

# Investment in the ‘Blue Economy’ of Balochistan: Potential, Prospects, and Policy Options for Improvement in the Light of Global Best Practices

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## Introduction

Pakistan is endowed with a large maritime economic zone whose development can be leveraged to supplement its traditional land-based economy for economic growth and employment generation. Based on international laws and maritime conventions, Pakistan’s Exclusive Economic Zone (EEZ), a part of the sea where Pakistan has exclusive rights over mineral and other economic resources, extends 200 nautical miles from its coastline and comprises an area of 240,000 square kilometers.<sup>2</sup> In 2015, the United Nations Commission on the Limits of Continental Shelf (UNCLCS) awarded an additional 150 nautical miles of continental shelf to Pakistan, thereby increasing the size of Pakistan’s EEZ to 290,000 KM.<sup>3</sup> This makes Pakistan’s coastal waters and EEZ a virtual *fourth largest province/region* in terms of area. Based on its marine geology, this maritime region is divided into the Offshore Indus Basin and the Offshore Makran Basin.<sup>4</sup>

**Figure 1: Geographical Extent and Composition of Pakistan’s Coastal Waters and Exclusive Economic Zone<sup>5</sup>**



The greater part of this maritime zone is adjacent to Balochistan as the provincial coast comprises 73% (or about 770 kilometers) of Pakistan’s 1050 km. long coastline.<sup>6</sup> Figure 1 shows the extent and administrative coverage of Pakistan’s maritime economic zone.

<sup>1</sup> Balochistan Civil Service, 30<sup>th</sup> SMC.

<sup>2</sup> Maliha Khan, “Human Resource Development: Investing in Balochistan’s Blue Economy” (May 10, 2020).

<sup>3</sup> Baqir Sajjad Syed, “Pakistan Seabed Territory Grows by 50,000 Square Kilometres,” *DAWN.COM*, last modified March 21, 2015, accessed January 14, 2022, <http://www.dawn.com/news/1170986>.

<sup>4</sup> S. M. Carmichael et al., “Geology and Hydrocarbon Potential of the Offshore Indus Basin, Pakistan,” *Petroleum Geoscience* 15, no. 2 (May 1, 2009): 107–116.

<sup>5</sup> World Bank Group, *Revitalizing Pakistan’s Fisheries* (Washington DC: World Bank, June 2018), 36, <https://openknowledge.worldbank.org/handle/10986/30156>.

<sup>6</sup> Asaf Humayun and Naghmana Zafar, “Pakistan’s ‘Blue Economy’: Potential and Prospects,” *Policy Perspectives: The Journal of the Institute of Policy Studies* 11, no. 1 (January 2014).

Balochistan is already well-positioned for investment in the maritime sector because of the integration of Balochistan’s coastline with regional and international trade routes through China Pakistan Economic Corridor (CPEC) and the start of economic activities via Gwadar Port.<sup>7</sup> While these developments present vast opportunities for economic growth in Balochistan, they are also accompanied by significant threats to the fragile marine ecosystems and livelihoods of local fisherfolk communities.

The concept of ‘blue economy’ provides a vision of economic growth and a blue-print for social development by tapping the resources and potential of Balochistan’s coastal belt and adjacent maritime economic zone in a sustainable manner, and in line with international best practices. The word ‘blue’ in ‘blue economy’ refers to the oceans and the seas. It is this “blue economy” or *marine-based economic development* that leads to economic growth and social equity while minimizing environmental and ecological risks.<sup>8</sup>

## **Statement of the Problem**

Balochistan’s coastal belt and its adjacent maritime zone in the Offshore Makran Basin provide significant opportunities for marine-based economic development. Current development plans at the federal and provincial levels are focused on a limited number of sectors without considering the broader potential of Balochistan’s maritime economy as well as the ecological, economic, and human well-being – primarily livelihood stability – concerns and threats. Therefore, there is a need to firstly identify a balanced and integrated economic development approach based on the ‘blue economy’ (or ‘blue growth’) framework for identifying the economic potential of Balochistan’s coastline, coastal waters, and maritime Exclusive Economic Zone (EEZ) and, secondly, devise appropriate strategies for mitigating the social and ecological threats to the local people and the environment.

## **Significance and Scope of the Study**

The purposes of this research are as below:

- (i) assess the usefulness of the ‘blue economy’ concept as an analytical paradigm in development planning;
- (ii) explore the opportunities for ocean-centric economic growth (or ‘blue growth’) offered by Balochistan’s coastline and the contiguous maritime zone;
- (iii) identify the challenges facing the realization of this potential; and

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<sup>7</sup> Asad Umar, “CPEC 2.0: Taking Pak-China Relationship to New Heights,” *Express Tribune*, July 5, 2021, accessed January 9, 2022, <https://tribune.com.pk/story/2308850/cpec-20-taking-pak-china-relationship-to-new-heights>.

<sup>8</sup> United Nations, “Blue Economy Concept Paper,” *Sustainable Development Knowledge Platform* (2014): 3–3.

- (iv) make some preliminary recommendations for realizing the opportunities for the development of the maritime economy.

The geographic focus of this study is on Balochistan's 770 kilometer long coastal belt, comprising Gwadar and Lasbela districts, and the Offshore Makran Basin which includes the coastal waters and the contiguous EEZ belonging to Pakistan. National and international geographical linkages impacting the development of this region also form a part of the study.

Thematically, the study focuses on three important sets of ocean-centric industries: firstly, traditional marine industries, such as sustainable fisheries, marine shipping and transportation, and coastal tourism; secondly, emerging industries such as marine aquaculture and offshore renewable energy; and, lastly, prospective industries such as deep-sea mining and marine biotechnology. Moreover, the analysis and recommendations in this study are informed by the experience and best practices of China and Indonesia in the development of the blue economy.

## Review of Literature

Blue economy approach can be defined as the use of *oceanic resources* for promotion of “economic growth, social inclusion, and preservation or improvement of livelihoods while at the same time ensuring environmental sustainability.”<sup>9</sup>

Key pillars or components of an economic development strategy based on the concept of ‘blue economy’ include: promotion of sustainable fisheries and aquaculture; development of ocean-based industries such as maritime shipping, coastal tourism, and renewable energy; ecological conservation of oceans to support its sustainable use; and, capacity building of government and local communities for sustainable use of ocean-based natural resources.<sup>10</sup>

An alternative term for ‘blue economy’ is ‘blue growth’ which refers to the achievement of sustainable economic growth using the resources of the ‘blue economy’. It can be argued that, until recently, Pakistan’s economic development framework has been characterized by the neglect of the economic potential and significance of our coastline and oceans that is often described by the term “sea-blindness.”<sup>11</sup> This paper uses the term ‘blue economy’ to denote ocean-based economic activities and industrial sectors whereas the term ‘blue growth’ is used to denote the development framework for enhancing the ‘blue economy’.

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<sup>9</sup> United Nations, “Goal 14 | Department of Economic and Social Affairs.”

<sup>10</sup> World Bank, *Blue Economy Development Framework*, African Ministerial Conference on Ocean Economies and Climate Change (Mauritius: World Bank, 2016), accessed January 9, 2022, <https://thedocs.worldbank.org/en/doc/446441473349079068-0010022016/AMCOECC-Blue-Economy-Development-Framework>.

<sup>11</sup> Aneel Salman and Jawaria Abbasi, *Blue Growth: A Sustainable Ocean-Led Development Paradigm (SODP) for Pakistan*, Working Paper (2019, n.d.), [www.maritimestudyforum.org](http://www.maritimestudyforum.org).

For several reasons the concept of blue economy and blue economic growth have taken center stage in international development thinking over the last decade. Two separate concerns from contrasting viewpoints of economics and ecology have brought this issue to the fore. The first concern is the extraordinary growth of economic activity in and around the world's oceans which has been termed 'industrialization of the oceans'.<sup>12</sup> The role of oceans in the global economy is undergoing a transformation from being only a medium for global trade and a source of food security to becoming an 'economic force' due to its close association with multiple emerging industries such as offshore renewable energy production, deep sea-bed mining, and marine biotechnology. Although reliable estimates of the share of the oceans and coastal belts in the GDP of individual countries and global economic output are lacking, rough estimates suggest that the world's oceans contribute the equivalent of US\$ 24 trillion to global economic activity in direct and indirect benefits.<sup>13</sup> According to the country level data, China's maritime economy contributed US\$ 962 billion or 10% of Chinese GDP in 2014 and provided employment to nine (09) million people. Similarly, the United States estimated the value of its ocean economy at US\$ 258 billion or 1.8% of its GDP, and Indonesia, a developing country, valued its maritime economy at 20% of its GDP.<sup>14</sup> This realization of the 'economic value' of the oceanic resources has led many nation-states to plan and strategize the use of their coastal and oceanic regions in a more effective manner.

Secondly, this growing economic activity in and around oceans has set off alarm bells across the world regarding the ability of seas and oceans to withstand ecological and environmental burdens placed upon them by rapid economic growth without compromising their health and causing permanent damage to marine ecology and resources. It is widely stated that oceans produce 50% of the world's oxygen, absorb one-third of CO<sup>2</sup> emissions, and absorb more than 90% of heat caused due to changes in the atmosphere. Over the last century, mean sea levels have risen by eight inches, average ocean temperatures have increased by 0.6 degrees Fahrenheit, and the acidity of seawater has increased by 30%, with rates of increase doubling in the last two decades.<sup>15</sup> These changes have led to degradation of marine habitats and loss of fish species, more frequent and destructive cyclones, deadly heatwaves in coastal areas, and coastal erosion.<sup>16</sup>

The Small Island Developing States (SIDs), a group of 38 UN member states, were the first to propose the concept of 'blue growth' at the United Nations Conference on

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<sup>12</sup> Economist Intelligence Unit, *The Blue Economy: Growth, Opportunity and a Sustainable Ocean Economy*, Economist Intelligence Unit briefing paper (The Economist Group, 2015), accessed January 9, 2022, <https://impact.economist.com/perspectives/sustainability/blue-economy>.

<sup>13</sup> Brian Shaw et al., *Value at Risk in the Blue Economy* (Amsterdam: Metabolic Inc., 2019), 6, accessed January 10, 2022, <https://www.metabolic.nl/publication/value-at-risk-in-the-blue-economy/>.

<sup>14</sup> Economist Intelligence Unit, *The Blue Economy: Growth, Opportunity and a Sustainable Ocean Economy*.

<sup>15</sup> NASA, "Climate Change Evidence," *Climate Change: Vital Signs of the Planet*, last modified 2021, accessed January 10, 2022, <https://climate.nasa.gov/evidence>.

<sup>16</sup> Shaw et al., *Value at Risk in the Blue Economy*, 8.



While 'blue economy' and 'blue growth' have emerged as important concepts for promoting sustainable development, this conceptual and developmental framework has been critiqued by environmental activists and development experts. Blue growth development framework has been critiqued for the lack of an agreed upon definition among the relevant stakeholders, the likelihood of overpromising benefits of this approach by its advocates, lack of actionable policies and measurable outputs, and the threat of over-exploitation of oceanic resources by powerful nations and multinational companies under the guise of 'blue growth.'<sup>22</sup> The lack of a generally agreed upon understanding of 'blue growth' model means that 'blue growth' may imply greater policy emphasis on the conservation of marine ecology for some stakeholders whereas other stakeholders may take it to mean the maximization of economic growth by exploiting more marine resources.<sup>23</sup>

Secondly, there is the risk of overpromising benefits of a 'blue growth' strategy by its advocates who tend to depict the seas and the ocean as vast unexplored spaces providing lucrative opportunities for wealth creation.<sup>24</sup> There is also a danger that these advocates of 'blue growth' may not recognize how much damage has already been done to marine environments and, therefore, they downplay the environmental costs of opening more coastal and oceanic spaces for exploitation of marine resources.<sup>25</sup> For instance, Mialy Andriamahefazafy and colleagues have analyzed the policies and practices of deep-sea fishing for tuna fish in Madagascar, Mauritius, Seychelles, and in the SIDs that are the leading proponents of a 'blue growth' based development. They have found out that, contrary to the public claims of these countries regarding sustainable fishing, their policies and practices support intensive fishing of tuna by large boat operators which is rapidly depleting tuna fish stocks in the Western Indian Ocean region and putting the livelihoods of small fisherfolk at risk.<sup>26</sup>

Review of existing literature suggests that concepts of 'blue economy' and 'blue growth' provide a promising new development framework that opens new vistas of economic development and job creation in multiple sectors, such as, sustainable fisheries, coastal tourism, renewable energy, and marine biotechnology. However, the adoption of this new framework should be tempered by the reality of intensive extraction of biological and non-biological marine resources and the widespread damage already inflicted on marine ecology by intensive economic activity.

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<sup>22</sup> Wiebren J. Boonstra, Matilda Valman, and Emma Björkvik, "A Sea of Many Colours – How Relevant Is Blue Growth for Capture Fisheries in the Global North, and Vice Versa?" *Marine Policy* 87 (January 2018): 340–349.

<sup>23</sup> Eikeset et al., "What Is Blue Growth? The Semantics of 'Sustainable Development' of Marine Environments."

<sup>24</sup> Boonstra, Valman, and Björkvik, "A Sea of Many Colours – How Relevant Is Blue Growth for Capture Fisheries in the Global North, and Vice Versa?"

<sup>25</sup> Ibid.

<sup>26</sup> Mialy Andriamahefazafy et al., "The Paradox of Sustainable Tuna Fisheries in the Western Indian Ocean: Between Visions of Blue Economy and Realities of Accumulation," *Sustainability Science* 15, no. 1 (January 2020): 75–89.

## Research Methodology

A mixed methods approach has been adopted in this study to address the research problem within an over-arching qualitative research paradigm. The choice of a *qualitative research paradigm* is justified by its analytical usefulness, time limitations, and the researcher's strength in the use of qualitative techniques. Since this study involves exploratory research on a relatively new development paradigm, a qualitative approach is more suitable for it. The study, therefore, relies on qualitative methods such as document analysis, case studies, and expert interviews, both structured and semi-structured. These were supplemented by secondary quantitative data gleaned from the available published reports and other official sources. The sampling strategy for this research is based on convenience or opportunistic sampling since limitations of time and logistics did not allow adoption of representative sampling.

## Data Sources

The primary data sources for this study include interviews carried out over phone and through an online questionnaire administered to key stakeholders in the public sector. In addition, official documents including reports, working papers, and presentations compiled by Balochistan Coastal Development Authority (BCDA), Directorate of Fisheries, Government of Balochistan, Gwadar Development Authority, Gwadar Port Authority, and the federal Ministry of Planning, Development, and Special Initiatives provided a wealth of primary data for analysis. Secondary data included published reports and statistics on the fisheries sector and the blue economy.

## Organization of the Paper

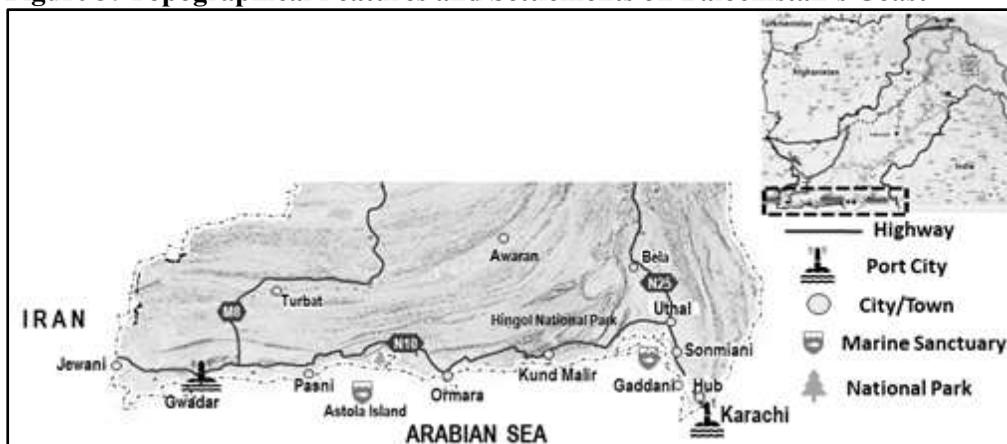
The paper is organized as follows. Section I outlines the development profile and the existing condition of the blue economy in Balochistan, including a discussion of the key economic sectors. Section II examines prospects for the development of blue economy in Balochistan in the light of international best practices with special reference to the Chinese and Indonesian experiences in the development of the blue economy. Section III proposes a framework for developing the blue economy in Balochistan, keeping in view the existing challenges. The paper concludes by making some preliminary recommendations for realizing the full potential of the blue economy in specific sectors.

## Section I

### Development Profile and the Current Status of Blue Economy in Balochistan

Balochistan is the largest province of Pakistan comprising 44% of its landmass but only 5% of its population. It has a large coastline which stretches for 770 kilometers from the mouth of Hub River (near Karachi) to Gwadar Bay (*Khalij-e-Gawater*) on Pak-Iran border. Administratively, the coastline is divided between Lasbela District (Kalat Division) and Gwadar District (Makran Division) with populations of 574,292 and 263,514, respectively.<sup>27</sup> Important urban settlements and geographical features of Balochistan's coastal belt are shown in Fig 3 below. The adjacent maritime zone along the coastal belt is administratively divided into three zones. Zone I includes coastal waters up to 12 nautical miles from the land which is primarily used for *small scale fishing* and forms part of the jurisdiction of the provincial government. Zone II and Zone III extend from 12-20 nautical miles and 20-200 Miles, respectively, from the coastline as shown in Figure 1 in the previous section. Zone III is used by medium and large sized vessels for *deep-sea fishing*. Both Zone II and Zone III fall under the jurisdiction of the Federal Government.<sup>28</sup>

**Figure 3: Topographical Features and Settlements on Balochistan's Coast<sup>29</sup>**



<sup>27</sup> Population Census Organization, *Population of Pakistan by Province/ Region in All Six Censuses* (Pakistan Bureau of Statistics, Ministry of Planning Development & Special Initiatives, Government of Pakistan, 2017), accessed January 14, 2022, <https://www.pbs.gov.pk/pco-balochistan-tables>.

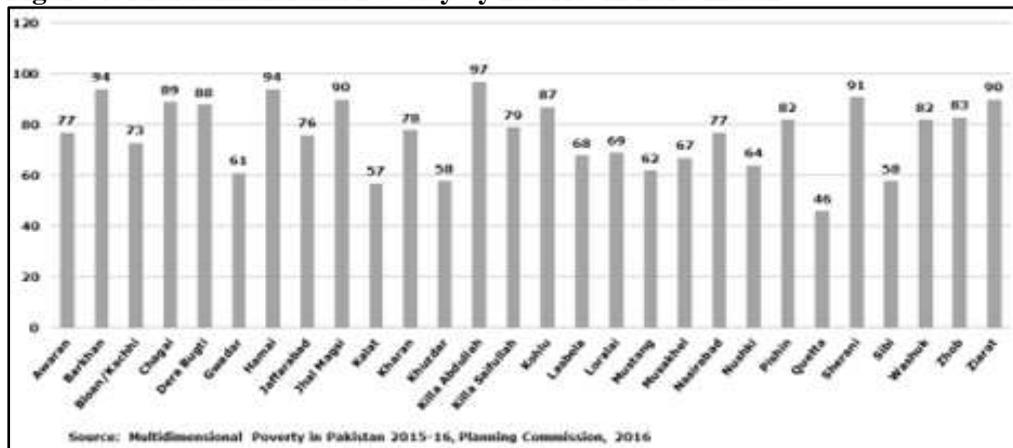
<sup>28</sup> Government of Balochistan, "Balochistan Coastal Development Proposal" (Directorate of Fisheries, Fisheries and Coastal Development Department, Government of Balochistan, March 18, 2019).

<sup>29</sup> Government of Pakistan, "Progress Review of Southern Balochistan Development Plan" (Ministry of Planning, Islamabad, November 4, 2021).

## 1.1 Socio-Economic Profile of Balochistan Coast

Balochistan Province has some of the lowest socio-economic indicators in the country. The percentage of the households living below the poverty line is 52% but rural poverty is alarmingly high with 75% people classified as poor.<sup>30</sup> The province also suffers from poor road connectivity with a road density of 0.15 kilometers roads/ km. sq. which is less than half of the national average for road density. The coastal districts of Gwadar and Lasbela have 61% and 68% of their population living in poverty according to the criteria of multidimensional poverty compared to the national average of 38.8% as shown in Figure 4 below.<sup>31</sup> Fisheries, small-scale agriculture, and livestock remain the major sources of livelihood for a majority of households in Gwadar and Lasbela districts. Figure 4 below shows multidimensional poverty by district in Balochistan.

**Figure 4: Multidimensional Poverty by District in Balochistan**



## 1.2 Physical Infrastructure and Connectivity

Availability of an adequate communication structure and a reliable energy supply is a prerequisite for the development of the blue economy. Due to concerted efforts by the provincial and federal governments, and massive investments under the auspices of CPEC, the coastal belt has seen remarkable improvement in the development of communication and physical infrastructure. Horizontal and vertical connectivity have been improved through two major highways, namely, the Makran Coastal Highway N-10 and Surab-Panjgur-Hoshab-Gwadar Highway N-85. Additionally, the remaining sections of Gwadar-Ratodero Motorway M-8 are also being constructed at a rapid pace which will further cement the north-south connectivity of the coastal belt. Gwadar

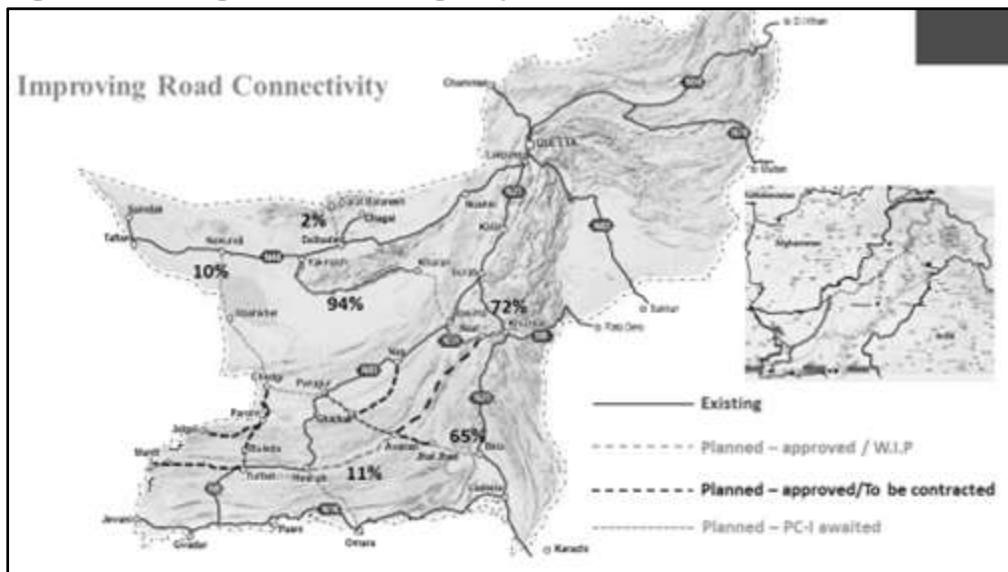
<sup>30</sup> International Fund for Agricultural Development, “GLLSP II Project Design Report October 2019,” *IFAD*, 6, last modified October 1, 2019, accessed January 14, 2022, <https://www.ifad.org/en/-/document/pakistan-2000002331-gllsp-ii-project-design-report-october-2019>.

<sup>31</sup> Government of Balochistan, *Draft Balochistan Comprehensive Development and Growth Strategy 2019-25* (Quetta: Planning and Development Department, Government of Balochistan, 2021), 30.

Deepwater Port has become operational since 2018 and international cargo ships regularly call on the port.<sup>32</sup> Work on allied infrastructure of Gwadar Port, such as, Gwadar East Bay Expressway and New Gwadar International Airport (NGIA), 300 MW Gwadar Coal Power Plant, and interconnection of isolated areas in Makran with the national grid is proceeding at a rapid pace.<sup>33</sup> These projects will ensure steady supply of energy and national and global connectivity for the emerging port city. Figure 5 below depicts both existing and new projects for highway connectivity in southern Balochistan and the coastal belt.

Nevertheless, the rapid pace of infrastructure development in Gwadar and threat of the influx of people from rest of Pakistan has created a palpable sense of resentment among the local people which has been exacerbated by the failure of federal and provincial governments to ensure steady provision of basic amenities such as electricity, clean drinking water, and municipal services to the local people. This sense of resentment was deepened by and fed into a low intensity ethno-nationalist insurgency that has kept the province in its grip for more than a decade and has negatively affected the pace of socio-economic development in the coastal belt.<sup>34</sup>

**Figure 5: Existing and Planned Highways and Roads in Southern Balochistan<sup>35</sup>**



<sup>32</sup> News, “First-Ever Container Vessel under CPEC Arrives at Gwadar Port,” *The News* (Karachi, March 7, 2018), Online edition, accessed February 19, 2022, <https://www.thenews.com.pk/latest/289561-first-ever-container-vessel-under-cpec-arrives-at-gwadar-port>.

<sup>33</sup> Government of Pakistan, “Progress Review of Southern Balochistan Development Plan.”

<sup>34</sup> Hafeez A. Jamali, “The Anxiety of Development: Megaprojects and the Politics of Place in Gwadar, Pakistan” (January 2013), accessed January 15, 2022, <https://bonndoc.ulb.uni-bonn.de/xmlui/handle/20.500.11811/129>.

<sup>35</sup> Government of Pakistan, “Progress Review of Southern Balochistan Development Plan.”

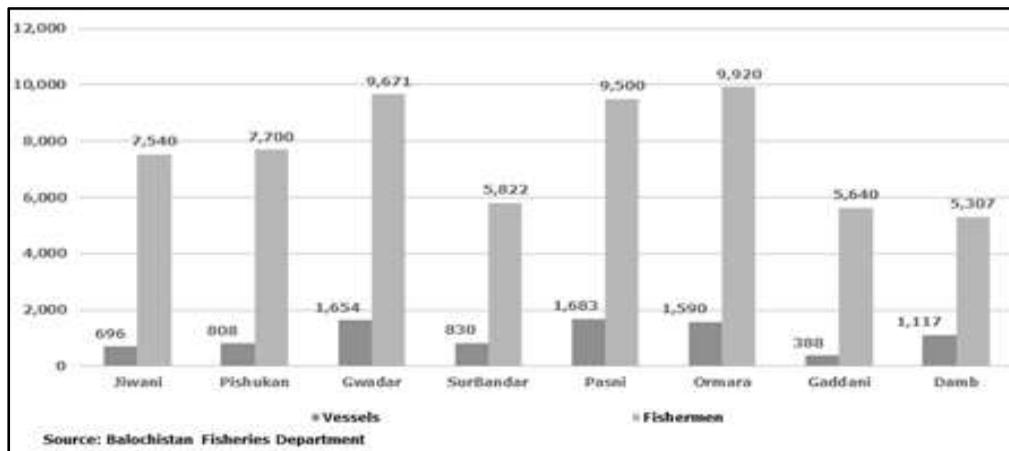
### 1.3 State of the Maritime Economy in Balochistan

This section provides an overview of the existing state of the blue economy in Balochistan. This is done by analyzing the traditional maritime economy sectors such as fisheries and aquaculture, maritime transportation and shipping services, and coastal tourism.

#### 1.3.1 Fisheries and Aquaculture

The fisheries sector is an important contributor to Pakistan's overall economy and is source of food security and livelihood for many coastal communities. The fisheries sector in Balochistan directly employs 64,226 fisherfolk whose families depend on income from fishing for their bread and butter. Balochistan contributes PKR 15.6 billion in this respect which is 34% of the total fisheries income of Pakistan.<sup>36</sup> However, the overall share of fisheries in Pakistan's value added is only 1% which suggests that the potential of the fisheries sector is underutilized.<sup>37</sup> Figure 6 below shows the number of fisherfolk and registered fishing vessels in Balochistan.

**Figure 6: Registered Vessels and Fisherfolk Population in Balochistan**



There are 38 important commercial fish species in Balochistan and the maximum sustainable yield (MSY) of fish has been estimated at 300,000 metric tons (MT) against fish stock of 600,000 MT available in the sea. Out of this fish stock, about 140,000 MT (64%) is caught by Balochistan-based fishing vessels. 80,000 MT fish or 36% of the fish catch is caught and carried away by Sindh-based trawlers which is major source

<sup>36</sup> Muhammad Noman et al., "An Economic Analysis of Fisheries Sector of Balochistan, Pakistan: Current Status and Future Potential," *Indian Journal of Geo-Marine Sciences* 47 (September 1, 2018): 1731.

<sup>37</sup> Ibid.

of resentment among the fisherfolk of Balochistan.<sup>38</sup> The fish handling, processing, and storage infrastructure on Balochistan coast is very limited. Berthing/landing facilities along the coast are available only at three places, namely, Gwadar, Pasni and Gaddani. Moreover, the fish landing jetties at Pasni (Gwadar District), Damb/Sonmiani, and Gaddani (Lasbela District) have silted up due to poor design of the fish harbors.<sup>39</sup> Figure 7 below shows the percentage of fish landed at the fish harbours of Balochistan.<sup>40</sup>

**Figure 7: Percentage of Fish Catch at Fish Landing Sites of Balochistan<sup>41</sup>**



The foregoing analysis indicates that the fisheries sector operating on Balochistan's coastline is a significant source of livelihood and income for the people of Balochistan, but this sector is underperforming on nearly all three criteria of a 'blue growth' development framework. The marine fisheries are operating below their maximum sustainable yield due to poor fish handling and processing infrastructure.<sup>42</sup> Secondly, fish yield is either stagnant or declining in terms of value due to overfishing of a small number of commercial species. This has been confirmed in individual interviews with officials of Fisheries and Coastal Development Department and representatives of civil society in Gwadar.<sup>43</sup> This declining trend is consistent with national level assessment of marine fish stocks carried out under the auspices of the Food and Agriculture Organization (FAO).<sup>44</sup> Furthermore, the prevalent growth in fisheries in Balochistan's coastal waters is not inclusive because a large portion of fish catch goes to large boats

<sup>38</sup> Zubair Qureshi, "Pakistan to Ban Illegal Trawlers from Gwadar Waters," *Gulf News*, December 12, 2021, accessed January 15, 2022, <https://gulfnews.com/world/asia/pakistan/pakistan-to-ban-illegal-trawlers-from-gwadar-waters-1.84350781>.

<sup>39</sup> Government of Balochistan, "Balochistan Coastal Development Proposal," 4.

<sup>40</sup> Government of Balochistan, *Draft Balochistan Comprehensive Development and Growth Strategy 2019-25* (Quetta: Planning and Development Department, Government of Balochistan, 2021), 98.

<sup>41</sup> Ibid.

<sup>42</sup> World Bank Group, *Revitalizing Pakistan's Fisheries*.

<sup>43</sup> Nasir Rahim Sohrabi, "Fisheries and Livelihoods of Local People in Gwadar," January 8, 2022.

<sup>44</sup> World Bank Group, *Revitalizing Pakistan's Fisheries*, 23.

and trawlers from outside Balochistan which has compelled the local small-scale fisherfolk to launch protests and sit-ins against the ‘trawler’ mafia on a regular basis.<sup>45</sup>

### 1.3.2 Maritime Shipping and Transportation

With the launch of Gwadar Port and start of projects under the CPEC, Balochistan’s coastline has seen a rise in its national and international profile. The start of operations by the Gwadar Deepwater Port and completion of infrastructure projects under CPEC has led to the start of shipping and maritime services activities in Gwadar. Presently, the China Oversea Port Holding Corporation (COPHC) is operating Gwadar International Terminals, Gwadar Marine Services Limited, and Gwadar Free Zone Company which are providing comprehensive international shipping and marine services under the Landlord Port Authority Model arrangements with Gwadar Port Authority (GPA).<sup>46</sup> In addition to regular weekly calls by COSCO Shipping Lines, Gwadar Port is also handling container traffic for Pak-Afghan Transit Trade (PATT).<sup>47</sup>

Nevertheless, the maritime transportation and shipping capacity of Gwadar Port is significantly underutilized because upcountry rail and road links are still incomplete.<sup>48</sup> Even though the Makran Coastal Highway N-10 and Surab-Panjgur-Hoshab Highway N-85 provide good connectivity with the rest of the country via N-25 Quetta-Karachi Highway, these are not dualized roads and may not be able to serve the large volume of cargo vehicles with heavy loads commensurate with increased port traffic. Moreover, national freight carriers and international maritime shipping lines have been reluctant to utilize Gwadar Port due to their sense of insecurity on account of the law and order situation in Balochistan. Due to these reasons, Gwadar Port is yet to realize its full potential and contribute to the blue economy in Pakistan.

### 1.3.3 Industrial Development

Coastal areas and resources are major drivers of economic growth and development for countries around the world. Industrial activity on Balochistan’s coastline is concentrated mainly in and around Hub city in Lasbela District and it is complemented by an emergent industrial cluster in Gwadar under CPEC. Lasbela District has a strong industrial base in the form of Hub Industrial and Trading Estate (HITE), Gaddani Marble City, and Windar Industrial and Trading Estate.<sup>49</sup> The HITE Industrial Zone

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<sup>45</sup> Government of Balochistan, “Balochistan Coastal Development Proposal.”

<sup>46</sup> COPHC, “Businesses,” *China Overseas Port Holding Corporation, Pakistan*, last modified 2021, accessed January 15, 2022, <http://www.cophcgwadar.com/businesses.aspx>.

<sup>47</sup> COPHC Pakistan, “Shipping Lines,” last modified 2021, accessed January 15, 2022, <http://www.cophcgwadar.com/shipline.aspx>.

<sup>48</sup> Naseer Khan, “Port Services and Development Projects in Gwadar Sponsored by Gwadar Port Authority,” January 14, 2022.

<sup>49</sup> Lasbela Industrial Estate Developing Authority (LIEDA), “Industrial Estates - LIEDA,” Government Website, *Lasbela Industrial Estate Developing Authority (LIEDA)*, last modified 2021, accessed January 15, 2022, <https://www.lieda.gov.pk/IndustrialEstates.html>.

has more than 300 registered industrial units in multiple sectors.<sup>50</sup> Similarly, a nascent industrial cluster and maritime shipping industry is emerging in Gwadar with the establishment of Gwadar Port, Gwadar Free Trade Zone, and Gwadar Industrial Estate.<sup>51</sup>

However, the industrial sector on Balochistan's coastline is not performing well in terms of industrial growth and utilization of industrial capacity. HITE, the largest industrial zone, has witnessed a flight of industry due to the expiration of special tax concessions and the increasing cost of electricity and gas for the industry. Presently, only 90 industrial units out of 300 are functioning.<sup>52</sup> The Gwadar Free Zone and Gwadar Industrial Estate have a lot of potential, but 15 years after the completion of the port this potential is still to be realized.

### **1.3.4 Coastal Ecological and Heritage Tourism**

Balochistan's coastline is endowed with a unique landscape studded with spectacular cliffs, mountains, living mud volcanoes, golden sandy beaches, wild life sanctuaries, marine protected areas, and world renowned archaeological and heritage sites.<sup>53</sup> The Makran Coast Range has beautifully sculpted mountains and exotic landscape forms, such as the Princess of Hope, which parallel world-famous sites like the Grand Canyon in the United States.<sup>54</sup> In addition, the coastal belt is home to golden beaches of Sonmiani, Kund Malir, Jiwani, Malan, and Ganz which can be developed for tourism and water sports. Moreover, this region has unique ecological zones such as Sonmiani and Kalamat bays, the marine protected area of Astola Island (*Haft Talar*), and the vast Hingol National Park which is home to the Sindh Ibex. In addition, the coastal area is home to ancient archaeological and pilgrimage sites of Hinglaj Mata Mandir, Gondrani Cave City (Lasbela District), the tomb of Arab General Muhammad Bin Haroon and the intricately carved monuments of Chaukhandi Tombs. However, due to the lack of investment in basic tourist amenities and deteriorating law and order situation, the actual tourist traffic is negligible.

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<sup>50</sup> LIEDA, "Major Types of Industries Established - LIEDA," *Lasbela Industrial Estates Development Authority*, accessed January 15, 2022, <https://www.lieda.gov.pk/IndustriesTypes.html>.

<sup>51</sup> COPHC, "Gwadar Free Zone Company Limited," *China Overseas Port Holding Corporation, Pakistan*, accessed January 15, 2022, <http://www.cophcgwadar.com/gfz.aspx>.

<sup>52</sup> A. Kasi, A. Raziq, and N. Khan, "Exploring Environmental Sustainability Practices in Pakistani SMEs," *Journal of Independent Studies & Research* 17, no. 2 (2019): 28.

<sup>53</sup> Muhammad Tahir, *Integrated Coastal Zone Management Plan for Pakistan* (International Union for the Conservation of Nature (IUCN), Pakistan, 2011), 12, accessed January 15, 2022,

<https://www.iucn.org/asia/countries/pakistan/promoting-integrated-coastal-management>.

<sup>54</sup> This description is based on the author's personal travel and observation on the Makran Coast.

## Section II

### Prospects for Blue Economic Development in Balochistan

Having taken an overview of the traditional blue economy of Balochistan, it is important to highlight the prospects for its development in the light of international best practices. For this successful international models of blue growth in both developed and developing countries must be seen; subsequently, both traditional and emerging sectors of blue economy that can be prioritized for development in Balochistan may be identified. It is important to bear in mind that successful development of a blue growth strategy relies on Marine Spatial Planning (MSP), that is, the process of identifying and allocating coastal and marine areas for relevant economic activities in a systematic way.<sup>55</sup>

#### 2.1 International Best Practices for the Development of the Blue Economy

Since 2012, blue growth has been adopted by many countries as a macro-economic level development and investment strategy for advancing their maritime economies. In 2012, the European Union (EU) put forth the ‘blue growth’ strategy as the cornerstone of its marine policies. The EU it has outlined high priority development areas and specific targets for the future.<sup>56</sup> In the Indian Ocean region, member countries of the Indian Ocean Rim Association (IORA), have collectively embraced the principles of blue growth economic development framework by adopting the Jakarta Declaration on the Blue Economy in 2017.<sup>57</sup> China and Indonesia have taken significant steps towards adopting the principles of blue growth approach to develop their maritime resources in a sustainable manner. Within South Asia, Sri Lanka, India, and Bangladesh have taken some initial steps towards the development of the blue economy but these steps are significantly behind similar initiatives in Africa, East Asia, and Europe.

Based on a review of international developments in the adoption of a blue growth framework, the development models of Indonesia and China are reviewed in greater detail below. The reason for selecting these countries for comparison is that Indonesia is multi-ethnic country with a large Muslim population like Pakistan. Although China is very different from Pakistan in terms of its population and governance structures, it is a good choice for comparison because of the deep economic and cultural ties between the two countries that allow better translation of strategies from the Chinese experience of blue growth to the Pakistani context.

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<sup>55</sup> UNESCO, “Marine Spatial Planning | IOC UNESCO,” Official Website, *Intergovernmental Oceanographic Commission, United Nations Educational Scientific and Cultural Organization*, last modified 2021, accessed January 15, 2022, <https://ioc.unesco.org/our-work/marine-spatial-planning>.

<sup>56</sup> Lu Wenhai et al., “Successful Blue Economy Examples with an Emphasis on International Perspectives,” *Frontiers in Marine Science* 6 (June 7, 2019): 261.

<sup>57</sup> IORA, “Blue Economy – Indian Ocean Rim Association – IORA,” *Indian Ocean Rim Association*, accessed January 15, 2022, <https://www.iora.int/en/priorities-focus-areas/blue-economy>.

## **2.1.1 Chinese Experience in the Development of Blue Economy**

China's coastal regions are major drivers of Chinese economic growth, accounting for 20% of its landmass but sustaining 40% of its population and contributing 60% of Chinese GDP.<sup>58</sup> While the Chinese government paid no heed to environmental and sustainability factors in its initial pursuit of rapid economic growth, Chinese political leaders and policymakers have become more sensitive towards environmental concerns as they faced the growing reality of the negative effects of runaway growth by way of air, water, and marine pollution and rapid decline of the country's natural resource endowments. In 2015, the National Development and Reform Commission (NDRC) set important goals under the 13<sup>th</sup> Five-Year Plan (2016- 2020) to promote new scientific and technological inventions in biotechnological applications of marine organisms, desalination, modern marine services utilization of IT, and other emerging industries, while safeguarding its marine ecology and environment at the same time.<sup>59</sup>

In addition to national plans, the Chinese government adopted a ten-year Marine Economy Development Plan (2011-2020), in which the Shandong, Zhejiang, and Guangdong provinces were chosen as models for demonstrating the effectiveness of a sustainable maritime economy. The Shandong Peninsula Blue Economic Zone (SPBEZ) was one of the model marine industrial clusters embodying principles of innovation and sustainability.<sup>60</sup> The key components of blue growth in the SPBEZ included establishment of a world class center of marine science, a model zone for national level economic reform, and a demonstration zone for the concept of a marine ecological civilization (EC). This concept of an ecological civilization is an indigenous Chinese model for sustainable development that requires a balance between industry and environment through careful management. By 2015, the SPBEZ had established the foundations of marine industry, achieved high level capabilities in the application of innovative marine science and technology, and significantly improved the quality of ocean ecology.<sup>61</sup> As a result of these initiatives, the Chinese maritime economy is making a slow but steady transition from low- and middle-tech industries to hi-tech innovative industries which place less burden on its oceans environment.

## **2.1.2 Indonesia's Experience in Developing the Blue Economy**

Indonesia was the first IORA member country to propose adoption of principles of blue growth for developing marine industry and sustainable fisheries. The major policy steps taken by Indonesia to develop its blue economy include, boosting regional economic development; promoting environmentally responsible production systems; and encouraging creative and innovative investments. As part of this strategy,

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<sup>58</sup> FICCI, *Blue Economy - Global Best Practices and Opportunities for Indian Industry*, Aug 11, 2020 (New Delhi: Federation of Indian Chambers of Commerce and Industry, 2019), 43, accessed January 15, 2022, [http://ficci.in/desk-study-page.asp?sp\\_id=&deskid=54530](http://ficci.in/desk-study-page.asp?sp_id=&deskid=54530).

<sup>59</sup> FICCI, *Blue Economy - Global Best Practices and Opportunities for Indian Industry*, Aug 11, 2020.

<sup>60</sup> Wenhai et al., "Successful Blue Economy Examples with an Emphasis on International Perspectives."

<sup>61</sup> Ibid.

Indonesia has focused on developing marine fisheries, marine transportation and tourism, renewable energy systems, and designating special economic zones as blue economy demonstration zones. Indonesia is establishing model Blue Economy Zones in Lombok and Anambas Islands, and the Tomini Bay.<sup>62</sup>

## **2.2 Prospects for the Development of Blue Economy in Balochistan**

These international models and best practices suggest that it is possible to realize the benefits of blue economy if governments are willing to commit themselves to sustainable development of their maritime economic and marine resources. While there are many sectors of blue economy appropriate for development of the Balochistan coast, only three important sectors are discussed in more detail due to the limited scope of this study. These sectors include sustainable fisheries, maritime transportation and shipment, and coastal tourism.

### **2.2.1 Mature Industries**

#### **Sustainable Fisheries**

The contribution of fisheries on the Balochistan coast to the local and national economies can be increased significantly by investing in the conservation of marine fish stocks, improving existing outdated fisheries' regulations, investing in the fisheries value chain, and training fisherfolk in adoption of improved fishing gear and sanitary practices in fish handling. The emphasis in the fisheries sector in Balochistan needs to shift from fish quantity to greater value addition in order to reduce the pressure on fish stocks in coastal waters and allow the regeneration of adequate fish stocks.<sup>63</sup> Moreover, fishing efforts can be redirected from coastal waters to offshore fishing in deep sea where there is potential for catching large edible fish, such as, tuna and mackerel, as well as smaller, less palatable, species, such as, lantern fish, which can be harvested for producing high quality nutritional supplements and food products for export. China has a growing market for consumption of fish and the sustainably harvested fish could be exported directly to China and other export destinations, such as, EU and the Middle East, from Gwadar Port.

### **2.2.2 Emerging Sectors**

#### **Maritime Transportation and Shipping Services**

This is the most promising sector of blue economy on the Balochistan coastline whose potential remains underutilized despite the availability of significant infrastructure in the shape of the Gwadar Port and the allied network of highways and roads. The maritime traffic of Gwadar Port can be increased significantly by completing the

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<sup>62</sup> Ibid.

<sup>63</sup> World Bank Group, *Revitalizing Pakistan's Fisheries*, 43.

remaining portions of M-8 Gwadar-Ratodero Highway and building the Gwadar-Besima-Jacobabad Railway Line to link Gwadar Port with the main north-south transport arteries of the country.<sup>64</sup> In addition, shipping services at Gwadar can be expanded by building the proposed Gwadar Shipyard which will complement Gwadar Port by providing comprehensive repair, maintenance, rehabilitation, and dry-dock services to cargo vessels anchoring there.

## **Coastal Eco-Tourism**

Balochistan's vast coastline offers unique opportunities for eco-tourism, adventure tourism, water sports, and heritage tourism for both the domestic and the international markets. The coastal belt's tourism potential can be realized with minimal investment in tourism infrastructure, such as, the addition of well-equipped rest areas on the Makran Coastal Highway, development of tourist resorts at key locations, and an appropriate marketing strategy. The start of a ferry service from Gwadar to Karachi and Muscat can be done to increase tourist traffic on the Makran Coast.

## **Marine Aquaculture**

In addition to capture fisheries, marine aquaculture (or cage farming) on Balochistan coast provides another opportunity to increase overall fish production and exports. Globally, marine aquaculture is one of the fastest growing sectors and an ever-larger portion of world's fish supply is coming from marine fish farming. Pakistan can build on its success in commercial farming of fresh water fish such as rohu, tilapia, and trout, to encourage marine farming. Many species of fin-fish and shellfish are suitable for marine aquaculture and cage farming, such as, milk-fish, groupers, snappers, shrimps, prawns, and lobsters.<sup>65</sup>

### **2.2.3 Prospective and Innovative Industries**

Prospective industries such as power supply from offshore tidal and wind energy, development of marine biotechnology, and sea-bed mining are technology driven. While the necessary conditions for their development in Pakistan's EEZ are not ripe yet, this should not prevent the federal and provincial governments from investing in necessary facilities for research towards development of these industries. Proper assessment of commercial potential of off-shore tidal energy sites, deep-sea minerals, and medicinal flora and fauna is necessary for making informed decisions about exploiting these resources. In particular, the 'mesopelagic zone,' a marine ecological zone that extends from 200 to 1000 meters below the water's surface has significant

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<sup>64</sup> CPEC Authority, "Railways Network of CPEC | China-Pakistan Economic Corridor (CPEC) Authority Official Website," Official Website, *China Pakistan Economic Corridor Authority*, last modified 2021, accessed January 22, 2022, <http://cpec.gov.pk/map-single/2>.

<sup>65</sup> Fisheries Development Board, "Penculture Fish Farming – Fisheries Development Board," Official Website, *Fisheries Development Board (Pakistan)*, last modified 2021, accessed January 22, 2022, <http://fdb.org.pk/penculture-fish-farming/>.

prospects for the exploration of edible fish, development of dietary supplements from fish, and pharmaceutical products.<sup>66</sup>

### 2.3 Government Efforts for Development of Blue Economy in Balochistan

It is encouraging to note that there is a growing realization among the federal and provincial governments regarding the significance of the blue economy. Interviews and informal discussions with federal and provincial government officers have revealed that some steps towards sustainable use of oceans and marine areas for economic growth have already been undertaken.<sup>67</sup> The Prime Minister of Pakistan declared 2020 as the Year of the Blue Economy and the Ministry of Maritime Affairs (MoMA) is exploring options for growth of the blue economy in exploration of EEZ, marine food processing, and shipping industry sectors.<sup>68</sup> Government of Pakistan is also working with the World Bank and the UNDP to develop a roadmap for the development of the blue economy.<sup>69</sup> Similarly, the new draft Balochistan Comprehensive Development and Growth Strategy 2021-25, being developed by Government of Balochistan with the technical assistance of the UNDP, attempts to address some aspects of the development of the blue economy.<sup>70</sup>

In addition, both existing federal and provincial government development plans and projects address various sectors of blue economy although these have not been framed in terms of an explicit ‘blue growth’ strategy. Gwadar Development Authority (GDA), with the support of the Ministry of Planning Development and Special Initiatives (MoPD&SI), has developed and adopted the Gwadar Smart Port City Master Plan 2017-2050 (GSPCMP) which mandates eco-friendly land-use planning for Gwadar Town.<sup>71</sup> The federal government led Accelerated Development Plan for Southern Balochistan (SBDP) is an ambitious Rs. 600 billion long-term development package that contains significant provisions for the development of civic amenities and the physical and digital connectivity of Makran Coast.<sup>72</sup>

The Balochistan Coastal Development Authority (BCDA) has recently become attentive to its broader mandate regarding the sustainable development of the coastline

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<sup>66</sup> Manuel Hidalgo and Howard I Browman, “Developing the Knowledge Base Needed to Sustainably Manage Mesopelagic Resources,” *ICES Journal of Marine Science* 76, no. 3 (May 1, 2019): 609–615.

<sup>67</sup> Naseer Khan Kashani, “Stakeholder Perceptions Interview Regarding the Blue Economy with Chairman Gwadar Port Authority,” February 10, 2022.

<sup>68</sup> Ministry of Maritime Affairs, “2020- Year of the Blue Economy,” Official Website, *Ministry of Maritime Affairs, Government of Pakistan*, last modified 2020, accessed January 22, 2022, <https://moma.gov.pk/Detail/MjZlYTQ5MzAtNWRmYy00YjZkLTljZmMtMTJiOTJlOTYlMjk1>.

<sup>69</sup> Fawad Yousafzai, “Government, World Bank Working to Advance Development of Blue Economy Roadmap,” *The Nation* (Lahore, November 25, 2021), Online Edition, sec. Business, accessed January 22, 2022, <https://nation.com.pk/25-Nov-2021/govt-world-bank-working-to-advance-development-of-blue-economy-roadmap>.

<sup>70</sup> Zulfiqar Durrani, “Online Stakeholder Perceptions Interview with Mr. Zulfiqar Durrani, Head of Office, UNDP Balochistan,” February 18, 2022.

<sup>71</sup> Gwadar Development Authority, “Presentation on the Gwadar Smart Port City Master Plan” (Government of Balochistan, 2019).

<sup>72</sup> Cdre. Jawad Akhtar, “Stakeholder Perceptions Interview with Advisor, Maritime Affairs, Planning Division,” February 12, 2022.

and has embarked on some key initiatives for its development. The BCDA is carrying out a feasibility study for developing an integrated master plan for the entire Balochistan coast. It is also spearheading the development of tourism infrastructure on the coast including the construction of eco-friendly tourist resorts and beach parks, development of rest areas on the Makran Coastal Highway to facilitate tourists, and the construction of floating jetties to facilitate local fisherfolk and tourists. The BCDA is also exploring construction of additional authorized fish landing jetties to facilitate local fisherfolk in offloading and handling their fish. In addition, the provincial government has launched the Gwadar-Lasbela Livelihood Support Program (Phase-II), with technical and financial support from the International Food and Agricultural Development Organization (IFAD), to improve rural infrastructure, develop the fisheries sector, and carry out community development works in 382 villages in coastal districts.

Commendable as these efforts to promote blue economy may be, these are fragmented and lack an over-arching strategic vision of sustainable development for Balochistan's coastline and contiguous maritime zone. Specifically, the existing development projects under various initiatives, such as, CEPC and SBDP, are more narrowly focused on specific economic and social sectors and maritime localities, such as Gwadar, and do not take a holistic view of the resource potential of Balochistan's coastline and the Offshore Makran Basin.

### **Section III**

## **Governance Challenges and Development of an Enabling Framework for Blue Growth**

This section attempts to identify the main governance challenges and propose a broad framework for developing the blue economy in Balochistan. This is done in order to align the development programs and priorities in the coastal belt with a blue growth strategy so as to achieve the desired results. The pillars of such a strategy are economic growth, environmental sustainability, and social equity. Although, the focus of this paper has been on the province of Balochistan, many aspects of coastal and maritime development come under the purview of the federal government and hence these aspects will be addressed alongside provincial level concerns.

### **3.1 Marine Spatial Planning for Sustainable Use of Ocean Resources**

Pakistan has a broad vision for economic development of its coastal areas which has been articulated in the official Vision 2025, CPEC Long Term Plan, and the Balochistan Comprehensive Development Strategy (BCDS). Under CPEC, the Makran Coast is placed in the Southern Coastal Business and Logistics Zone and two special industrial clusters are being developed on the Balochistan coast in the form of Gwadar

Free Zone and Hub Special Economic Zone.<sup>73</sup> The provincial and federal governments are also engaged in environmental conservation under various projects as part of Pakistan's commitment to SDG 13 regarding climate action. However, there appears to be a disconnect, and at times outright contradiction, between the economic development planning and environmental conservation as well as between different sectoral development strategies which are operating in silos. It is important to bring these under one umbrella by adopting MSP of the entire Pakistani coastline and the Exclusive Economic Zone (EEZ), including Balochistan. MSP will enable the federal and provincial governments to divide the coastal belt and the EEZ into different functional zones for promotion of a sustainable maritime economy and protection of the marine environment.

### **3.2 Streamlining Coastal and Maritime Governance**

Presently, coastal and maritime governance is fragmented and spread across several ministries and departments at the federal and provincial levels, such as the ministries of Maritime Affairs (MoMA), Industries & Production, Defence, Balochistan Coastal Development Authority, and the provincial Environment, Sports, and Youth Affairs Department. The existence of multiple authorities and a plethora of mandates has also led to weak enforcement and lack of initiative among the regulatory departments. It is important to review existing policies to rationalize these and assign clear roles and responsibilities for regulating and promoting specific economic activities on the Balochistan coast based on MSP.

Firstly, the lead departments at the federal and provincial levels, MoMA and the provincial Fisheries and Coastal Development Department, have traditionally been focused on ports and shipping and fisheries sectors respectively. There is a need to change the policy orientation of these departments towards the broader objectives of maritime economic development and coastal development, respectively. Secondly, while the Federal Government has issued revised shipping and fisheries policies and provided incentives to the private sector to invest in these sectors, Government of Balochistan is still working on reforming its fisheries rules and has a very weak enforcement mechanism in the fisheries and environmental protection sectors.<sup>74</sup>

### **3.3 Ocean Knowledge and Blue Skills Development**

The transition from traditional land-based economy towards a sustainable blue economy cannot take place without a clear plan for investment in the development of ocean knowledge and 'blue skills.' At present, Pakistan lacks a detailed understanding of the ecological dynamics of the sea and coastal regions. Furthermore, the workforce in Balochistan does not have the requisite skills for success in the maritime sector and

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<sup>73</sup> Ministry of Planning Development, and Special Initiatives, "Long Term Plan for China-Pakistan Economic Corridor (2017-2030)" (Government of Pakistan, 2019), accessed January 23, 2022, <http://cpec.gov.pk/long-term-plan-cpec>.

<sup>74</sup> Government of Balochistan, *Draft Balochistan Comprehensive Development and Growth Strategy 2019-25*, 100.

the emerging blue economy. There are some established TVET (technical and vocational education and training) institutions in Hub (Lasbela District) and the Pak-China Technical and Vocational Institute at Gwadar has recently started imparting training in various occupational skills to local people. Similarly, Lasbela University of Agriculture, Water, and Marine Sciences (LUAWMS) at Uthal is carrying out basic scientific research pertaining to the marine sector. However, the research and training carried out by these TVET and higher education institutions is pitched at an elementary level and lacks the requisite breadth and quality to prepare for a transition to blue economy. Therefore, there is a simultaneous need to firstly reassess the categories of professional skills and trades being taught at the TVET institutions in Balochistan vis-a-vis the skill set required for successful employment in various sectors of the blue economy and to subsequently upgrade the training programs, human resources, and teaching aids accordingly.

### **3.4 Financing for Blue Growth and Development**

Since the federal and provincial governments have limited financial resources, a dedicated strategy for mobilizing financial resources from all sectors i.e. the domestic public and private sectors, and international development agencies will be required for pursuing a blue growth strategy.

## **Conclusion**

The coastal belt and its adjacent maritime economic zone in Balochistan present significant opportunities for development of the maritime economy under the 'blue growth' development framework. The federal and provincial governments have already embarked upon major initiatives for the development of the blue economy in the industrial, maritime shipping, and coastal tourism sectors. However, these initiatives lack an over-arching framework that can integrate economic activities on the coast, coastal waters, and the deep sea into a holistic endeavor with a clear understanding of their economic, social, and environmental dimensions as well as an appropriate sequencing of development activities. The adoption of a blue growth framework, based on MSP for sustainable use of oceanic resources, streamlining of coastal and maritime governance arrangements, and development of ocean knowledge and maritime skills, can realign development programs and priorities to realize the economic potential of Balochistan's coastal belt.

## **Recommendations**

The recommendations proposed here derive from an analysis of the enabling framework for blue economy proposed earlier. Since blue economy and blue growth are a new and emerging development models, these recommendations may be viewed more as signposts on the road towards the blue economy rather than definitive policy guidelines.

## **i) Integrated Coastal and Marine Spatial Planning**

The federal MOMA, should take the lead in carrying out detailed MSP of the coastal belt and the EEZ of Pakistan, including the Balochistan coast, and divide coastal land, coastal waters, and deep-sea marine areas into different functional zones based on their social, economic, and environmental characteristics and use. The planning exercise should comprise a detailed survey of the topographical, hydrological, and geological features of the coastal belt, involve extensive stakeholder consultation, especially with the local fisherfolk communities, and draw on secondary data collected by marine scientists. Building on the existing cooperation mechanisms under CPEC and Pakistan-China Joint Economic Committee, the assistance of the Chinese experts from the State Oceanic Administration may be solicited to benefit from the Chinese experience in Marine Functional Zoning (MFZ) to undertake this exercise.

Using a survey exercise as a baseline, the Balochistan coast and the contiguous maritime zones can be divided into broad categories of use, such as, environmental conservation, infrastructure and industrial development, social development, heritage conservation, and strategic and defence requirements. Existing areas of the coastal belt and the maritime zone already allocated for industrial, environmental, or strategic uses will necessarily become part of the new plan. Drawing on the broad functional zones defined by the MSP functional zoning, the provincial Planning and Development Department and the BCDA should develop a more detailed master plan for the Balochistan coast and allocate areas of the coastal belt for different economic activities by the public and private sectors. The principles adopted in the preparation of Gwadar Smart Port City Development Plan can be taken as a model for developing a long-term plan for the entire Balochistan coast.

## **ii) Sectoral Development Priorities**

The federal MoPD&SI, MoMA, and provincial P&D Department, in consultation with stakeholder ministries and departments, should develop a ten-year Perspective Blue Economy Development Plan which outlines the key sectoral priorities for the Balochistan coast. From the perspective of this paper, the key economic sectors can be divided into the categories of mature, emerging, and prospective/innovative sectors and their development can be phased accordingly. Specifically, the federal Fisheries Development Board and the provincial Fisheries and Coastal Development Department should make the fisheries industry more sustainable by investing in the value-chain of the fisheries, reduce pressure on existing fish stocks, and provide incentives to the private sector to invest in marine aquaculture. The federal ministries of Communications and Railways should strengthen emerging maritime shipping and transportation industry by completing the remaining sections of M-8 Gwadar-Ratodero Highway expeditiously and mobilizing financing for the Gwadar-Besima-Khuzdar-Jacobabad section of M-3 railway line on priority basis.

At the provincial level, a Blue Economy Development Wing may be established under the Strategic Planning and Reforms Cell of the Planning and Development Department to provide policy guidance and oversee policy implementation. Moreover, the BCDA and the provincial Culture and Tourism Department, in consultation with Pakistan Tourism Development Corporation should develop specific coastal and marine areas tailored to tourism products, such as, water sports, SCUBA diving, wildlife parks, heritage tourism, and beach activities that appeal to a wide cross-section of tourists.

### **iii) Improving Maritime Governance**

The federal and provincial governments should review and rationalize existing maritime and fisheries laws, regulations, and policies in order to streamline maritime governance. In particular, the federal Exclusive Fisheries (Regulation of Fishing) Act, 1975 should be replaced with new legislation that takes account of the changed ground realities and provides an effective enforcement mechanism to thwart illegal and unauthorized activity of fishing vessels in Pakistan's EEZ. Similarly, the Government of Balochistan should revise the Balochistan Fisheries Ordinance 1971 and Balochistan Sea Fisheries (Amendment) Act 2014 and its subordinate legislation to provide a more effective mechanism against encroachment of trawlers and deep-sea fishing vessels into coastal waters. Moreover, there is a need for creating a broad-based consensus among various stakeholders, such as, the Pakistan Coast Guards, the Maritime Security Agency, the enforcement arm of provincial Fisheries Department, and the district courts, to adopt a zero-tolerance policy towards unauthorized fishing by large trawlers and the use of illegal trawl-nets which compromise the livelihoods of small fisherfolk in Balochistan.

### **iv) Skills Development for the Blue Economy**

The existing institutional set up of the technical and vocational training in Balochistan is inadequate for preparing a trained workforce for the development of the blue economy in Balochistan. It is, therefore, recommended that the Ministry of Federal Education and Professional Training, the Pakistan Council for Scientific and Industrial Research, and the Balochistan Technical, Educational, and Vocational Training Authority (B-TEVTA) should work together to identify the gaps in the existing TVET system in Balochistan pertaining to the maritime sector and the blue economy. The concerned federal ministries and scientific organizations should facilitate B-TEVTA to plug the skills gap by introducing new vocational training programs, revise its curricula, and acquire additional human resources for imparting technical training. As part of this endeavor, the existing Pak-China Technical and Vocational Institute Gwadar, the Pakistan Scientific and Technical Center Gwadar, and the Technical Training Center at Hub may be declared as centers of excellence for TVET training. These model technical institutes should be run on an innovative management model involving significant participation by industry experts in their management to bring their training standards in line with the requirements of industrial and maritime sectors.

## **v) Excellence in Ocean Knowledge for Innovative Sectors**

In order to take advantage of the oceanic resources of Pakistan's coastline and EEZ and to manage our coastal and oceanic resources appropriately, detailed scientific research and knowledge of the oceans is necessary. It is proposed that the Higher Education Commission of Pakistan may facilitate the establishment of a new center of excellence in marine science and biotechnology at the LUAWMS and enhance the capacity of the university to carry out advanced scientific research through collaboration and exchange of faculty and research students with leading national and foreign universities. For instance, collaborative arrangements with leading Chinese universities in the fields of marine science and biotechnology, such as, the Ocean University of China, can be made to benefit from Chinese experience in the development of marine biotechnology. In addition, the capacity of the National Institute of Oceanography (NIO) may be enhanced to carry out advanced scientific research in the prospective blue economy sectors, such as, renewable energy, deep seabed mining, and marine biotechnology. The Ministry of Science and Technology may facilitate the NIO in upgrading its existing Research Sub-Station at Gwadar to a fully-fledged research station, and help NIO establish additional research stations along the Balochistan coast to facilitate advanced research and data collection.

## **vi) Mobilizing Financial Resources for Blue Growth**

Financial resources for pursuing a blue growth strategy may be mobilized by enhancing existing public sector development funds for coastal and maritime development, encouraging the private sector to invest in new initiatives, and mobilizing funds from international donors. In particular, the World Bank's ProBlue Blue Economy Program may be tapped into for this purpose since it has been specifically created for helping developing countries in promoting the blue economy.<sup>75</sup> In addition, the platform of UNDP may be used to mobilize additional financing for the development of blue economy under climate finance window.

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<sup>75</sup> World Bank Group, "PROBLUE: The World Bank's Blue Economy Program," Text/HTML, *World Bank*, last modified 2022, accessed February 20, 2022, <https://www.worldbank.org/en/programs/problue>.

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