

BLUE GROWTH: AN EMERGING PARADIGM OF NATIONAL POWER - A CASE STUDY OF PAKISTAN

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First Edition

Category: Policy Paper

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First Edition: May 2019

Property Rights: National Institute of Maritime Affairs, Islamabad

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ABSTRACT

The Maritime scholars and practitioners around the globe share the common belief that peace and stability in the maritime domain serves as an important factor for a more secure world order and contributes directly in a significant to the growth of world economy. Traditionally, the concept of Seapower gravitated around strengthening of Navies and developing military strategies to project influence at sea and protect maritime sovereignty of the state. However globalization has brought into limelight, the strategic significance of maritime economy including shipping, coastal tourism, strategic ports and choke points, off shore energy reserves; and led to rise of littorals nations as important regional and global players. The presence of extra regional forces in and around the areas of strategic influence is a conspicuous reality in support of cited argument. Hence dynamics of maritime economy has emerged as an integral component of national security, particularly for the countries like Pakistan; where maritime sector is known to be bedrock of national economy.

In this back drop, the paper will attempt to draw immediate relevance of blue economy to the maritime security from the perspective of regional and international community. Moreover, it will attempt to highlight the significance of maritime domain as vital component of national power and emphasise on building a dynamic maritime sector in Pakistan as part of national security strategy.

Key words: *Blue Economy, Oceans Governance, Maritime Security, Sea Power*

1. TRANSFORMING CONCEPT OF SEAPOWER

Traditionally, **Power** is an inclusive element in the core concept of State, and is commonly explicit as state's ability to allocate resources (in any form) to attain desired consequences.¹ Thus approaches to power depend mainly upon "resources, strategies, and outcomes." The notion of Power was further analysed by the modern writers with special reference to sea and concept of "sea power" and it generated significant debate in International Relations. Mahan's doctrine portrayed "**sea power and maritime strategy**" as an independent reality while lineage back its connection to British history and the realist school of thought.²

According to the neorealist school of thought, sea is an arena for competition between states and execution of Power is characterised through naval build ups and military competitions to influence others.³ Therefore, strategic debate in the modern international politics has been focused on maritime issues like the US Pivot to Asia, order at sea, emergence of China as a naval power, naval capabilities of states in the context of resource competition etc.⁴ In the wake of 21st century, changing threat perceptions in maritime security, nature of conflict and co-operation at sea and transforming role of navies has brought structural shift in the image of sea power as a concept of "hard core military combined with maritime economic power". These developments have brought political, economic, environmental and strategic

¹ David A. Baldwin, *Power and International Relations: A Conceptual Approach* (New Jersey: Princeton University Press 2016).

Referring to the work of renowned Writers, Hans J Mongenthua in his book *Politics Among Nations: The Struggle for Power and Peace* (1948) and Quincy Wright in Study of International Relations (1955) who have discussed in detailed the relationship of Power and state.

² John H. Maurer, The Influence of Thinkers and Ideas on History: The Case of Alfred Thayer Mahan, *Foreign Policy Research Institute* (August 2016). Retrieved from <https://www.fpri.org/article/2016/08/influence-thinkers-ideas-history-case-alfred-thayer-mahan/>

³ John Mack, *The sea: a cultural history* (London: Reaktion, 2011), 74. Also referred by C Bueger and T Edmunds, *Beyond seablindness: a new agenda for maritime security studies* – (International Affairs, 2017), 1293-1313.

⁴ See e.g. Ken Booth, *Navies and foreign policy* (London: Croom Helm, 1977); and Eric Grove, *The future of sea power* (London: Routledge, 1990).

See Alfred T. Mahan, *The influence of sea power upon history, 1660–1783* (London: Samson Low, Marston, 1890)

See Ian Speller, *Understanding naval warfare* (London: Routledge, 2014).

See Geoffrey Till, *Seapower: a guide for the twenty-first century* (London: Frank Cass, 2004).

paradigms closer than ever. Emergence of many national maritime strategies and doctrines in past two decades is significant testimony of this contemporary trend. This bottom up shift has added many dimensions into character of a sea-power which were earlier not considered by the policy makers and scholars like Geoffrey Till while implying top-down approach to affairs at sea.⁵

The importance of seas as medium of economic prosperity and need to safeguard the national interests against non-traditional, transnational threats are the key factors changing perception of ‘sea power’ in the modern world. Global trade, about 90 percent, transits through sea lines of communication and off shore energy resources, fisheries and environmental concerns are some critical issues related to economic development.⁶ The objectives of maritime security have been now clubbed together with challenges of maritime economy, or frequently termed as **blue economy** in contemporary writings. It is widely believed that sustained blue growth cannot be achieved without maritime security.⁷ The central idea behind this perception is that “a secure maritime environment provides preconditions for marine resource management.”⁸

In calling attention to the fact that maritime security issues, other than wars , are closely associated with the national economy and security strategy, Bueger and Edmunds claim that (nowadays) “issues of blue growth (economy) underpin much of the maritime security agenda.”⁹ Somalia is the most noteworthy case study where the aspects related to maritime economy, human resources, environment and capacity building have caused implications for national security in general and global maritime security in particular.

⁵ Geoffrey Till, *Seapower: a guide for the twenty-first century* (London: Frank Cass, 2004).

⁶ *Blue growth: opportunities for marine and maritime sustainable growth*, European Commission, Brussels, 2012. Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0494&from=EN>

⁷ Timothy Walker, *Securing a sustainable oceans economy: South Africa’s approach*, Institute of Strategic Studies, (July 2018)

See also Michelle Voyer, Clive Schofield, Kamal Azmi, Robin Warner, Alistair McIlgorm & Genevieve Quirk, Maritime security and the Blue Economy: intersections and interdependencies, *The Indian Ocean, Journal of the Indian Ocean Region*, (Australia 2018), 28-48, DOI: 10.1080/19480881.2018.1418155

⁸ C Buger, “What is maritime security”, *Maine Policy* (Issue 55, 2013), 159-164

⁹ C Bueger and T Edmunds, *Beyond seablindness: a new agenda for maritime security studies*, (International Affairs, 2017)

The introductory narration exemplifies the relevance of maritime economy to maritime security. Moving further, the next part of the paper would briefly sketch historical evolution of ‘elements of national power’ and endeavor to highlight the emergence of ‘seas as vital component of national power’.

2. OCEANS AS COMPONENT OF NATIONAL POWER

The paradigm of national power has evolved over the time, and undergone significant variation due global trends. In the eighteenth century, the power of state was envisioned to be dependent on certain measurable factors such as; geography, size of population and territory, wealth, resources, military etc.¹⁰ The subject debate harbingered the notion of '*Elements of National Power*' to analyse the Power of State.¹¹ The maritime strategist Alfred Thayer Mahan also developed the constituents of Sea power, similar to the paradigm of 'Elements of National Power'. He identified six (6) key determining elements of the sea power nation: geography, physical conformation, extent of territory, number of population, national character, and character of government. Other writers and maritime theorists advanced scholarly literature on role and structure of sea power on similar lines until the recent years.¹² The perception of non-traditional, transboundary threats and challenges has changed the dynamics of conflict and cooperation at sea. Global concerns over environmental issues, economic considerations, human security and growing need for maritime regulations have brought practical innovation in the nature and scope of sea power. States are developing enhanced co-operation at sea in various domains such as; search and rescue, maritime trainings, data collection and exchange of information etc. In other words, oceanic activities are gaining recognitions as source of solution to emerging socio economic challenges. However, the drivers for the future ocean economy are knowledge development, innovation, advancement in science and technology underpinned by secure maritime environment.

¹⁰ Robert Gilpin, *War and Change in World Politics*, (New York: Cambridge University Press , 1981)
Read also, Edward Voce Gulick's Book Europe's Classical Balance of Power. (New York: 1955)

¹¹ Read Hans J. Morgenthau's influential textbook *Politics Among Nations*(1948)

¹² Grove, Eric, *Sea Power*, (Oxford Research Encyclopaedia of International Studies 2017). Available at <http://oxfordre.com/internationalstudies/view/10.1093/acrefore/9780190846626.001.0001/acrefore-9780190846626-e-294>. While referring to the work of Raoul Castex, Bernard Brodie, Stephen Roskill, Sir Peter Gretton, Sir James Cable, Sergei G. Gorshkov, Paul Kennedy, Ken Booth, Richard Hill, and Geoffrey Till.

In contemporary scenario, the scope of sea power has been broadened and spheres of security are overlapping economy, environment and strategic spheres. Economic and environmental dimensions of maritime domain have become equally important as that of defence and strategic. It is widely believed that secure maritime domain is not only essential for pursuit of national objective related to defence and law enforcement, but also promotes national goals related to blue growth. It is indeed a virtuous circle; secure maritime domain attracts investors and promotes maritime industrial activities; and increasing businesses call for enhanced safety security arrangements to minimize risks. Therefore, solely building on maritime security forces to enhance 'national power' has been an old fashioned approach. States are now adopting multidimensional and more inclusive policies to improve national character and blue economy is becoming an integral component of sea power. As Frank Hoffman, security analyst stated in one of his writings, "Strategic success in the 21st century is synonymous with the persistent development and prudent application of sea power."¹³

Another critical aspect that needs consideration is that economic development is moving faster than regulatory collaboration; which means that in future maritime scenario, competition between the states will be intense in economic domain while retaining cooperation also. Therefore, there will be improved stewardship on matters related to ocean governance, policies and laws at regional as well as global level.

Before moving to the key research question; how to pursue objectives of blue growth to enhance national power, it is important to understand that nature of oceanic activities and relevance of maritime industries in respect to national, regional or global development.

3. UNDERSTANDING BLUE ECONOMY AS AN EMERGING GLOBAL TREND

¹³ Frank Hoffman, "No Strategic Success without 21st Century Seapower: Forward Partnering" July 2014, available at <https://warontherocks.com/2014/07/no-strategic-success-without-21st-century-seapower-forward-partnering/>

In view of the challenging economic and environmental situation; economists, environmentalists and researchers around the globe have emphasised sustainable and environmental friendly measures to ward off impending economic and environmental degradation. Espoused by leading economists, the only way out proposed from this quagmire is a fundamental shift of economy that aims towards development without affecting the natural environment. Such a momentous shift has been named as “Green Economy”.¹⁴ However, another strand of economists and researchers have questioned the viability of green economy alone and have advocated and asserted that more benefits can be accrued by shifting towards the economy generated from the oceanic realm which is known as the “Blue Economy”. The finite land resources, growing environmental pressures, untapped array of living and nonliving resources in the seas has triggered littoral states interest towards oceans. Increasing recognition of jurisdiction of the nation states over expended EEZ and beyond is another factor leading states for exploration of marine resources.

Blue Economy has actually introduced oceans as development spaces and can simply be referred to ‘green growth based off oceanic activities’.¹⁵ The term blue economy was popularised by Gunter Pauli who embarked upon finding nature inspired technologies, through his NGO ZERI (Zero Emissions Research & Initiative) in 2004, that could impact the world economy. These technologies were expected to facilitate provision of basic human needs in a sustainable manner. Starting off with about 2000 peer-reviewed articles, Gunter Pauli with the help of corporate strategists, financiers, public policy makers, leading entrepreneurs, business reporters and corporate academicians narrowed down the list to hundred such opportunities. This painstaking research was compiled and was published under the title ‘The Blue Economy: 10 years -100 innovations -100 million jobs’ in 2009. The scholarly undertaking endeavours to assert that a blue economy business model will overcome economic challenges and will steer the societies towards prosperity.¹⁶

¹⁴ World Green Economy Report, *Cambridge Institute of Sustainability* (2018) can be accessed at <https://www.cisl.cam.ac.uk/resources/publication-pdfs/2018-world-green-economy-report>.

¹⁵ Inclusive Green Growth The Pathway to Sustainable Development, *the World Bank* , (Washington DC 2012) available at www.worldbank.org/inclusivegreengrowth

¹⁶ L. Waldegrave, “What is the Blue Economy?”, (2017) available at <https://circular-impacts.eu/blog/2017/07/19/what-blue-economy>

Also read Gunter Pauli, *Blue Economy: 10 Years, 100 Innovations, 100 Million Jobs*, New

The blue economy has been defined by *The World Bank* as, “*sustainable use of ocean resources for economic growth, improved livelihood and jobs, and ocean ecosystem health.*”¹⁷ The European Commission simply describes it as, “*all economic activity related to oceans, seas, harbours, and coasts.*”¹⁸ While deciphering the concept of

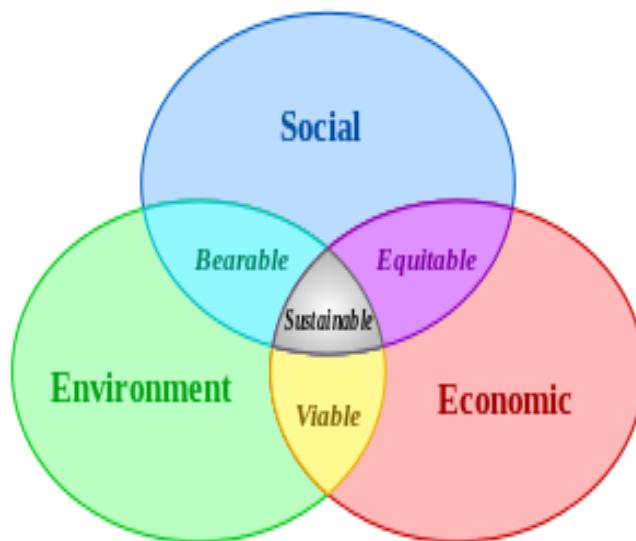


Figure 1: Three Pillars of Sustainability (Source: Barbier 1987)

blue economy, one comes across a number of definitions but generally it is related to promoting economic growth, social inclusion and conservation of livelihoods through oceans while focusing on ‘*sustainability*’. The term sustainability implies economic expansion in environmentally sound and safe approach towards social wellbeing as described in acclaimed Venn diagram¹⁹ by Edward B. Barbier in 1987 (Figure -1).²⁰ In addition, to the many definitions, a number of terms are also used to describe ocean based economic activities, such as; Blue economy and Blue growth are often

Mexico, (Paradigm Publications 2010)

¹⁷ The "What is the Blue Economy?". *The World Bank*. (June 2017).

¹⁸ Annual Report on Blue Economy, Maritime Affairs and Fisheries Wing(EU 2018) , retrieved from<https://ec.europa.eu/jrc/en/news/566-billion-and-growing-eu-blue-economy-thriving>

¹⁹ A diagram that shows all possible logical relations between elements

²⁰ Edward B Barbier, “The Concept of Sustainable Economic Development.” *Environmental Conservation*, 14(2), (1987). 101-110. doi:10.1017/S0376892900011449

See also Purvis, B., Mao, Y. and Robinson, D. (2018) Three pillars of sustainability: in search of conceptual origins, *Sustainability Science*. ISSN 1862-4065

used as interchangeably. Other terminologies include; Marine Economy²¹, Maritime Economy²² and Ocean Economy.

Although, quantifying the value of oceanic services in financial terms is a difficult task, but researchers have attempted to draw an estimate of ocean economy. Estimated value of ocean assets around the world is about US\$ 24 trillion that entails an annual output of around 2.4 trillion US\$ and this would rank 7th if measured with top 10 global economies.²³

The nature of oceanic activities and dynamics of maritime industry varies from state to state. Every country has its own agenda, criteria and national aspirations.²⁴ However, in various studies and reports, the proposed scope of ocean based activities as potential enablers of Blue Growth are usually determined on three main factors; **first** the value addition into global economy, **second** the potential of sector with respect to the future economic trends, and **thirdly** the categorisation of sector in terms of being sustainable.²⁵ Some attributes, which promote advances in the maritime domain are, vastness of oceans as compared to land, advancement in science and technologies, librated governance framework and large areas of oceans have not yet been explored. As a matter of fact, 60 percent of the global oceans lie beyond national jurisdictions and act as open reservoir for exploration and resource exploitation.²⁶ Keeping in view, following sectors have been widely identified / accepted as established maritime industries with a potential to grow significantly in future.

- Marine fisheries (includes fish processing and Aquaculture)
- Maritime / Coastal Tourism
- Shipping

²¹ Widely used in Australia, Canada, France, New Zealand and the United Kingdom.

²² Frequently used by the European Union, Norway and Spain.

²³ WWF Annual Report (2015)

²⁴ Park, K.S., "A study on rebuilding the classification system of the ocean economy", Center for the Blue Economy in Monterey Institute of International Studies, (California 2014), available at: http://centerfortheblueconomy.org/wpcontent/uploads/2014/11/10.29.14.park_.kwangseo.the_ocean_economy_classificationsystemfinal_21.pdf.

²⁵ *The Ocean Economy in 2030* , OECD, (OECD Publishing, Paris 2016), Available at <http://dx.doi.org/10.1787/9789264251724-en>

²⁶ Olive Heffernan, How to save the high seas, *Nature: The International Journal Of Science*, (2018) 154-156 doi: 10.1038/d41586-018-05079-z available at <https://www.nature.com/articles/d41586-018-05079-z>

- Ports
- Shipbuilding and Repair
- Offshore oil and Gas
- Marine Manufacturing and Construction

The contribution of these sectors in the overall maritime economy is very significant (figure 2). Offshore oil and gas industry grabs the largest share, with 34 percent followed by marine and coastal tourism. Port activities are at third place with measurable share of global ports throughput. Maritime equipment with 11 percent share is followed by industrial fisheries. Representation of global shipping under sector of water transport was 5 percent, followed by shipbuilding and repair industry.

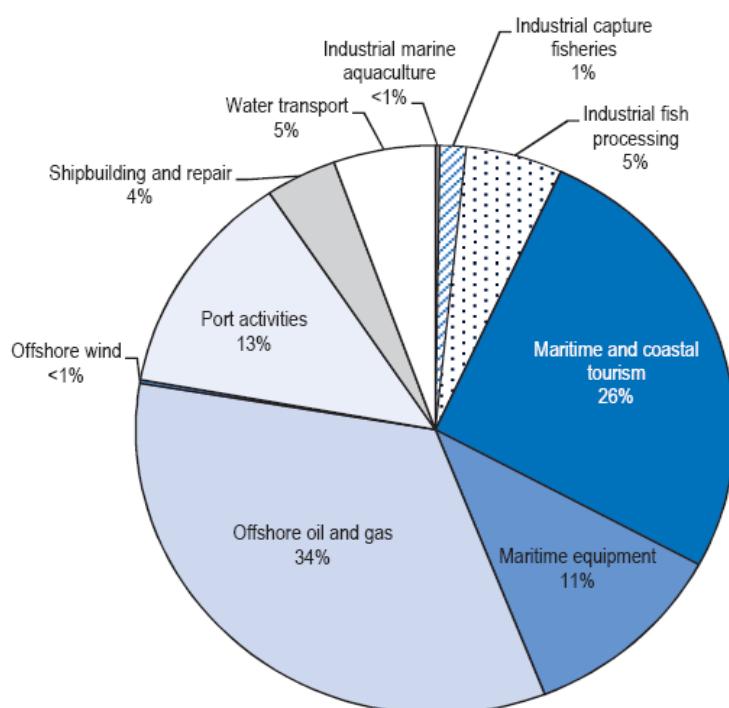


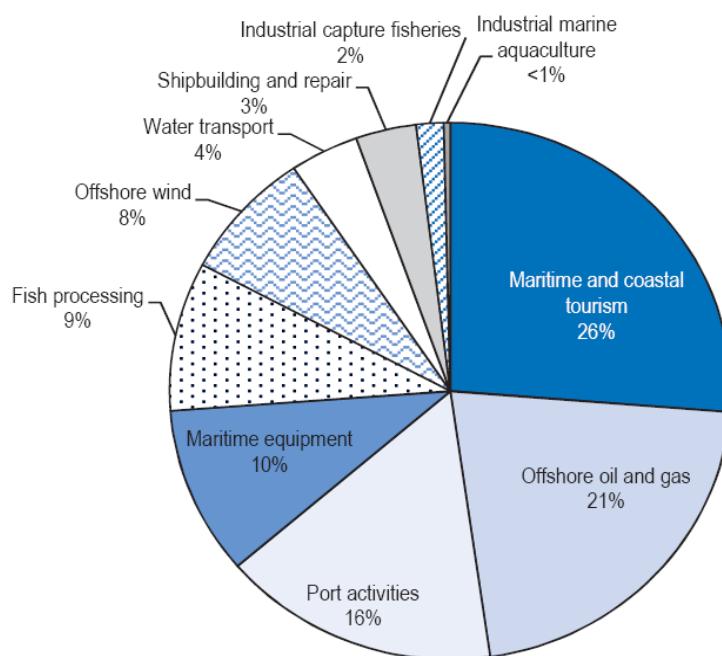
Figure 2: Value added of ocean-based industries (Source: OECD 2014)²⁷

According to estimates, these sectors accounted for about 31 million direct full-time jobs in year 2010. Financial data for indirect jobs and economic benefits to other sectors, as well as the social/ natural services provided by oceans is not available. Asia and Europe are estimated to account for two third of the global

²⁷ Calculations based on OECD STAN, UNIDO INDSTAT, UNSD, World Bank (2013); IEA (2014)

ocean-based industries, also expected to grab the largest share in future growth scenario.

Moulding of futuristic growth in blue economic sectors based on 'business-as-usual scenario'²⁸ suggests that some of them have the potential to outperform average world economic growth. The estimated growth in blue economy by 2030 is more than US\$ 3 trillion. Maritime tourism, including the cruise industry, is expected to



²⁸ A scenario for future patterns of activity, which assumes that normal circumstances can be expected to continue unchanged and there will be no significant change in present determinants such as; people's attitudes and priorities, or no major changes in technology, economics, or policies etc

Figure 3: Future value addition by ocean-based industries by 2030 (Source: OECD)²⁹

take the largest share of about 26 percent with anticipated global growth rate of more than 3.5 percent per annum. Followed by offshore oil and gas exploration, and production with 21 percent, port activities are estimated to be about 16 percent in global value addition forecast.³⁰

Apart from the above mentioned maritime sectors, the cross sectoral approach underscores many fields emerging in the sphere of ocean economy and will have greater scope and economic impact in future; such as, maritime business services, biotechnology, ocean energy, seabed exploration and mining, maritime education, R&D, dredging, maritime surveillance and marine data services.

The projected growth in ocean economy is significant in terms of economic development as well as employment opportunities, but it needs to be highlighted that these estimates are not comprehensive. The non-availability of data of ancillary maritime services in many countries, as well as consolidated information about mainstream maritime industries is lacking. Therefore the expected share of ocean based economy can be much greater than projected value. Furthermore, it is anticipated that challenges like growing global population and potential increase in urbanisation, advancement in technology, implications of climate change, scarcity of fresh water, emergence of multi-polar world as well as growing international regulatory frameworks will influence rate of blue growth.³¹

4. BLUE ECONOMY IN RELATION TO SUSTAINABLE DEVELOPMENT GOALS

Blue economy has also been cited as the Ocean's Agenda and gained concurrence through the United Nations Conference on Sustainable Development. Sustainable Development Goals (SDGs), officially known as "Transforming our World: the 2030 Agenda for Sustainable Development",³² is basically a set of 17

²⁹ Calculations based on OECD STAN, UNIDO INDSTAT, UNSD, World Bank (2013); IEA (2014)

³⁰ "The Ocean Economy in 2030", OECD

³¹ "The Ocean Economy in 2030", OECD

³² The UN General Assembly adopted the Sustainable Development Goals (SDGs) in 2015. The main aim of the SDG's is to develop a healthy and prosperous planet. Further details are available at the link

<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

"Global Goals" and have 169 targets adopted by United Nation in 2015. SDG Goal number 14 is a true reflector of 'Blue Economy'. The SDG 14 discusses the need for conservation and sustainable usage of oceanic resources. UN is very much focused on utilisation of oceans, seas and marine resources for environment friendly economic development. The UN secretary general affirmed this during one of his speech as,

"Sustainable Development Goal 14, the Goal of the Oceans, must be our roadmap to clean, healthy oceans. The essential first step is ending the artificial dichotomy between economic demands and the health of our seas. The conservation and sustainable use of marine resources are two sides of the same coin. Second, we need to promote strong political

leadership and new partnerships, based on the existing legal framework."

António Guterres
UN Secretary-General's Opening Remarks
The Ocean Conference, June 5th, 2017

The remaining 16 goals, being direct contributor in the national development and prosperity, can also be translated into strategy of blue growth. The later part of the study will highlight the key SDGs challenges faced by Pakistan in the context of blue growth and maritime development. It will also attempt to provide the policy guidelines to address the issues.

While looking at prospects of blue economy for Pakistan, the foremost question that comes into mind is what potential do we have to develop blue economy? Are we ready to exploit options for sustainable growth? How to bridge the gaps and challenges in devising a comprehensive national maritime strategy to achieve these objectives? Ensuing paragraphs have attempted to address all these queries.

5. PROSPECTS OF BLUE GROWTH FOR PAKISTAN

Pakistan is blessed with all the important ingredients to qualify as a maritime nation.³³ With 1005 Km long coastline, country ranks at 74th in the list of 142 coastal states.³⁴ The combined area of EEZ and Continental Shelf provides 290,000 Sq Km of maritime space with rich living and non-living resources. More than 90 percent of the national trade by weight; including total oil/coal import is through sea. Pakistan's heavy reliance on sea borne trade also warrants commensurate investment in the maritime sector in order to attain much needed development balance. Pakistan's total population is 207.774 million with a need to grow GDP at-least 6 percent to cater the needs of growing population. But according to the international reports, the global share of various components of maritime sector of Pakistan is not very significant when compared with respect to size and resources available. The only exception is ship scrapping industry which is approximately 18 percent of the total world Shipbreaking Industry.³⁵ According to the information stated at United Nations Conference on Trade and Development in year 2016, share of Pakistan in global fleet ownership is just 0.04 percent.³⁶ The container throughput is 0.38 percent.³⁷

As mentioned earlier, the available maritime resources, expertise and support infrastructure in every country reflects their respective targets / aspirations about blue economy and maritime development. In general, development plan for blue economy should broadly encompass following social and environmental areas / aspects, otherwise the planning would not qualify to be called as blue growth strategy.

- a. Maritime security and safety
- b. Energy security
- c. Food security and resources allocation
- d. Biodiversity, conservation and ecosystem health
- e. Coastal environment, development and strategies
- f. Climate change and vulnerabilities

³³Asaf Humayun and Naghma Zafar, "Pakistan 'Blue Economy' Potential and Prospects", *Policy Perspectives*, (Vol. 11, Issue 1, 2014.)

³⁴ Naghma Zafar , "Pakistan as Maritime Nation", *The financial Daily*, 24 September 2016, pg 7

³⁵ Please refer to UNTAD, 2017 , Country profile –Pakistan Data retrieved from <http://unctadstat.unctad.org/CountryProfile/MaritimeProfile/en-GB/586/index>.

³⁶ 36

³⁷ Source: UNCTAD Secretariat, derived from various sources including Dynamar B.V. Publications, terminal operators and port authorities.

In case of Pakistan, reality on ground is despite having a substantial coastline and rich maritime zones, the advantages consequent from given resources for development of a dynamic maritime sector are insignificant. While identifying the maritime potential of Pakistan, industries/ sectors with greater potential for sustainable jobs and growth have been recognised as enablers of blue growth; which include:

- a. Shipping
- b. Shipbuilding
- c. Port infrastructure
- d. Ship re-cycling
- e. Fisheries and seafood industry
- f. Maritime Tourism
- g. Offshore marine resource exploration

A brief about each sector is appended below:

- a. **Shipping**: Pakistan National Shipping Corporation (PNSC) is the only flag carrier company operating in the country. Comprising of 11 vessels of various type / size with total dead weight tonnage (DWT) capacity of 831,711 MT (million tonnes), PNSC lifted cargo of about 12.797 MT in year 2018 as compared to 14.304 MT in year 2017.³⁸ The Corporation has generated Rs. 10,070 million in terms of revenue in year 2018. According to the analysts, PNSC has achieved these results by concentrating on more profitable projects despite a slump in global shipping industry. Due intense competition there is pressure on freight rates in the International Market with fall in Average Freight Rate Assessment (AFRA) in recent years. Bifurcated statistics of Pakistan's seaborne trade for the year 2017-18 and PNSC's share is described in Table 2.

³⁸ PNSC Annual Report for year 2018, available at <https://www.pnsc.com.pk/financials/pnsc-annual-report-2018-1.pdf>

	Figures in 'million tons'					
	Dry Bulk		Liquid Bulk		Total	
	2018	2017	2018	2017	2018	2017
Pakistan Seaborne Trade	65.836	42.653	34.411	32.863	100.247	89.852
PNSC's Share	2.158	1.665	10.639	12.639	12.797	14.304

Table 2: Share of PNSC in Seaborne Trade of Pakistan – 2018 (Source: PNSC)

As per UNCTAD rule of 40:40:20, Pakistan Flagged vessels can lift at least 40percent by Sea. Annual freight Bill of Pakistan is estimated to be between 4-5 Billion US\$, this freight bill adds to balance of payment issues and having more ships under Pakistani Flag is need of the hour. Shipping industry therefore can grow at a fast pace with assured cargoes. More Pakistani ships mean more trade and seagoing jobs for Pakistani sea farers. International Trade has significant potential of enhancing Pakistan's blue economy.³⁹

- b. **Shipbuilding:** Globalization has enhanced the volume of sea-borne trade. Statistics show that countries which have progressed from developing to developed had invested heavily in ship building. Some of the major global economies which have large shipbuilding industry such as China, South Korea and Japan have reaped economic benefits.—Shipbuilding is one of the maritime industries with huge job and economic opportunities. Furthermore, shipbuilding is relatively an environmental friendly and most suitable sector of maritime economy that has the potential of leading in the country's blue growth. In Pakistan, Karachi Shipyard and Engineering Works Limited (KS&EW), is the only facility available in the country that works for shipbuilding, ship repairing and general engineering. Since inception, KS&EW has built 449 different types vessels including Merchant ships, tugs, guided missile frigates, submarines and other heavy engineering units.⁴⁰ According to the officials, KS&EW is well equipped and able to build ships upto 26,000

³⁹ Flagship Report on "Flag of Connivance and Prospects for Shipping Sector of Pakistan" by NIMA (Unpublished data)

⁴⁰ Information retrieved from <http://www.karachishipyard.com.pk/company-profile/>

DWT.⁴¹ It is amongst few yards of world which also built submarines and industrial equipments. Recently, Ministry of Maritime Affairs has requested KS&EW to expand and plan for more construction of ships and utility crafts in order to develop Gwadar port. The Government has recently approved plans to develop a shipyard at Gwadar to meet the increasing need for merchant ships. The plan is to establish two dry docks to handle up to 600,000 dead weight tonnage ships each.⁴² ⁴³ However, due to the ongoing economic crunch the Government is yet to allocate funds for it. The planned shipyard will produce the latest commercial vessels, modern freight ships, barges, merchant ships, tugs, and survey vessels. This planned shipyard will also provide repair and dock facilities for large vessels; this is in itself a big market which can generate much needed foreign exchange and revenue stream. With China-Pakistan Economic Corridor (CPEC) being the focal point of Pakistan's economic boost, the construction of this shipyard seems to be a step in the right direction. The new shipyard is going to be built on a fast-track basis, given the growing demand for ships and vessels, and the fact that Gwadar port is going to be a very busy port in the near future. The planners in Pakistan, should facilitate private sector to invest in shipbuilding industry in order to exploit the blue economy potential of this sector. At the same time, to achieve SDGs, KS&EW should focus more towards the green shipping strategy.⁴⁴

- c. **Port Infrastructure:** Ports provide key connections in global supply chains and are crucial for blue economic growth and access to international markets. Given the imperative role of ports in the international trading system, developing techniques for efficient and environment friendly port operations is an urgent piece of work required for Blue growth. Available Port infrastructure

⁴¹ Brochure of KS&EW available at <https://app.box.com/s/zto33h5gyjb09o5q1yw9mmo8k2pobjfr>

⁴² Govt approves setting up new shipyard at Gwadar, *The Nation*, 22 March 2018, available at <https://nation.com.pk/22-Mar-2018/govt-approves-setting-up-new-shipyard-at-gwadar>

Also read, Mansoor Afzal Pasha, "Modern shipbuilding facilities fall victim of inconsistent policies", *Daily Times*, September 2016 , available at <https://dailytimes.com.pk/58319/modern-shipbuilding-facilities-fall-victim-of-inconsistent-policies/>

⁴³ Vice Admiral (Retd) Iftikhar Ahamed, Former MD KS&EW, tele- conversation , 30 May 2019

⁴⁴ Pakistan plans to develop Gwadar shipyard, *The Nation*, 31st July 2017 , retrieved from <http://nation.com.pk/31-Jul-2017/pakistan-plans-to-develop-gwadar-shipyard>

of Pakistan including development of new small ports on shores of Makran coast has potential to support sustainable growth.

Pakistan has three main ports - Karachi Port, Port Mohammed Bin Qasim, and Gwadar port. Karachi Port came into being in 1887, the port handles 60 percent of Pakistan's trade through its operations. The objective of Karachi Port Trust (KPT) is to provide a modern, competitive, and environmental friendly cargo handling facilities. KPT handled 58.685 MT of cargo in 2017-18 which is almost 4 percent higher as compared to the fiscal year 2016-17.⁴⁵ KPT is in process of preparation of ten years business and strategic development plan, one of the salient features is to have environmental friendly multi-purpose bulk handling terminal. The second Port, Bin Qasim is located in Indus delta region at 28 nautical miles (N) in the south-east of Karachi. Port Qasim is an eco-friendly port and is geographically situated on the Arabian Gulf trade route. The Port presently supplies more than 40 percent of seaborne trade requirements of the Country and handles 45.615 Million MT of cargo in year 2017-18.⁴⁶ Port Qasim is also becoming the energy hub of the country with Oil, Coal and LNG terminals. In addition the country has a Single Buoy mooring and a coal jetty off Churna Island.

Gwadar, as the third port of Pakistan, has gained much attention after the advent of China Pakistan Economic Corridor (CPEC) initiative. It is the first port on the south western Arabian Sea coastline in Baluchistan. It is situated 635 km away from Karachi and 120 km from the Iranian border. Gwadar Port is near to main shipping routes from the Gulf to Far East and Europe. The Gwadar Port is a strategic deep-sea port and phase-1 of the port with a total cost of US\$ 288.0 million, was initiated in 2007. The Port is fully functional with three multipurpose berths, each 200 meters in length and 14.5 meters in depth alongside. Gwadar port handling capacity of ship is 50,000 DWT. It is expected that by 2055 Gwadar Port will be the major site of its kind in Pakistan (Economic Survey of Pakistan 2016-17). China⁴⁷ has taken

⁴⁵ KPT official Statistics available at <http://kpt.gov.pk/pages/Default.aspx?id=32#page-heading>

⁴⁶ Port bin Qasim Official Statistics available at http://www.pqa.gov.pk/port_performance.php

⁴⁷ through China Overseas Ports Holding Company Limited (COPHC)

operational control of Gwadar port for 40 years. The port will be fully operational by 2030 and will create one million jobs for locals.⁴⁸ The port has the potential of becoming a hub for business investments as international airport, hospitals, desalination plants will be established which will improve locals' lives and promote industrial structure. Moreover, China Overseas Ports Holding Company Limited (COPHC) offers different training programs to the residents of Gwadar city. It is expected that the Gwadar port will also attract tourism and would generate more foreign reserves besides offering much needed economic prosperity of Baluchistan. Because of the strategic significance of ports in international trading scenario it is imperative for Pakistan to build and furnish the ports with international climate and safety standards.

- d. **Shipbreaking**: Ship breaking/demolition is a recycling process which has contributed to Pakistan's economy through taxes, employment and cheap availability of steel. Very few countries have this industry and mostly South Asian countries like Bangladesh, India and Pakistan account for significant global market share mainly due to cheap labour, lax safety standards and environmental laws. In years 2018, out of 744 scrapping vessels, 581 were demolished in these three Asian countries. In terms of volume, it was reported to be 90.4 percent of the global gross tonnage.⁴⁹ Table 3 indicates Pakistan's share in Global market in 2018.

S.No	Country	Number of ships demolished
1	India	253
2	Bangladesh	185
3	Pakistan	80

⁴⁸ Gwadar to create one million jobs, *Pakistan Today*, 20 July 2016 can be read at <https://www.pakistantoday.com.pk/2016/07/20/gwadar-to-create-one-million-jobs-for-locals/>

⁴⁹ Mike Schuler, "NGO Shipbreaking Platform: Record-Breaking 90% of End-of-Life Tonnage Scrapped on South Asian Beaches" *GCaptain*, 31 January 2018, available at <https://gcaptain.com/ngo-shipbreaking-platform-record-breaking-90-of-end-of-life-tonnage-scrapped-on-south-asian-beaches-in-2018/>

**Table 3: Share of Pakistan in Global Ship Recycling - 2018 (Source: NGO
Shipbreaking)**

Pakistan shipbreaking industry has observed steady decline over the past few years due to major fire incidents taking place in 2016 and 2018 in Gadani shipbreaking yard. The incident caused death of shipbreaking workers at Gadani, and country had to face criticism on safety structure for workers.⁵⁰ Despite these disasters, ship owners and cash buyers continue to trade vessels with Pakistani breakers because they pay between US\$ 400-440 per Light Displacement Tonne (LDT),⁵¹ which is remunerative price as compared to Turkey, China and other non Asian yards.⁵²

In its present form, Pakistan's Shipbreaking Industry cannot compete with its global counterpart in a sustainable manner; unless it adopts safety standards as in Hong Kong Convention and global environmental laws. Pakistan needs to consider adoption of global regulations to avert decline of industry or imposition of possible restrictions from global community. The point to note is that Pakistan's competitors like India and Bangladesh have all complied and certified their breaking yards. This sector has vast potential to grow further and contribute to the national economy. A comprehensive policy, encompassing all facets of federal and provincial obligations including safety and environmental aspects, can steer the sector into a better future and world leader in the field.

- e. **Fisheries and Seafood Industry:** Fishing activities are part of the blue economic growth activities which can be sustainably achieved by accomplishment of 14 targets of Sustainable Development Goals (SDG). Fishing industry is traditional source of survival for many communities along the coastal areas. The economic contribution of fisheries sector is significant

⁵⁰ BBC news , (Online) retrieved from <https://www.bbc.com/news/world-asia-37834414>.
Also read, "Oil tanker catches fire at Gadani " Dawn, 17 July 2018

⁵¹ Price may vary depending upon destination /location of vessel.

⁵² News story by Maritime Executive dated 30th January 2019 , retrieved from <https://www.maritime-executive.com/article/ngo-beaching-yards-scraped-90-percent-of-tonnage-last-year>.

as direct source of income, but it also generates substantial employment for coastal communities. Whereas recreational fisheries can also contribute to increase in tourism. During first three quarters of year 2017 Pakistan exported around 103,277 tonnes of fish and fish preparations which contributed US\$ 276.269 Million in foreign exchange.⁵³ Moreover, the share of fisheries in Gross Domestic Product (GDP) is about 0.1 percent according to the Pakistan Economic Survey. The export of fish and fish preparations during same period of 2016 was 92,046 tons, amounting to US \$ 240.038 million. Pakistan has over 10,000 fishing trawlers and boats engaged in fishing out at Sea. However, the boats and trawlers are primitive in design and made of wood. The boats lack refrigeration facilities spoiling part of the catch. In addition there is use of illegal nets which causes even juvenile fishes to be caught thereby depleting the fish stocks. The fish harbours are not dredged properly making it difficult to bring the catch to the market and fish canning factories. Around a million Pakistani from coastal communities earn their livelihood from fishing. Another major problem is lack of co-ordination amongst the provincial fisheries, Federal government and the private sector. According to the information shared by Commerce Division, GoP, exports of fish and fish preparations have witnessed an increase by 12.2 per cent in quantity and 15.09 percent by value in year 2017.⁵⁴

The European Union (EU) has permitted resumption of export of Fish and Fishery products to only 3 companies from Pakistan. In Pakistan, aquaculture is provincial responsibility although Fisheries Development Commissioner (FDC) is taking care of fisheries at central level which is working under Ministry of Food, Agriculture and Livestock (MINFAL). For the first time in Pakistan, MINFAL has proposed a policy for fisheries and aquaculture, in order to give direction for the development of the sector. Three policy goals have been set for government of Pakistan; these three goals are to increase

⁵³Opinion article , Dunya News, 31 July, 2017 <http://dunyanews.tv/en/Business/399250-Fisheries-exports-contribute-276269-mn-to-nation>

⁵⁴ "Fishery exports contribute \$276.269 M to national exchequer" *Pakistan Today*, 30 July 2017

the contribution of this sector in national economic growth, poverty alleviation and enhancing national food security. The seafood exports can boost through promoting modern fishing techniques, effective ban on hauling of juvenile fish and encouraging aquaculture. In fact, for Pakistani shrimp, oyster, lobster and crab, China has emerged as the single biggest market and the second largest market for fish. In this regard, National Centre for Maritime Policy Research, Karachi chapter of National Institute of Maritime Affairs, under auspices of Bahria University has launched Aquatic Diagnostic Lab in 2016 to support and promote marine aquaculture in Pakistan.

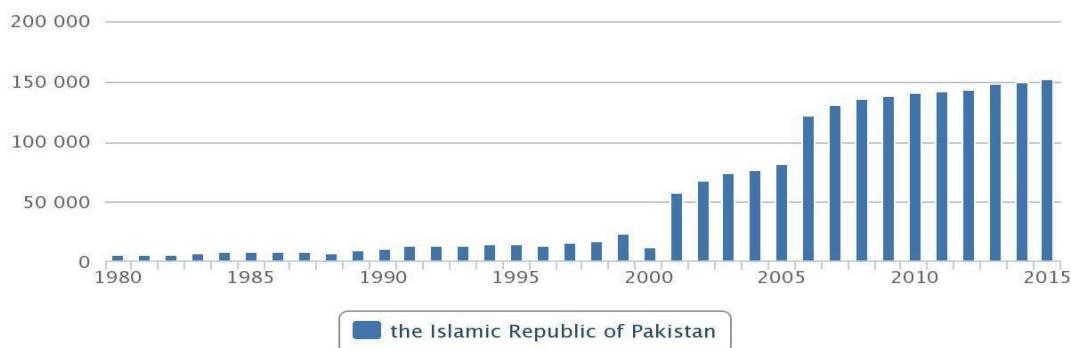


Table 3: Production of Fish through Fresh Water Aquaculture in Pakistan - 2016
(Source: FAO)

The government of Pakistan has been promoting fish farming in rural and urban areas with annual production growing day by day. According to FAO, 156 hundred tonnes of fish was produced by farming in 2016 in Pakistan, but unfortunately contribution of saltwater farming (mari-culture) was insignificant.⁵⁵ Table 3 representing a statistical depiction of state of aquaculture in Pakistan is relevant in this regard.

- f. **Maritime Tourism:** Globally, tourism is one of the largest segments in the global economy and is growing rapidly. The tourism economy represents 10.4 percent of global GDP, which makes about \$8.8 trillion. In year 2018 it provided 10 percent of total global employment. This means 1 out of every 10

⁵⁵ FAO – Report on global fisheries(2017)

job created was related to this industry. Interestingly, data of past 5 years show that 1 out of every 5 new jobs has been created in this sector. The Sector attributes to 30 percent of global exports services.⁵⁶ In almost 150 countries of the world, it is one of the five top earning industries and key source of foreign exchange for one-half of developing nations. The global trends suggest rapid growth of this industry over the next 20 years. However, in Pakistan no comprehensive policies exist to even begin the large scale organised coastal and marine tourism. With hundreds miles of pristine sandy beaches, ideal weather and warm waters Pakistan has truly an untapped resource which can generate hundreds of thousands of jobs and contribute to the GDP growth. Currently, maritime tourism is limited to local populace only and at best it is ill organised. Demand for beach tourism is immense in the local market but lack of proper infrastructure, regulations and ownership makes this sector grossly underperforming.⁵⁷ Under development plans of CPEC, the Government envisages to develop options for maritime tourism along the Coast. It is expected that development will support local economy and reduce poverty. In this regard, the private sector must be mobilised to support sustainable tourism.

g. Offshore Resources: Maritime zones of Pakistan are not only rich in living resources but it is also characterized by distinctive oceanic phenomena that could produce abundant mineral, renewable and non-renewable energy resource. Pakistan has potential reservoir trap of hydrocarbon resources in offshore zones. Study based on per cubic mile yield of analogue production suggests 16,650 million barrels of oil can be present along the Sind and Makran Coast. The survey conducted by National Institute of Oceanography (NIO) for the assessment of gas reserves in deep sea revealed that Pakistan is among the top 7 countries of the world in terms of Methane gas reserves.⁵⁸

⁵⁶ World Travel & Tourism Council's (WTTC), 2018 Annual report

⁵⁷ Talk by Vice Admiral Syed Khawar Ali Shah at National Seminar on Tourism and Coast Development on 4 April 2019 at Karachi

⁵⁸ Talk by Dr Ali Rashid Tabraiz, Ex Director General of NIO at National Centre for Maritime Policy Research during Maritime Discourse, June 2014

To meet the energy requirements, the Ocean Thermal Energy Conversion (OTEC), offshore wind, tidal/current systems (conversion of ocean currents into electricity) can be explored as sustainable methods to generate electricity. It is estimated that about 1100 MW power can be produced from the Indus Deltaic Creek areas. Marine vegetation, particularly the seaweed, is available in great abundance in the Arabian Sea. The expected value is as high as 112 ton/hectare along the coast.⁵⁹ Pakistan is also sufferer of water scarcity, sea water desalination can be solution to this shortage. The exploration and exploitation of offshore resource is another untapped potential of Pakistan's maritime sector and Blue Economy.

6. BLUE GROWTH - NATIONAL OBLIGATIONS

Pakistan has suitable environment to promote and benefit from its blue economy potential. The availability of trained and hardworking manpower is available for shipping operations, opportunities for construction and demolition of ships, fishing sector has the key components for policy makers to capitalize on. Unfortunately, with continental mindset, the policy makers continue to underestimate the prospective of our maritime potential. Furthermore, there is lack of maritime awareness, political will, and lukewarm patronage which needs to be actively advocated against. Pakistan Navy under Chief of Naval Staff being Chief Adviser on Maritime Affairs to the Government has been at the forefront to improve and promote maritime thought in the country and providing necessary assistance to all stakeholders for sustenance, development and promotion of the Blue Economy.

Pakistan cannot afford to be left behind in promotion of maritime sector as it provides a significant opportunity to contribute to the GDP of Pakistan. Therefore, the government should take the strategic decision of adopting the blue economy approach. In order to follow a blue strategy, it is essential to develop comprehensive framework based on information; knowledge related to legal issues, financial aspects and security for devising the sea based sustainable growth. According to the guidelines of the World Bank for developing ocean economy, small developing

⁵⁹ Nuzhat Khan, "Marine Resources In Pakistan : A tentative Inventory", *Pakistan Business Review* (January 2011), 838,
Read Also Naghma, "*Pakistan as maritime Nation*",

countries step by step approach towards marine resources; first **measure** by improving pool of information and improve methodology for creating a knowledge base about marine resources, second **manage** maritime sector by applying integrated ocean governance approach and develop institutional and human capacity to perform, Thirdly, **invest and promote** though policies and lastly keep a track of the process though **monitoring**.⁶⁰

Apart from prospects of likely growth in established maritime industries, there are number of up-tapped sectors that can be explored for blue growth. Maritime research and development, marine equipment manufacturing, marine exploration, eco-tourism and maritime ancillary services, dredging and aquaculture can offer prospective opportunities for growth. Keeping in view the maritime outlay of Pakistan following are some broad steps considered essential to pave the way forward for blue economy:

- State should ensure that the data on blue economy represents complete and accurate picture
- Developing viable and sustainable maritime policies.
- Marine spatial planning for promotion and sustainable undertaking of maritime activities at sea
- Capacity building of stake holders through providing facilitation for maritime education, research and technological innovations
- Ensuring security of the coast and EEZ off Pakistan.
- Addressing the gaps and issues of overlaps of jurisdictions/ responsibilities of federal and provincial entities resulting from 18th amendment for efficient functioning of various maritime related departments.

Pakistan has also signed SDG's and within the ambit of maritime affairs, Ministry of Maritime Affairs and Pakistan Navy are working in various social, economic, educational, environmental and regulatory domains to pursue the agenda 2030. Other relevant / responsible partners are Ministry of Planning Development and Reforms, Ministry of Climate Change and Environment, Provincial Governments (Sindh and Baluchistan), NGO's etc. The relevant goals set by UN can be translated

⁶⁰ Toward a Blue Economy: A Promise for Sustainable Growth in the Caribbean, *World Bank* (World Bank 2016) Report No: AUS16344,

into sustainable maritime agendas for management of coastal and maritime affairs in the country. In this regard a brief analysis of SDGs with suggestions/recommendations is appended below:

Table - 4 : Using SDG Targets for Blue Growth in Pakistan

SDG #	Goal	Targets	Proposals for promotion of Blue Growth (directions to achieve the targets)
1	No Poverty	Economic growth must be inclusive to provide sustainable jobs and promote equality	Promotion of Aquaculture, Marine culture and Fish farming Built eco-tourism for locals Skill based training of labour in emerging maritime industries (Ports, fisheries, ship breaking etc) Promote Sustainable fish catch practices and implement strict ban in breeding season. Restrict use of Juvenile fish as poultry feed in the country so that fish stocks can be increased. Develop and educate farmers about Integrated Fish Farms
2	Zero Hunger	The food and agriculture sector offers key solutions for development, and is central for hunger and poverty eradication	Promote seafood, sea vegetation as source of food amongst nationals. Explore new markets and ensure easy access to markets Identify and promote value addition services that can bring prosperity to coastal community
3	Good Health And Well-Being	Ensuring healthy lives and promoting the well-being for all at all ages is essential to sustainable development	Local and provincial health care centres may be utilized to create awareness. Educate fishing community about wellbeing and proper working conditions Adopt and implement guidelines of ILO, WHO, IMO for maritime industries i.e, Shipbreaking , ship building, fisheries etc Sign and implement Maritime Labour Conventions (MLC)
4	Quality Education	Obtaining a quality education is the foundation	Focus on skill based trainings and basic education training for the maritime

		<p>to improving people's lives and sustainable development.</p>	<p>community.</p> <p>Establish a national maritime university to fill the gap in higher education and modern maritime trends in the country</p> <p>Promote marine based vocational trainings in schools and colleges of Sindh and Baluchistan</p> <p>Invest in R&D</p> <p>Inclusion of maritime related information/chapters in primary and secondary School curriculum</p>
6	Clean Water And Sanitation	Clean, accessible water for all is an essential part of the world we want to live in.	<p>Pursue government to invest in Water desalination plants</p> <p>Protect and restore marine ecosystems</p> <p>Focus on waste treatment and reducing dumping of pollution/un-treatment discharge into sea</p>
7	Affordable And Clean Energy	Energy is central to nearly every major challenge and opportunity	<p>Increase substantially the share of renewable energy through investing in Ocean Thermal Energy Conversion (OTEC), offshore wind, tidal/current systems etc</p> <p>Invest in research and development</p>
8	Decent Work and Economic Growth	Sustainable economic growth will require societies to create the conditions that allow people to have quality jobs	<p>Government to invest for research and Maritime infrastructure.</p> <p>GoP is to attract Foreign Direct Investment (FDI) and Public private partnership</p> <p>Encourage innovations and entrepreneurship</p> <p>Promote maritime tourism</p>
9	Industry, Innovation And Infrastructure	Investments in infrastructure are crucial to achieving sustainable development	<p>Consider Blue economy development plans in respective sectors as mentioned in the study earlier.</p> <p>Promote, cooperate and collaborate for inclusive and sustainable industrialization in maritime domain</p>
10	Reduced Inequalities	To reduce inequalities, policies should be universal in principle, paying attention to the needs of disadvantaged and marginalized	<p>Empower the native coastal community with skills and employment</p> <p>Consider provision of financial assistance to the fishers for the banned season.</p>

		populations.	
11	Sustainable Cities and Communities	There needs to be a future in which cities provide opportunities for all, with access to basic services, energy, housing, transportation and more	Promote ferry services and cruise ships Development of inland waterways
13	Climate Action	Climate change is a global challenge that affects everyone, everywhere.	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters along the coastal areas Institute integrated mitigation, adaptation, impact reduction and early warning strategies
14	Life Below Water	Careful management of this essential global resource is a key feature of a sustainable future.	Prevent and reduce marine pollution in all kinds Adopt Hong Kong Convention and develop national implementation policy for eco friendly Shipbreaking Launch restoration plans for marine living resources in order to achieve healthy and productive oceans Promote deep sea fishing Legislation, regulation, management and enforcement of best practices for fishing , tourism ,shipbreaking and other maritime industries Invest in marine and maritime Research and Development Cooperation with regional countries for transfer of technologies, exchange of data and other relevant fields. Develop a Marine Scientific Statistical Data Centre for integration of information and easy access to all relevant data about oceans. Run awareness campaigns about protection of Oceans Promulgate policy for designated Marine Protected Areas (MPAs)
15	Life On Land	Sustainably manage mangrove forests, combat	Ensure Waste management and treatment of water before discharge into sea

		<p>desertification, halt and reverse land degradation, halt biodiversity loss</p>	<p>Protect natural habitats and loss of biodiversity in the Indus delta and creeks area.</p> <p>Develop policies for sustainable coastal development plans to avoid coastal erosion</p> <p>Protect and prevent the extinction of threatened species by strict implementation laws</p> <p>Sustain and promote mangroves forest</p> <p>Educate coastal communities about healthy and sustainable lifestyle</p>
17	Partnerships For The Goals	<p>Revitalize the global partnership for sustainable development</p>	<p>Pursue Blue Economy policies with regional and extra regional partners</p> <p>Strengthen maritime cooperation within the national level</p> <p>Enhance international support for implementing effective and targeted capacity-building plans and objectives</p>

7. WAY FORWARD – CONCLUSION

The nature of oceanic activities and maritime industry varies from state to state. Every country has its own perceptions, criteria and national aspirations. The available resources, expertise and support infrastructure in every state reflects into their respective goals about blue economy and maritime development. The maritime economy is extremely important for Pakistan's job growth and increase in the economic development. While ensuring environmental security these options can also bring improvement in human well-being and social equity. This part of economic potential remains untapped and provides an opportunity to the policy makers and Government to translate national aspiration and bring real sustainable change. We must understand that the blue economy is relevant to all countries alike; both as a concept and in practice as it integrates ocean principles and services into economic modeling. Ingredients for blue growth are already available in abundance in Pakistan, however to develop this sector there is a need to enhance the capacity of all stakeholders while taking along the traditional communities of Pakistan.

Potential for blue growth in Pakistan be translated into reality through inclusive planning, coordination and strategy. Nonetheless, prevailing impediments which result in under-utilization of available resources needs to be addressed. In this regard, following are some specific recommendations for consideration/implementation in an early timeframe:

- a. The government of Pakistan should approve and promulgate the Revised Maritime Policy and Strategy.
- b. Pakistan Merchant Shipping Ordinance, 2001 be revised at the earliest as it is expiring in 2020
- c. Hong Kong and EU convention be adopted to certify safe and green ship recycling strategy so as to save Pakistan's ship breaking Industry.
- d. Tankers, Container and LNG ships may be added into national flag to carry at least 40 percent of our Imports and Exports.
- e. Modern dredgers should be added to augment capacity of ports.
- f. There should be effective monitoring and control over Illegal Unregulated and Unreported (IUU) fishing activities.
- g. There must be patronage and focused attention on development and expansion of aquaculture and mari-culture for all seafood products though Public Private Partnership.
- h. Pakistan should develop tourism products and policies which promote coastal attractiveness to provide tourists a unique and customized experience.
- i. Skilled vocational training should be focused and prioritised.
- j. Conservation of natural resources and marine environment from all form of degradation activities may be ensured through strict implementation of national laws
- k. Pakistan Economic Survey and relevant finance reports by Government should have a separate section of maritime sector of Pakistan.

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