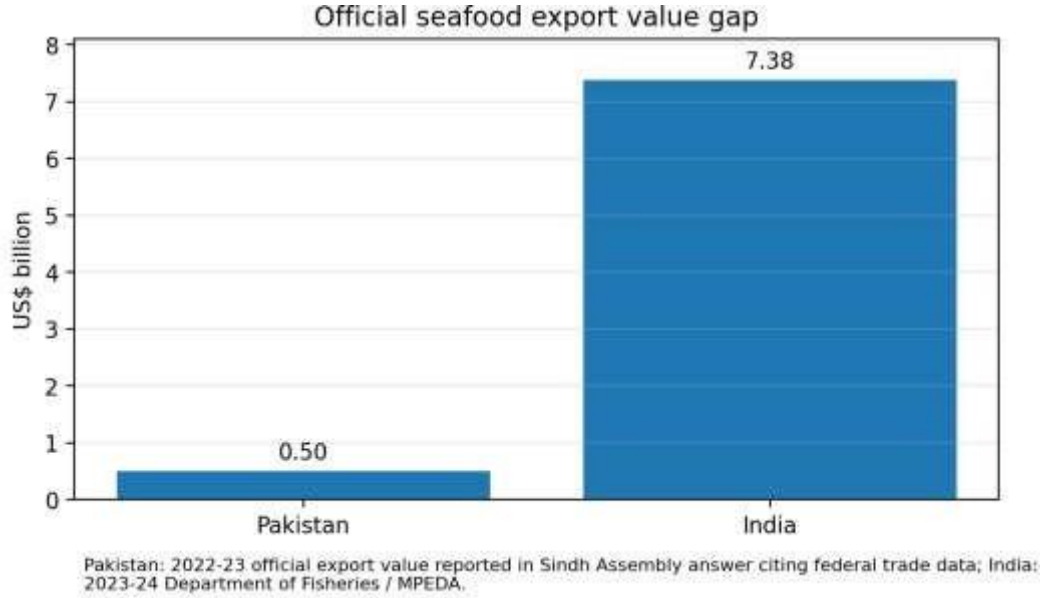
Figure 1. Reported Fish Production: Pakistan, Bangladesh and India



Source: Economic survey Pakistan 2023-24, official reporting of Bangladesh Department of Fisheries and India Department of Fisheries.38,41

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Figure 2. Official Seafood Export Value Gap: Pakistan & India



Source: Sindh Assembly official answer citing federal trade data for Pakistan and India Department of Fisheries / MPEDA for India.39,47

Pakistan's Maritime Potential and the Blue Economy Sectors

Pakistan has the ingredients of a serious maritime economy. It has a geostrategic coastline on the Arabian Sea, a large EEZ, extended continental-shelf rights, major ports, fisheries resources, a ship-breaking base at Gadani, a seafaring and naval tradition, and some of the most important mangrove systems in South Asia.It is not the lack of assets. The problem is that these have matured unevenly and not always with an adequate degree of coordination between sectors.

The landscape in the sectoral area is more widespread than the fisheries and the ports. A functional blue economy for Pakistan comprises at least 8 domains: (1) Capture fisheries; (2) Aquaculture and mariculture; (3) Fish processing, cold chain and exports; (4) Ports, shipping and maritime logistics; (5) Ship recycling, ship repair and marine services; (6) Coastal and maritime tourism; (7) Blue carbon, mangroves, coastal resilience and ecosystem services; and (8) Frontier areas such as offshore renewable energy, desalination, marine biotechnology and seabed resources. Not all of these deserve equal weight in terms of policy. In the Pakistani context the first seven are much more actionable than the eighth.

Pakistan Economic Survey data indicates that the fisheries have contributed an estimated 0.31 percent to GDP and 1.31 percent to agriculture in FY2024-25 with export earnings worth US$318.9 million for July-March FY2025 These figures are modest compared with the maritime potential but they are proof of the sector's importance already. They also suggest that there is a big upgrading opportunity. Pakistan's problem with fisheries is not that the sector does not exist. It is that too much value is lost in between capture and market because of weak landing

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

infrastructure, inconsistent cold chain, low hygienic standards, poor traceability, inadequate stock management and fragmented producer power.

Port data tell an equally revealing tale. Karachi port and Port Qasim handled huge cargo during fiscal year 2023 to 24 while Gwadar's cargo was minuscule in comparison.It is not only statistical difference, it is diagnostic. This reveals that geography and strategic branding is not by itself sufficient to create maritime economies. Ports only become development platforms if they link to stable hinterland infrastructure, the provision of logistics services, business ecosystems, investor confidence, customs efficiency and local labor markets. Gwadar's structural strategic importance, for the long term, may well emerge and come true, but for now the current use is nowhere near what the narrative suggests.

Pakistan National Shipping Corporation statistics indicate useful but limited depth to domestic shipping, a relatively small fleet and earnings profile compared with the scale of the foreign trades of Pakistan. That is important because the dependency of freight on foreign carriers is leaking value abroad and reducing the depth of the domestic maritime-services ecosystem. Likewise, ship recycling at Gadani reflects latent industrial depth, however, previous employment peaks have not translated into a fully modern and environmentally compliant maritime cluster. So long as compliance, worker protection, waste handling and finance remain weak, Pakistan will have difficulty transitioning from a low-cost yard model to a value-adding green recycling and repair model.

Coastal tourism is where thin institutional scaffolding is the most obvious in terms of visible potential. Sindh's southern coastal belt is not just a line of beaches, it is the Indus Delta's 17 creeks and mangrove channels, mudflats, bird habitats, fishing settlements and historic water landscapes that could host a differentiated tourism offer

- creek safaris, regulated boating, bird watching, mangrove interpretation, homestays, seafood circuits and low impact eco-lodges. Balochistan has a different type of product made of scenic drives, beaches and geologically dramatic shorelines like Kund Malir and Jiwani. Yet tourism products are patchy, with poor wayfinding, sanitation, rescue capacity, a variety of lodging, destination branding and community- based enterprise structures.

Blue carbon and coastal resilience is yet another layer of opportunity. Not only are mangroves environmental ornaments. They protect shorelines, support fisheries nurseries, reduce disaster risk and can anchor climate finance projects. Pakistan's climate authorities highlight the substantial expansion of mangroves since 1990 and are increasingly promoting carbon market and restoration initiatives. Carbon revenue that lacks community legitimacy is a recipe for conflict disguised as sustainability.

Sectoral Typology

For the sake of analytical clarity, the blue economy sectors important to Pakistan should be subdivided into three groups. The first group of them are immediate core sectors: capture fisheries, fish processing, ports, shipping support services and coastal tourism. These are already in existence, and already employ people, but they under- perform. The second group of adjacent sectors that can be up-scaled include:

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

aquaculture and mariculture, ship repair, green ship recycling, coastal logistics services, marine training and blue carbon restoration projects. These are not speculative, they are under developed. The third group is frontier sectors - offshore wind, tidal opportunities, desalination connected to industrial corridors, marine biotechnology and sea bed resource exploration. These may be important down the road, but this is not where a jobs-first strategy should start.

Capture fisheries continue to be the anchor livelihood sector as they link the access to natural resources with large labour chains on shore. Yet capture fisheries alone cannot support future growth if stocks are stressed. That is why aquaculture and mariculture are not to be considered as optional add-ons but as structural complements of the capture fishing. Similarly, ports do not have value by virtue of the fact that ships call there. Their broader role as part of the blue economy is their catalytic role in facilitating marine services, warehousing, customs facilitation, coastal shipping, training, repair and business ecosystems around them. A port without attendant services is a transit point, not a development cluster.

Tourism is worthy of its own analytical category because it is a combination of natural assets and labor-intensive service employment. Coastal tourism is compatible with fisheries and conservation if zoning and waste management are credible; without them tourism crowds out local livelihoods and destroys the very landscapes it sells. Blue carbon and mangrove restoration are also cross-cutting sectors. They support fisheries nurseries, protection of shorelines, carbon finance and ecotourism at the same time. Pakistan's system of policies should cease to treat them as marginal environmental subjects and begin to address them as creative infrastructure for the coastal economy.

The least mature sectors are also the easiest to puff up. Offshore renewable energy, marine biotechnology and seabed minerals may in due course find a place in Pakistan's blue economy basket, but this must be discussed in terms of industrial options, which require preparation, not as instant job-miracle. The experience from around the world illustrates why this is important. Marine phosphorites could contribute to phosphate-fertilizer and phosphoric-acid industries, while iodine and bromine recovered from marine brines could serve the pharmaceuticals, contrast media, antiseptics and specialty chemicals. For Pakistan, therefore, underwater mineral exploration would be less a royal grabber than a potential feedstock strategy for fertilizer, chemicals and pharmaceutical value chains around Karachi, Port Qasim and all future coastal industry. But that possibility still depends on seabed mapping, marine geochemistry, environmental baselines, licensing rules, processing partnerships and strict safeguards. The same caution should be given for desalination, offshore wind and tidal energy. Gwadar has demonstrated the importance of desalination to water security and industrial viability but to upscale it, we need a reliable source of power, workable tariff and brine management rules. Sindh's wind corridor gives Pakistan renewable-energy experience but offshore wind still lacks marine spatial planning, seabed data and transmission design. Tidal opportunity in creeks and estuaries are even less developed. The appropriate policy response is to prepare watchfully, not to have inflated hopes.

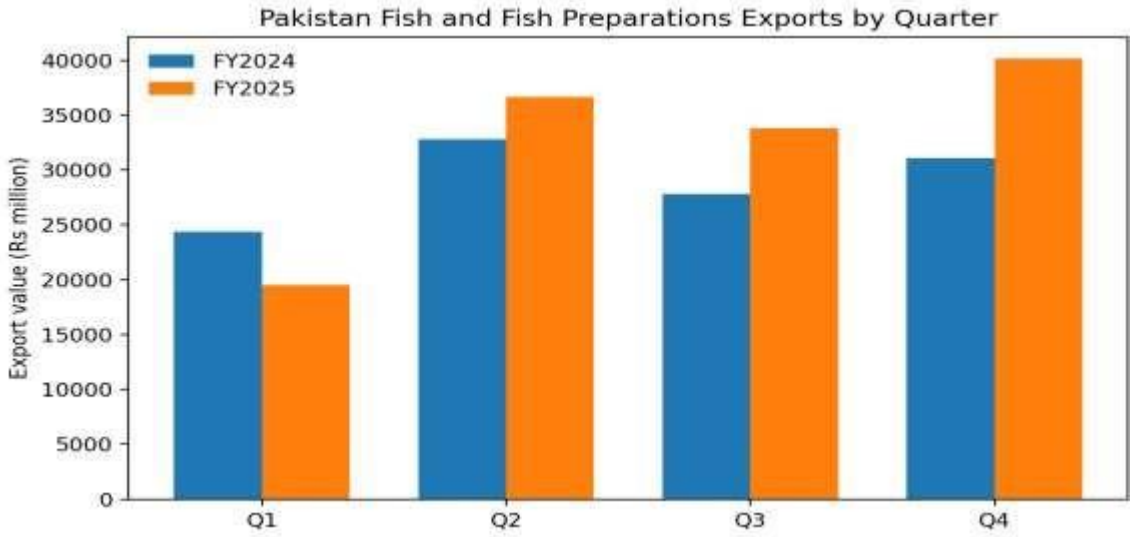
Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Table 3. Pakistan Blue Economy Snapshot

Item	Evidence	Interpretation
Coastline	Roughly 1,000-1,050 km	Enough scale to support diversified maritime activity, but not enough to survive poor management
EEZ	About 240,000 sq km	Substantial jurisdictional space for fisheries and other marine activity
Exended continental shelf rights	Approx. 50,000 sq km added in 2015	Strategic gain, but rights alone do not create jobs
Fisheries share of GDP	0.31% in FY2024-25	Existing significance, but far below potential
Fish export value	US$318.9 million, Jul-Mar FY2025	Shows export base but also limited scale relative to potential
Port cargo	KPT 64.145m tonnes; PQA 44.907m; Gwadar 0.034m in FY2023-24	Karachi and Port Qasim dominate; Gwadar remains commercially underutilized
PNSC gross earnings	Rs 42.475 billion in FY2023-24	Domestic shipping capability exists but remains limited relative to total seaborne trade

Source: Pakistan Economic Survey 2024-25 and Official Reporting on maritime Law.

Figure 3. Pakistan Fish and Fish Preparations Exports per Quarter



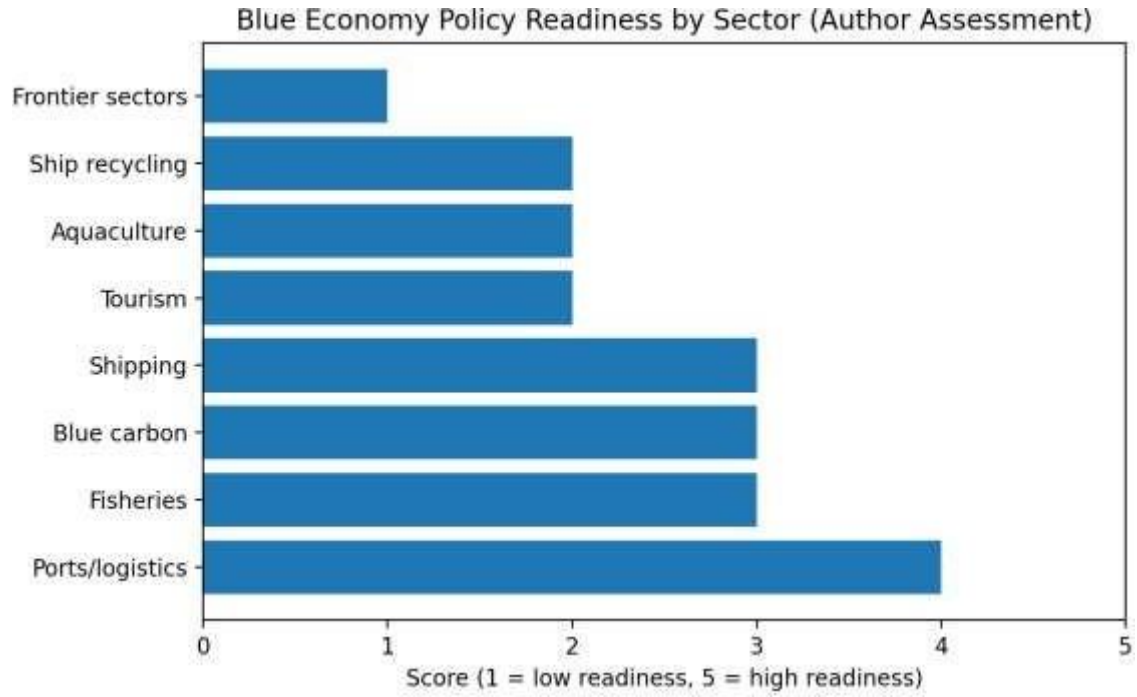
Source: Pakistan Bureau of Statistics quarterly external trade bulletins for FY2024 and FY2025; prepared by author from cumulative official releases.

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Comparative Case Profile Coastal Sindh and Balochistan

Sindh & Balochistan have different dimensions in coastline as far as dynamics are concerned. Sindh is the more institutionalized and commercialized maritime province. It is home to Karachi Port, the Port Qasim, Karachi Fish Harbour, Korangi Fisheries Harbour, extensive seafood trading networks, processing facilities, the large urban pool of labour and the ecologically important Indus Delta. This provides Sindh an overwhelming advantage in terms of market access, export preparedness, ancillary services, universities, media visibility and administrative density. But these very benefits come with some serious pathologies: industrial pollution, sewage outfalls, congestion, informal settlements, mangrove pressure, saline intrusion in the delta, and competing land uses which steadily take away environmental carrying capacity.

The promise and constraint of Balochistan's coast is different. It is longer, more scenic and less urbanised and in many areas less ecologically overbuilt than the coast of Sindh. It contains Gwadar, Pasni, Ormara, Jiwani, Kund Malir and Gadani, it provides scope for beach tourism, mariculture, coastal conservation, specialized fisheries infrastructure and maritime services. Yet the province is challenged by thin roads and utilities in many coastal pockets, weaker health and emergency services, a lack of depth of hospitality facilities, lower density of institutions, and the ongoing issue that many of the big strategic conversations about the coast are blind to local communities.



RECOMMENDATIONS

Short-term recommendations (0 to 2 years) should be about execution and not reinvention. First is finalize and publish a national Blue Economy Policy only if it clearly assigns responsibilities, financing windows, monitoring indicators and federal-provincial coordination mechanisms; another rhetorical umbrella document without

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

delivery architecture will waste time. Second, create a permanent federal-provincial coastal coordination forum chaired by the Ministry of Maritime Affairs but co-owned by Sindh and Balochistan and include fisheries, tourism, climate, local-government and port representation. Third, fisheries basics: hygienic landing sites, ice and cold chain, traceability, vessel registration cleanup, community compliance around juvenile catch, and harmonised enforcement between federal offshore authorities and provincial landing agencies should be a priority. Fourth, publish a coastal employment baseline which differentiates direct, indirect, formal and informal jobs by district and sector. Policy in the absence of labor data is guesswork.

Fifth, deal with Gwadar in a realistic manner. Rather than reinventing strategic abstractions, create that ecosystem of services that actually makes a port useful: customs reliability, warehousing, trucking interfaces, marine services, small business zones, skills programs and local labor insertion. Sixth, develop simple coastal tourism service standards pertaining to sanitation, rescue, signage, waste management and licensing in concert with PTDC/NTCB and the provinces; Seventh, speed up Gadani's transition to compliance with audited yard plans, worker registration, environmental monitoring, emergency response and finance mechanisms for upgrading. Eighth, develop a mangrove and blue carbon benefit-sharing framework, before escalating carbon-linked claims. Restoration without trust at the local economic level will fail politically.

Medium-term recommendations (3 to 5 years) should be to build sector depth. Pakistan needs to develop two or three model mariculture and coastal aquaculture clusters - one in Sindh and one or two in Balochistan linked to hatcheries, feed, extension, cold chain and purchase agreements. Harbor modernization should be coordinated with processing, export compliance and fisher welfare instead of being done as an isolated civil works project. Coastal tourism needs to shift away from disconnected isolated sites to circuits with destination management organizations, community enterprise windows, trained local guides, women-led micro enterprise and digital marketing help. Ports policy should encourage domestic coastal shipping, feeder services and marine repair and logistics digitization so that ports get to be employment platforms and not isolated throughput nodes.

In the same medium-term window, the federal government as well as provinces should mainstream the issue of coastal climate adaptation in the context of development budgeting. This includes proper alignment of disaster planning in the districts, shoreline management, mangrove restoration, saline intrusion responses, resilient housing for fishermen and tourism zoning. Carbon-market participation should be approached cautiously and transparently: good MRV, tenure clarity and community revenue-sharing are a prerequisite, not an afterthought. Balochistan's 2025 fisheries and aquaculture policy commitment must be transformed into a plan for its implementation with clear annual milestones, and not be left as a promising text. Sindh, on its part, should focus on pollution control and delta protection having direct relevance to the outcome of fisheries and tourism.

Long-term recommendations (5 to 10 years) should be aimed at structural transformation. Pakistan should develop an integrated coastal-zone management and

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

gradually move towards marine spatial planning for competing coastal uses - fisheries, tourism, ports, conservation, settlement, industry and security infrastructure. It should boost maritime human capital by marine academies, technical institutes, seafarer training, ocean data capabilities and collaboration between universities and industries. Modern maritime-services cluster - surveying, classification support, repair, chandling, brokerage, insurance facilitation and digital logistics - must be developed around major ports. Offshore renewables, desalination and marine biotechnology should still be in the long-run pipeline, but after basic governance and environmental safeguards are taken to a much higher maturity.

One recommendation is worthy of emphasis as it cuts across all the time horizons: local communities must become economic participants, not just security subjects or project beneficiaries. Coastal people need to have access to skills, concessional finance, cooperatives, insurance, landing rights, transparent tourism concessions, restoration contracts and education pipelines into maritime professions. The recent educational endowment initiatives are useful in that respect, but they should be broadened and linked to actual job pathways. A blue economy which excludes coastal communities is politically brittle and developmentally dishonest.

Finally, policy discipline involves saying no to bad sequencing. Pakistan should not pursue all fashionable concepts for the marine in a single go. It should first fix the sectors where there is current law and institutions and market demand but performance is poor. That means fisheries value addition, coastal tourism systems, port-linked services, green ship recycling and climate resiliency ecosystem management. Only when such pillars are made credible, frontier sectors should be scaled. In development policy, sequencing is not being cautious. It is prudence.

Measures To Be Taken to Achieve International Standards

Pakistan will not conform to international standards of blue economies by producing more strategy papers. The gap is operational. International practice today for such programs is traceability, cleaner landing systems/deeper anti-IUU controls, credible inspection and certification for health, compliance with ship recycling, marine spatial planning and destination management (for tourism) and transparent benefit-sharing (on coastal restoration). Pakistan's current system only somewhat meets those expectations.

Table 9. Priority Measures Needed to Approach International Standards

Actor	Current gap	Immediate step	Medium-term standard
MoMA	Fragmented implementation across fisheries, shipping, ports and coastal employment.	Publish an implementation matrix for maritime, shipping and fisheries policies with targets and timelines.	Integrated federal-provincial coastal governance with monitored outcomes.
MoCC&EC	Climate and blue-	Tie coastal adaptation,	Verified blue-carbon

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

	carbon initiatives are not yet fully embedded in sector planning.	mangrove protection and carbon-market work to district development and fisher livelihoods.	projects with MRV, tenure clarity and benefit sharing.
Sindh Government	Weak stock data, uneven enforcement and polluted landing environments.	Clean up landing sites, harmonize gear enforcement, publish reliable catch data and improve Karachi/Korangi harbour hygiene.	Traceable, hygienic and digitally monitored fisheries and tourism systems.
Balochistan Government	Strong policy script but thin execution and service infrastructure.	Translate the 2025 policy into funded annual milestones, licensing controls and harbour upgrades.	Operational mariculture, traceability and monitoring systems backed by provincial law.
Harbour authorities	Cold chain, sanitation and waste handling remain insufficient.	Prioritise ice, wastewater, inspection, segregation and safe landing practices.	Export-grade harbour management compatible with international market requirements.
Tourism institutions	Coastal tourism lacks destination management, rescue and sanitation standards.	Issue enforceable standards for signage, waste, rescue, visitor management and local licensing.	Managed coastal tourism circuits with community enterprise and environmental carrying-capacity controls.

Source: state of the art international practice concerning traceability, PSMA-type controls, compliant ship recycling & combined, blue economy governance.37-46

Table 10. Phased Recommendations to Maximise the Full Potential of the Blue Economy

Time frame	Priority actions	Lead actors
Short term (0-2 years)	Finalize blue-economy policy with implementation matrix; harmonize fisheries enforcement; create coastal employment baseline; issue tourism service standards; accelerate Gadani compliance; establish blue-carbon benefit-sharing framework	MoMA, provinces, MoCC&EC, PTDC/NTCB, port and fisheries authorities
Medium term (3-5 years)	Develop model mariculture clusters; modernize harbors with processing links;	MoMA, Sindh, Balochistan, PTDC/NTCB, local

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

	build destination-management circuits; expand coastal shipping and marine services; integrate adaptation into district planning	government, private investors
Long term (5-10 years)	Implement ICZM and marine spatial planning; scale maritime technical education; build maritime-services cluster; cautiously develop frontier sectors after governance improves	Federal government, provincial governments, academia, private sector, regulators

Source: Adapted from World Bank 2017, FAO Blue Growth intiative, UNEP Blue Economy Framework, and OECD Ocean Economy 2030.

CONCLUSION

Pakistan has a blue economy which is not a myth and is not a miracle. It is both a real but contested development space which is affected by hard constraints: weak coordination, uneven enforcement, degraded ecosystems, thin data, and limited skills and inadequate local participation. The coastal belt of Sindh and Balochistan has sufficient assets to sustain much larger and more employment-generating maritime economy than is the case today. But that's not going to come in the form of rhetoric about untapped seas or an identification of strategic geography with commercial readiness.

The main conclusion of the paper is evident. Pakistan is partly prepared in law, unevenly prepared in institutions and inadequately prepared in implementation. The largest realistic job gains lay in the upgrading fisheries value chains, mariculture, coastal tourism, port-linked services, compliant marine industry and ecosystem restoration. Ports and security institutions are a better base than tourism and aquaculture but even these need to be further domestically value-captured. Blue- economy success therefore hinges on bridging the gap from sectoral administrative fragmentation to a coherent coastal administration.

Pakistan is not deprived of coastline. It does not have any disciplined execution If federal and provincial can get their houses in order in terms of alignment of law, infrastructure, skills, environmental compliance and community inclusion, the blue economy could emerge as an employment and resilience agenda and not a buzzword. If they cannot, the country will keep talking about the maritime potential whilst exporting low-value products, underusing strategic assets and degrading ecosystems on which future prosperity is dependent.

ANNEX A. PROPOSED PRIMARY QUESTIONNAIRE

The following questionnaire is a preliminary proposed primary research tool to be deployed in the field in the future. It is based for stakeholders in coastal Sindh and Balochistan who are involved in fishers, processing, tourism, transport, harbour users and local officials, community organisations and maritime service actors. It is not presented here in the form of completed field data. Its purpose is to support future

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

empirical validation of findings and recommendations contained in this paper.

Section A - Profile of the Respondent

Question	Indicated response format to be used
1. Province and district	Open response
2. Occupation category	Fisher / Boat owner / Processor / Transporter / Tourism operator / Hotel-Restaurant / Port-logistics / Ship-recycling / Government / NGO / Other
3. Years of work in the coastal economy	0-5/6-10/11-20/More than 20
4. Gender	Male / Female / Don't want to say
5. Age bracket	18-25 / 26-35 / 36-45 / 46-55 / 56+

Section B - Employment and Income conditions

Question	Recommended response format(s)
6. What are the top 3 sources of income in your house?	Open response
7. Has your income from coastal activities increased, decreased or remained the same in the past three years?	Increased/ Decreased/ No major change
8. How many months of the year do you manage to get stable work in your main activity?	1-3 / 4-6 / 7-9 / 10-12
9. Is coastal work an attractive career to young people in your area?	Yes / No / Unsure
10. What are the highest job potential activities in the area?	Fisheries/Aquaculture/Tourism/Port-logistics/Ship-recycling/Restoration/Others

Section C - Constraints of the Sector and Policy Readiness

Question	Recommended response format
11. Rate quality of infrastructure for your work locally	Very poor / Poor / Average / Good / Very good
12. Rate access to ice, cold chain services, storage or processing services where applicable.	Very poor / Poor / Average / Good / Very good / Not applicable
13. Rate how effective the government regulation and enforcement in your sector is.	Very poor / Poor / Average / Good / Very good
14. What is/are the three biggest obstacles to increased income or jobs in your area?	Open response
15. Have you received any government training, extension or financial support relating to your work?	Yes / No; if yes, specify
16. How serious are the impacts of climate on your work?	Not serious/Somewhat serious/Serious/Very serious
17. How safe are the coastal locations for workers and visitors?	Very unsafe / Unsafe / Average / Safe / Very safe
18. In what extent do the local communities benefit from major coastal projects?	Not at all/ A little / Somewhat / A lot

Volume 5 Issue No 2 (2026)
Online ISSN: 3006-2047
Print ISSN: 3006-2039

Section D - Future Priorities

Question	Recommended response format
19. What policy reform should be given priority in your area first?	Open response
20. What skills are the most in need of local youth?	Open response
21. Should there be a more active inclusion of women in fisheries, tourism, restoration or enterprise programs?	Yes / No / Unsure; explain
22. What kind of support would bring the most improvement to your livelihood?	Finance / Equipment / Training / Market access / Infrastructure / Insurance /Other
23. Would you be more supportive of stronger conservation rules if this also improved your long-term income?	Yes/ No/ Depends on compensation and enforcement
24. Any more recommendations to government?	Open response

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