

Maritime Power of Pakistan – Prospects for Enhancing Economic Development

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Abstract

The maritime power of a state is an important constituent of its national power. Its main elements include ports, harbours and associated facilities, merchant fleet and allied services, fishing fleet and related industries, geographical position and extent of the coast, awareness of the population and government about the sea resources, and finally the military component for the protection of maritime assets. Pakistan, blessed with 990 km coast, has strategic location in the North Arabian Sea overlooking the Strait of Hormuz, the vital choke point from where 17 million barrels of oil passes every day. The aim of this article is to highlight the potential of the maritime sector and give suggestions for the best employment / utilisation of maritime components to improve the economy of Pakistan.

Keywords: Exclusive Economic Zone (EEZ), Extended Continental Shelf, Fishing, Ports, Deep Draught, Transshipment, Quay Wall, Ship-breaking.

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Introduction

The sea covers 71 per cent of the Earth's surface. According to Admiral Gorshkov, architect of the modern Soviet Navy:

Our seas, oceans and inland waterways are of huge importance in terms of resources, the environment and conservation, trade and industry, marine sciences and leisure activity.¹

Although oceans are such a vast resource, their potential has not been charted to the full extent. The huge body of water presents a new frontier to examine prospects of ocean research, surveys and exploitation, business opportunities, technological possibilities, political and social implications. Keeping in view sea resources, marine study has modified its scope. The present emphasis is on the use of desalination plants to get fresh water, exploration of minerals under the sea like oil, gas, undersea mining of Sulphur and dredging for manganese nodules, use of plankton and krill as source of protein. It also includes new methods of fishing using acoustic devices such as sonars which are useful in deep waters.

To harness these resources, marine technology is being modernised rapidly. To explore the seabed, sophisticated sonars and cameras are being developed. New lighter and stronger materials are being used for marine operations. There is a lot of advancement in diving equipment to search the seabed and other underwater operations. In the shipping sector, ships as big as 600,000 tonnes dead weight, of various categories like oil tankers, container and car carriers, equipped with refrigeration facilities to carry fruits and other perishable items are being manufactured. These have draught of around 15m and length as long as 325m. Hence, there is need of deep draught ports. For cargo handling, ports need sophisticated cranes, trained and efficient personnel. Modern ports should be able to handle these ships efficiently at competitive rates. Availability of efficient and up-to-date ship repair facilities near the port area is an added advantage for the modern ports. Coastal beaches for recreation and tourism is another aspect which is being extensively used by coastal countries. The ship-breaking industry is another

¹ S.G. Gorshkov, *The Sea Power of the State* (Moscow: Pergamon, 1979), 2.

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source of improving the economy. The importance of the sea was stated in the Holy Qur'an about 1400 years ago:

It is He who has subjected the sea onto you, that ye may eat flesh thereof that is fresh and tender, and extract there-from ornaments to wear, and thou seest the ships therein that plough the waves that ye may seek to enrich yourself of the bounty of Allah and that ye may be grateful.²

According to A. T. Mahan, maritime power of a country is one of the components of its national power. It includes its military element (Navy, Maritime Security Agency, Coast Guard, or any other associated military assets), ports and harbours, merchant fleet and associated facilities, fishing fleet and associated industries, geographical position, physical conformation, extent of territory, population size, and national character of the government.³ Gorshkov expresses his views on maritime power in the following words:

A nation's maritime power is determined not only by the weapons and armed forces with which it can affect events at sea but also by its merchant marine, its fishing and oceanographic fleets, and its maritime outlook and tradition. It is true that these civil maritime activities can become vital ingredients in a nation's ability to exercise military power at sea.⁴

Maritime strategy is all about the sea and management of maritime assets in the best possible ways.⁵ Nations which realised the importance of their seas benefitted and became great powers like the United Kingdom, United States of America, France, Italy, Portugal etc.

² Holy Qur'an, 16:14.

³ A.T. Mahan, *The Influence of Sea Power upon History 1660-1783* (London: Bison Books, 1990), 28.

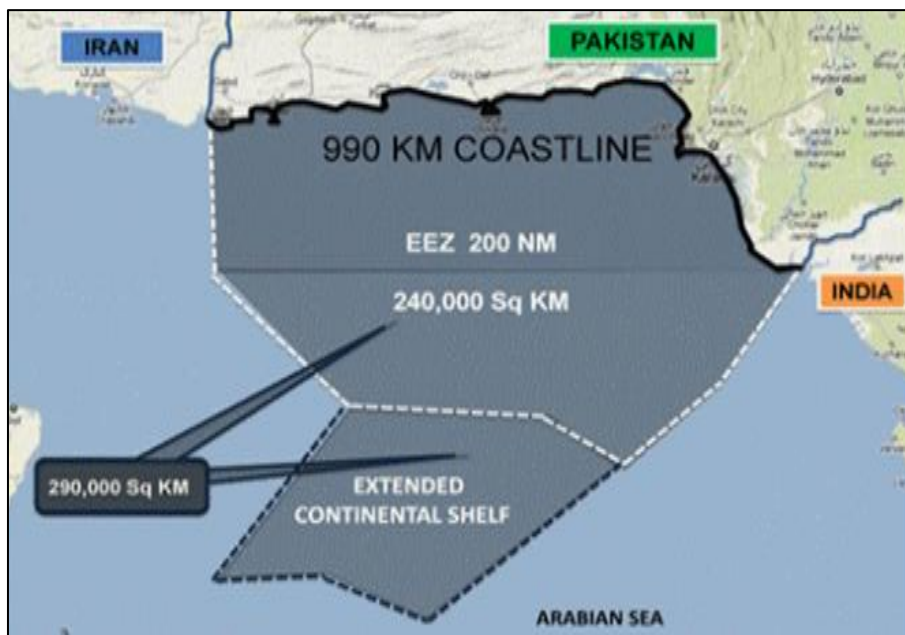
⁴ Hedley Bull, "Sea Power and Political Influence," in *Sea Power and Influence: Old Issues and New Challenges*, ed. Jonathan Alford (England: International Institute for Strategic Studies, 1980), 3.

⁵ Muhammad Anwar, *Role of Smaller Navies: A Focus on Pakistan's Maritime Interests* (Rawalpindi: Army Press, 1999), 9.

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Pakistan is blessed with approximately 990 km long coast, starting from Sir Creek in the South East (disputed area not yet demarcated with India) up to Jiwhani in the west with the border of Iran. The Exclusive Economic Zone (EEZ) extends up to 200 Nautical Miles (NM) equivalent to 370 km and extended continental shelf is 350 NM (648 km). Total area is 290,000 square km.⁶

Figure-1
Coast of Pakistan



Source: Pakistan Maritime Security Agency, “Area of Responsibility,” accessed October 24, 2019, <http://www.pmsa.gov.pk/aor.php>.

In accordance with United Nations Convention on the Law of Sea (UNCLOS) of 1994, coastal states have sovereignty over their territorial waters extending up to 12 NM from the shoreline. They also have sovereign rights over the natural resources in the EEZ. Coastal states also have sovereign rights over the continental shelf, in certain conditions, beyond the EEZ. Seabed resources, outside the national jurisdiction, are regarded as the common

⁶ Pakistan Maritime Security Agency, “Area of Responsibility,” accessed May 24, 2019, <http://www.pmsa.gov.pk/aor.php>.

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heritage of mankind and any revenues they may accrue are to be equitably shared among the international community.⁷

Resources

Pakistan has not been able to utilise its vast sea area except for carrying out fishing and means of transportation. The ocean resources are enormous. Nodules are typically the size and shape of potatoes. They can be found in vast quantities, and contain valuable metals which have been identified as having economic interest. Phosphorite nodules are found on the continental shelf in comparatively shallow waters. These are marine deposits of phosphorous compounds. Phosphorite is an important fertilizer for agriculture use. It is estimated that economically recoverable quantity is 30 billion tonnes. These are irregular in shape and found on the seabed varying from small pebbles to slabs up to 1m in length. Sand and gravels are accessible from the sea bed in abundance. These can be extracted by normal dredging process. These may be used for earth filling for the extension of sea shores and as building material. Nowadays, these are being used to build artificial islands for various purposes.⁸

Pakistan needs to exploit the huge sea area at its disposal. New technological developments in the maritime sector include sensing and surveying with an objective to locate, map and assess the extent of marine resources. Surveying and sensing techniques are concerned with location, while others are required for mapping of the seabed topography.⁹ Another aspect is conversion of sea water to potable, drinkable resource. There is acute shortage of water at Karachi, Gwadar, and a few other places along the coast. The possibilities of desalination plants may be studied to meet the shortages. Regarding surveying the sea, the Pakistan Navy has a survey ship but the Ministry of Maritime Affairs may consider purchasing another suitably equipped survey vessel for surveying the area and may be handed over to Pakistan Navy for operations or it may operate independently employing suitably trained personnel.

⁷ Geoffrey Till, *Sea Power: A Guide for Twenty First Century*, 2nd ed. (New York: Routledge, 2009), 310.

⁸ Glyn Ford, Chris Niblett, and Lindsay Walker, *The Future for Ocean Technology* (London: Frances Pinter Publishers, 1987), 7-57.

⁹ *Ibid.*, 109.

Ports and Harbours

The most important component of maritime power is ports and harbours. It is a location on the coast where ships can dock and transfer people, cargo of various types to and from land. The port location demands that it should have shelter so that monsoon, strong tides and winds do not affect the docked vessels; have sufficient berths to dock all types of ships, including deep draught (around 15 m); and back up areas for the stowage of all types of cargo, like machinery, vehicles, bulk cargo such as fertilizer, sugar, wheat etc. Liquid cargo is a separate entity which needs special handling.

Nowadays, most cargo is transported through two types of containers - 20 Twenty Feet Equivalent Units (TEU) and 40 TEU. Special cranes and trained staff are required to handle them. Due to technological developments, the turnaround time of container ships is in hours (around 12 hours) which used to be days, and sometime weeks a few years ago when containers were not in use.

The hinterland connection of a port is another important aspect. There should be rail and road links to transfer the cargo to its destination in the hinterland. The size of trucks has been increased so these need wider roads with minimum hindrances. Seaports are also instrumental for generating employment opportunities through effects associated with these like crew of tugs, pilot boats, dredging vessels, floating cranes etc. Personnel are also required for logistics activities such as storing, distribution, container stacking, and food arrangements for employees. Cargo handling needs different types of cranes manned by crew to operate, personnel for inspection and custom requirements. Ports attract investors to establish industries in the vicinity to easily import raw material and export finished goods. It is observed that large cities are located closer to the bigger ports. Due to these reasons, ports can be the real pillars of economic development of a country.

Pakistan has three main commercial ports, Karachi, Port Bin Qasim, and Gwadar. Karachi Port is the oldest port of Pakistan which is functioning since 1887. It is administered by Karachi Port Trust (KPT). It has 33 berths. Out of these, 30 are for handling containers, RO-RO (roll on roll off) ships (vehicles carriers, like cars, trucks, buses etc.) and dry cargo. Three berths are for handling liquid cargo like oil, molasses etc. Oil tankers up 12.5m draught can be docked. The container carrying ships up to 11.5m draught can be dock on three berths each on East and West wharves. On remaining berths, ships up

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to 10m draughts of various types can be berthed.¹⁰ In 2017-18, this port handled 55 million tonnes of cargo which was about 55 per cent of the total cargo of Pakistan. In 2018-19, it handled 47 million. The decrease occurred due to shifting of coal handling to Port Qasim and overall decrease in imports and exports.¹¹ Following the ‘landlord port’ strategy, 4 container berths on each wharf that is (6-9) on East and (27-30) on the West wharves have been leased to the commercial companies, Pakistan International Container Terminal (PICT) and Karachi International Container Terminal (KICT), respectively. These berths have been leased for a fixed period on certain terms and conditions for operations. These companies have installed their own cranes and other cargo handling equipment, and employed their own personnel for operations. The ownership remains with the Port Authorities. The recently built extension of Karachi port has quay wall of 1500m which can mostly dock container ships up to 16m draught. These berths have been given on lease to South Asia Pakistan Terminal (SAPT) for operations.¹² It is a modern facility equipped with state-of-the-art cranes and other associated equipment.

The second port is Bin Qasim. It is also located in Karachi. The development history of this port dates back to the 1960s. After surveying the area west of Karachi along the Balochistan coast, Vice Admiral S.M. Ahsan, then-Commander in Chief of the Pakistan Navy survey ship *Zulfiqar*, turned the search direction towards Phitti Creek, towards the east. In 1968, after completion of the survey, it was established that a port can be developed near Gharo village. The uncertain political situation in the country and 1971 war with India slowed down progress.

However, when the project of construction of Steel Mills at Pipri started near Gharo village, construction of this port also gathered momentum in 1973. The first ship entered Port Muhammad Bin Qasim in September 1980. The main approach channel bears the name ‘Ahsan’ after then-Chief of Naval Staff Vice Admiral S.M. Ahsan.¹³ It has seven berths, ships up to

¹⁰ Pakistan Navy Hydrographic Department, “Karachi Harbor,” Pak-30 (2017).

¹¹ Karachi Port Trust, “Port Statistics,” accessed July 15, 2019, <http://kpt.gov.pk/pages/Default.aspx?id=50>.

¹² Jamal-ud-Din (Manager Marine & Coordination, South Asia Pakistan Terminal), April 25, 2019.

¹³ Pakistan Navy Hydrographic Department, “Chart Series, INT 7316 (PAK 20), Port Muhammad Bin Qasim and Approaches,” accessed June 21, 2020, https://www.paknavy.gov.pk/hydro/c_series.htm.

12m draught can be berthed.¹⁴ It is being operated by Port Qasim Authority (PQA). It was initially built to provide iron ore to Karachi Steel Mills. Now, it can handle all types of cargo including containers, oil, Liquefied Natural Gas (LNG) and coal. It also has Fauji Oil Terminal which is a modern facility to handle all types of liquid cargo. In 2017-18, it handled 45 million tonnes of cargo which was 45 per cent of the total cargo of Pakistan; whereas in 2018-19 total handling was 49 million tonnes. The increase occurred due to all coal and LNG being imported at this port.¹⁵ Presently, Karachi and Bin Qasim ports are meeting the requirements to handle all types of import and export of Pakistan which is around 100 million tonnes. These two ports are also handling the cargo of land-locked neighbouring country Afghanistan as well

Port Bin Qasim has sufficient space to build new berths when required. After operation of new facility being operated by SAPT, Karachi Port has the capacity to handle much more cargo to meet future requirements. However, it is now in the heart of Karachi, therefore, movement of cargo to and from the port has become a problem due to traffic congestion. An alternate route needs to be worked out for the smooth and quick flow of cargo. It is suggested that a pipeline for liquid cargo from oil piers at Kemari to an appropriate place outside Karachi limits may be constructed from where bigger oil tankers may load for upcountry. For containers, a separate road may be built from the Karachi Port to link highway. In the meantime, only smaller trucks 6-10 wheelers may be allowed to take cargo to a separately built yard outside the limits of Karachi.

The third commercial port is Gwadar which is located on the western edge of the coast in the province of Balochistan. It is 533 km from Karachi by road and 100 km plus from the Iranian border near Chabahar. Gwadar Port is located at a strategic location almost at the entrance of the Persian Gulf overlooking the Arabian Sea. It is just outside the chokepoint, Strait of Hormuz, where 17 million barrels of oil passes every day.

The PC-1 for this port was initiated and project approved by the government in 1994. However, construction work started in 2002 and first phase was completed 2007. It has 1000m quay wall to dock up to 14m draught

¹⁴ Port Bin Qasim Authority Pakistan, "Port at Glance," accessed March 21, 2019, <https://www.pqa.gov.pk/en>

¹⁵ Port Bin Qasim Authority Pakistan, "Statistics," accessed March 21, 2019, <https://www.pqa.gov.pk/en>.

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ships. It has three multipurpose berths one RO-RO facility and one service berth.

The first ship was docked carrying 70,000 metric tonnes of wheat in March 2008.¹⁶ It has been leased to China Overseas Port Holding Company (COPHC) for 40 years. The company has 91 per cent share of revenue collection from gross revenue of terminal and marine operations, and 85 per cent share from gross revenue of free zone operation.¹⁷

Originally, it was built as an alternate port of Pakistan. It was ready for operation about 12 years ago but has not been operated to its optimum capacity. After signing of China-Pakistan Economic Corridor (CPEC) in April 2015 by President Xi Jinping of China and Prime Minister of Pakistan Nawaz Sharif, this port has taken shape as a key component. It is now designed to handle cargo of Chinese Western province, Xinjiang; and at a later stage of landlocked countries like Afghanistan, Turkmenistan, Uzbekistan, and Tajikistan. Because the designed road and rail infrastructure up to Khunjerab Pass has not been fully developed, therefore, it is still not being operated to its capacity. However, it has the potential to be operated as a transshipment port in addition to handling of CPEC cargo.

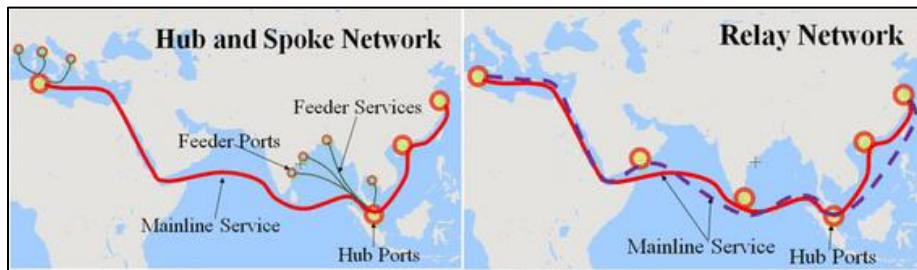
In the world over, freight volumes via maritime transport have grown enormously keeping view fast development in the international trade and globalisation. Deep draught ships are reluctant to call on smaller ports because of draught and cargo handling limitations (availability of modern cranes and other equipment). The transshipment concept refers to the shipment of goods /containers to an intermediate port before being taken to the final destination and plays a critical role due to infrastructure limitations in minor sea ports and shipping lines strategies to have minimum port of calls of their bigger ships. On average, a container was handled 3.5 times between the first port of loading

¹⁶ Gwadar Port Authority, "Port Profile," accessed March 30, 2019, <http://www.gwadarport.gov.pk/portprofile.aspx>.

¹⁷ "Gwadar Port Leased to Chinese Company for 40 Years, Minister Tells Senate," *Pakistan Today*, April 20, 2017, <https://www.pakistantoday.com.pk/2017/04/20/gwadar-port-leased-to-chinese-company-for-40-years-minister-tells-senate/>.

and the final port of discharge in 2008. The concept of transshipment operation is increasing rapidly. It increased 383.2 per cent from 1995 till 2012.¹⁸

Figure-2
Transshipment – Hub and Spoke and Relay Networks



Source: Chathumi Kavirathna, Tomoya Kawasaki, Shinya Hanaoka and Takuma Matsuda, “Transshipment Hub Port Selection Criteria by Shipping Lines: The Case of Hub Ports around the Bay of Bengal,” *Journal of Shipping and Trade* 3, no. 1 (2018):1-25, <https://doi.org/10.1186/s41072-018-0030-5>.

The Gwadar Port because of its strategic location closer to Persian Gulf, ability to handle deep draught ships, short access channel of only 4.7 km, availability of low cost labour, sufficient area to stack containers and other cargo, can be equipped to operate as a transshipment port. Bigger ships coming and going to Persian Gulf, and bound for Indian Ocean littorals can discharge their cargo at Gwadar and smaller ships can take these to the other ports of destination. It is pertinent to mention that Singapore is a small country area-wise, but its port is the world’s biggest transshipment port as well as the busiest one after Shanghai. It handled 36.6 million containers in 2018.¹⁹ Pakistan’s Ministry of Maritime Affairs may study the possibility of operating Gwadar as a transshipment port. It will certainly act as source of economic development and also provide job opportunities, especially to residents of Balochistan.

¹⁸ Chathumi Kavirathna, Tomoya Kawasaki, Shinya Hanaoka and Takuma Matsuda, “Transshipment Hub Port Selection Criteria by Shipping Lines: The Case of Hub Ports around the Bay of Bengal,” *Journal of Shipping and Trade* 3, no. 4 (2018): 1-25, <https://doi.org/10.1186/s41072-018-0030-5>.

¹⁹ Atlas Logistic Network, “Singapore Largest Transshipment Hub in the World,” accessed April 22, 2019, <https://atlas-network.com/singapore-largest-transshipment-hub-in-the-world/>.

Shipbuilding and Ship Repairs

The shipbuilding and repair facilities closer to the ports are important for shippers. Pakistan has only one commercial shipyard at Karachi, namely Karachi Shipyard and Engineering Works (KSEW) which was built in 1957. It has 2,800 employees of various categories. By May 2019, this shipyard had designed 448 ships of different countries including United Arab Emirates, Saudi Arabia, China, Iran and Belgium.²⁰ It has built several types of comparatively smaller sea-going ships, tug boats, and dredging vessels for commercial use. Its main client is Pakistan Navy. It has built missile and gunboats, frigates, and submarines for the Navy. However, it has limited facilities to handle bigger ships. It has two dry docks. A vessel up to 189 m can be docked. It has about 600m quay wall to berth vessels for repairs.²¹ The channel leading to KSEW is dredged to take floating crafts up to 7m draught.

There is hardly any more space to further extend repair facilities at this shipyard. The government is pursuing another shipyard at Gwadar. The Senate Committee on Defense Production in May 2019 was informed that a summary to construct a shipyard at Gwadar was approved by the previous government and 750 acres of land with 4 km sea front has been demarcated and allotted at Pasni on the coast of Balochistan. Presently, funds worth PKR 200 million have been released. It will be constructed under the supervision of Ministry of Defense Production.²² The construction of this important facility will create approximately 10,000 jobs, especially for Balochistan and undoubtedly, be a source of economic enhancement on its commissioning. Because of its location, bigger Pakistani-owned ships and foreign flag carriers may then avail this facility for docking and repairs apart from constructing bigger ships.

Merchant Fleet

²⁰ Iftikhar A. Khan, “Pakistan Needs More Shipyards, Senate Panel Told,” *Dawn*, May 28, 2019, sec. national.

²¹ Karachi Shipyard & Engineering Works Limited, “Ship Building and Ship Repair,” accessed April 21, 2019, <https://www.karachishipyard.com.pk/>.

²² Khan, “Pakistan Needs More Shipyards, Senate Panel Told.”

Oceans play an important role for transportation of cargo, being the cheapest mode of transportation as compared to rail, road and air. According to the International Chamber of Shipping, 90 per cent of world trade is carried by 50,000 merchant ships.²³ It includes all types of cargo like machinery, vehicles, and different types of liquids, construction material, food items, and livestock. The merchant fleet of a country plays an important role to boost its economy.

After independence, the business of shipping was managed by private ship owners, who built the national fleet from scratch. National Shipping Corporation (NSC) was formed in 1963 and in 1970, it had about 71 ships. After East Pakistan emerged as Bangladesh, in 1971, the strength reduced to 57 ships. In 1974, 9 shipping companies were nationalised to form the Pakistan National Shipping Corporation (PNSC) which had 25 ships at that time.²⁴ It now has only six oil tankers and five bulk carriers. It carries less than 12 per cent of the total quantum of sea-borne trade of Pakistan of a total cargo of 100 million tonnes.²⁵ About USD 4 billion are paid to foreign ship owners.

For a maritime country like Pakistan, the number of its merchant ships is far less as compared to other maritime nations. Indian merchant fleet is among the 20 largest in the world. In 2017, she had 74 bulk carriers, 20 container ships, 571 general cargo, 126 oil tankers, 883 others 883, making a total of 1674.²⁶

During hostilities / crises, lack of ships owned by Pakistan can cause problems in cargo handling. Insurance and freight are likely to increase. In accordance with the United Nations Conference on Trade and Development (UNCTAD) 1964, Pakistan ships can lift at least 40 per cent of cargo. This rule was incorporated to improve trade of developing countries as at that time, most of the shipping lines were owned by rich countries.

The Pakistan Merchant Marine Policy was promulgated in 2001. It gave incentive to ship owners by exempting almost all kinds of import duties till 2020. However, this policy did not prove instrumental in increasing the

²³ International Chamber of Shipping, "Shipping and World Trade," accessed April 28, 2019, <http://www.ics-shipping.org/shipping-facts/shipping-and-world-trade>.

²⁴ Sheikh Muhammad Iqbal, "The Significance of Shipping," *Business Recorder*, September 3, 2004, <http://fp.brecorder.com/2004/09/2004090356193/>.

²⁵ Pakistan National Shipping Corporation, "Fleet," accessed March 10, 2019, <https://www.pnsc.com.pk/>.

²⁶ Indus Mundi, "Indian Merchant Marine," accessed April 26, 2019, https://www.indexmundi.com/india/merchant_marine.html.

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merchant fleet due to inconsistency of policies and cumbersome procedures. Moreover, the policy of ‘flag of convenience’ offered by some countries has also contributed to this aspect. A flag of country under which a ship is registered in order to avoid financial charges or restrictive regulations in the owner’s country is called a ‘flag of convenience.’ Few countries in the world like Panama, offer far more benefits to ship owners, such as, easy registration instead of cumbersome and lengthy processes, merchant ships ease of selling and buying, and no question asked for source of money. A ship has to fly the flag of country where it is registered. Approximately, a dozen ships owned by Pakistani merchants are sailing under the flag of convenience countries - mostly Panama.²⁷

The Ministry of Maritime Affairs promulgated the Pakistan Merchant Marine Policy in November 2019 which will remain in force till 2030. According to S.R.O No: 2(5) /2017 Estt., dated November 15, 2019, the shipbuilding and ship repair industry, previously classified as category A under the investment policy, now as the ‘shipping sector’ has been classified as a ‘Strategic Industry.’ In this policy, the shipping sector has been given additional incentives. The new Pakistan Resident Shipping Owning Companies (a company registered with the Security and Exchange Commission of Pakistan) having seaworthy vessel(s) registered under the Pakistan flag are to pay tonnage tax of USD 0.75 per Gross Registered Tonnage (GRT) annually for the first five years of its shipping operations of each individual vessel inducted by them subject to the cut-off period till 2030. After five years, these companies shall pay USD 1.0 per GRT. The Pakistan Resident Ship Owning companies will not pay federal taxes (direct and indirect) during the exemption period.

The PNSC shall continue to pay tonnage tax at the rate USD 1.0 per GRT annually on its shipping income. Moreover, no preference shall be given to PNSC in private sector cargo. The Pakistan flag ships are to be given priority berthing in all the ports of the country. The PNSC has been given directive that it shall enter into Joint Venture (JV) arrangements for up to five years with international Liquefied Natural Companies (LNG) shipping company(ies) when awarded long-term contract(s). During this period, internal capacities and expertise are to be developed. The PNSC shall acquire its own vessel(s)

²⁷ Syed Khawar Ali Shah, “Shipping Sector’s Potential,” *Dawn*, May 27, 2019, <https://www.dawn.com/news/1484729>.

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for self-sufficiency for this purpose in accordance with commercial requirements. It is likely that private shipping companies and PNSC will expand by the incentives given in this Pakistan Merchant Marine Policy which will contribute to economic growth.

Fishing Industry

The next important component of maritime power is the fishing industry. It plays an important role in the national economy. The livelihood of almost all the residents along the coast of Pakistan is dependent on fishing. The fish industry employs about one million personnel. There are around 11,500 fishing vessels and 2,400 shrimp trawlers registered in Sindh and Balochistan employing 400,000 personnel. About 600,000 personnel are engaged in the associated industries such as boat building and repairs, ice factories, cleaning and freezing of fish for sale and export and transportation etc.²⁸

Marine fish fauna includes 250 demersal fish, 15 species of shrimp, 50 small, 15 medium and 20 large pelagic fish and five types of lobster species. In addition, there is fresh water fauna which has 200 species. These are found in rivers, natural and manmade lakes. Pakistan has 290,000 square km sea at its disposal which has a variety of marine fish. It includes all types of Grouper (gag, red, black, scamp and giant) very popular in the Middle East. Other varieties include Pomfret (black and white); all families of Mackerel (Salmon, Tuna and Sardines); Barracuda; *Rohu*; carp; catfish; Grunter (*Dhother*); Barramundi (*Dangri*); and Red Snapper. Major fish harbours are Karachi, Korangi, Pasni, Ormara, and Gwadar on the west coast; and Ketu Bunder on the south east of Karachi. Karachi fish harbour handles 90 per cent of fish and seafood catch from the sea and 95 per cent of the total export.

The Minister of Maritime Affairs informed the National Assembly in February 2019 that seafood export in 2016-17 was 155,091 metric tonnes which earned USD 395 million, whereas in 2017-18, it increased to 198,420

²⁸ Shahid Shah, "Pakistan Fish Exports up 27.94pc, Netting \$451.026 Million in FY18," *News International*, September 1, 2018, <https://www.thenews.com.pk/print/362151-pakistan-fish-exports-up-27-94pc-netting-451-026-million-in-fy18>.

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million tonnes (27 per cent) worth USD 451 million.²⁹ Main importers are Gulf countries, China, Hong Kong, Indonesia, Egypt, UK, Thailand, and South Korea. However, the Marine Fisheries Department (MFD) fears that following the suspension of seafood exports to the United States, Saudi Arabia and European Union after an inspection visit, other countries may follow suit; and fish export may decrease.

The livelihood of villages along the coast is mainly dependent on fish. They have small boats which are used for fishing mainly for their own consumption and for sale in the close-by markets. Fishing in the coastal areas up to 12 NM is regulated by the provincial governments of Sindh and Balochistan. Beyond this, fishing is regulated the federal government. The Pakistan Maritime Security Agency (PMSA) has been assigned the task by the government of controlling the fishing areas against poaching by foreign trawlers. It also regulates fishing by Pakistani fishing trawlers in the coastal and deep-sea areas.³⁰ To monitor fishing activities at sea, the Pakistan Navy and Coast Guard units keep vigilance and immediately inform PMSA about irregularities. The Sir Creek area close to the Indian coast has good quality shrimps, lobsters and Red Snapper fish. Indian boats are often found in this area engaged in fishing which are caught by PMSA and brought to Karachi for legal action.

Pakistan has two fishing seasons: August-November is for shrimp which are mainly caught for export. Fish are caught from October- June. The peak season is from March-May. Local fisherfolk are generally uneducated, and use old fishing techniques. Moreover, during breeding season (June and July), although fishing is not officially allowed, some continue fishing. They catch juveniles which are sold as poultry feed. This process is harmful for the growth of the fishing industry. In this way, aquaculture is being depleted. The fisherfolk share that fishing is their bread and butter, therefore, the government should provide them alternate jobs during the breeding season. It is proposed that the government may formulate proper criteria, and then ensure its implementation for the fishing boats to go out to sea. It may include size of nets being carried so that juveniles are not caught; and during the breeding season, boats with trawling nets should not be allowed. However, owners of

²⁹ “Pakistan Earned \$451m from Fisheries Products’ Export in 2017-18,” *Nation*, February 23, 2019, <https://nation.com.pk/23-Feb-2019/pakistan-earned-451m-from-fisheries-products-export-in-2017-18>.

³⁰ Pakistan Maritime Security Agency, “Functions,” accessed April 5, 2019, <http://www.pmsa.gov.pk/function.php>.

small boats, residing along the coast that go out for a day trip may be allowed fishing to earn their livelihood.

The preservation of seafood and its preparation for export is important process. These being highly perishable deserve special care and attention from the catching point to the frying or baking pan. Apart from good species of fish and prawns, their quality depends on many other factors, such as degree of damage and spoilage during harvesting, deterioration during preservation, cleaning, washing, handling, processing, storage, transportation, distribution and marketing. A prolonged shelf life and better quality can be maintained even under natural conditions in the cold countries. However, in tropical weather like Pakistan, the quality of fish can better be controlled and shelf life substantially increased through the introduction of a uniform cold chain system from harvesting to marketing. This process, being very costly, cannot be afforded for domestic fish processing and marketing. It is generally used for export-oriented fish and shrimp. Pakistan has processing plants at Karachi and a few other places along the coast.

Another problem of marine fishing is that the techniques used to catch fish are old. The catch cannot be preserved in the boats in clean and cold environment. The landing environment in the harbour, and further transportation and processing ashore are also not very clean and hygienic. Countries interested in importing fish usually send their representatives to physically see the environments. It becomes difficult to satisfy them after they see the local boats and unhygienic handling in the harbour. The arrangements for fish preservation, living spaces for the crew, overall cleanliness of boats, quality of fishing gear needs to be improved. The government can make arrangements to educate the fisherfolk community about new techniques. Boats should be thoroughly inspected for cleanliness and sizes of the nets so that juveniles are not caught. During prohibited season, fishing boats should not be allowed to leave the harbour. The export of seafood can be increased by taking plausible measures which will have positive effects on the economy.

Ship-breaking Industry

The steel acquired from ship-breaking industry is comparatively cheap and is mainly used in infrastructure construction. However, it is not considered suitable for high-rise buildings. Every time, the ship-breaking sector dries up, steel prices rise. Ship-breaking can prove to be a viable industry in terms of

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its role in the national economy of a state. Pakistan, India and Bangladesh are the hub of ship-breaking activities, although other countries like Turkey, China and the EU are also involved. These three states account for 70-80 per cent of the global recycling market for ocean-going vessels.

The Gadani ship-breaking yard of Pakistan is almost 50 km northwest of Karachi in the province of Balochistan. It comprises of 132 ship plots across 10 km long beachfront. In the 1980s, Gadani was the largest ship-breaking yard in the world. However, competition from newer facilities in Alang, India and Chittagong, Bangladesh has resulted in substantial reduction in output. Gadani today produces less than one fifth of the scrap it used to produce in the 1980s.³¹ Because of its topography, it is considered an ideal beach for the ship-breaking industry. It has deep-sea approaches and ships are not required to wait to be beached for the tidal conditions, flooding or ebbing unlike other ship-breaking yards where the vessels may have to wait for weeks and sometimes months. Moreover, at Gadani, the sand is firm, it is neither loose nor muddy, therefore, it helps ships to make it to shore without much difficulty. Ships destined to be dismantled are run aground on the seashore under their own power with the help of tugs and are gradually broken up. These are dragged further as the weight lessens until completely scrapped.

Ship-breaking is a labour-intensive industry and very challenging since workers remain exposed to many hazards during the whole dismantling process. On November 1, 2016, an oil tanker *Aces* (IMO number: 8021830, built in 1982) while being scrapped by about 100 workers, caught fire, due to a gas explosion. At least 19 were killed and 59 burned.³²

The existing yards at Gadani have the capacity to handle 3 million tonnes. 1969-83 is considered the golden period of ship-scrapping when about 30,000 workers were employed directly and half million people earned their living indirectly.³³ The ship-breaking industry has gradually gone into recession. Presently, only 6000 workers are directly employed. There are quite a few reasons of decline. According to the Pakistan Ship-Breakers Association

³¹ Parvaiz Ishfaq Rana, "Record 107 Ships Dismantled at Gadani," *Dawn*, June 29, 2010, <http://archives.dawn.com/archives/business/2010-06-29.html>.

³² "Official List of Gadani Fire Victims Yet to Be Compiled," *News International*, November 25, 2016, <https://www.thenews.com.pk/print/167445-Official-list-of-Gadani-fire-victims-yet-to-be-compiled>.

³³ Wikipedia, "Gadani Ship-Breaking Yard," accessed October 20, 2019, https://en.wikipedia.org/wiki/Gadani_ship-breaking_yard.

(PSBA) in 2017-18, this industry paid PKR 16 billion worth of tax from 1.67 million metric tonnes of ship steel which was a substantial tax collection. However, in 2018-19, it decreased to PKR 4.8 billion and ship recycling reduced to 0.37 million metric tonnes (about one fifth) as compared to the previous year. According to PSA, reasons of this decline are that till 2013, there was 1 per cent withholding tax/income tax at the import stage which was treated as full and final turnover tax. In the following years, this amount was increased to 4.5 per cent. Lately in the Finance Bill 2019, this amount is being treated as nonadjustable minimum liability. It has obviously increased the tax burden.

The ship-breaking industry competes with the imported re rollable steel. In SRO 679(1)/2019 dated June 29, 2019, the re rollable steel has been given more tax concessions as compared to steel from scrapped ships which has increased problems for the ship-breakers to generate demands in the local market for ship steel. During 2018-19, the price of ships to be scrapped considerably increased to 35 per cent because of devaluation of the rupee. Pakistani investors could not comfortably compete with Indian and Bangladeshi merchants. Moreover, new taxation rules of the government on the overall value chain have also affected this industry.³⁴

The labour force, involved in ship-breaking, is exposed to many hazards such as highly flammable oil and its fumes. The removal of oil, fuels and other hazardous material is a continuous process. Labour has to work in confined spaces for cutting and welding which is injurious to health as well dangerous. The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships adopted in May 2009, gives details about regulations to ensure that ship recycling does not affect human health and the environment. India has ratified this whereas Pakistan has yet to do so.³⁵ The government should ratify and implement the clauses contained therein to ensure safety of human life and coastal environments.

³⁴ Kanwar Muhammad Javed Iqbal, "Gadani Ship-Recycling May Come to a Standstill," *Pakistan Observer*, November 27, 2019, <https://pakobserver.net/gadani-ship-recycling-may-come-to-a-standstill/>.

³⁵ Shirish Nadkarni, "Hong Kong Convention on Ship Recycling a Step Closer as India Signs up," *Seatrade Maritime News*, December 2, 2019, <https://www.seatrade-maritime.com/regulation/hong-kong-convention-ship-recycling-step-closer-india-signs>.

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The ship-breaking industry in Pakistan has not yet been recognised as an ‘industry’ nor is there a ministry to handle its affairs. It is proposed that it may be recognised as an industry and work under the Ministry of Maritime Affairs or Industries.

From January 1, 2020, Sulphur Regulating has been enforced by the International Maritime Organization (IMO). According to this, all sea going ships have to use marine fuel onboard with Sulphur contents not more than 0.50 per cent instead of 3.50 per cent to reduce the amount of Sulphur Oxide to protect the environment.³⁶ It is anticipated that older ships using fuel with high Sulphur contents will not be able to comply with the changing fuel requirements so these will be available for scrap. Overall prices of ships for scrap are likely to go down. Pakistan ship-breaking should avail this opportunity to re-energise this area.

Maritime Tourism

Maritime tourism is another subject which needs serious consideration. The coastal highway is operational and being used by coastal inhabitants for transportation. There are picnic spots, sightseeing places, sandy and sunny beaches, along the coast. Holiday resorts can be constructed at suitable locations which may have water sports such as scuba diving. Beaches exclusively for foreigners may be developed. Sea cruises, on specially designed crafts, during calm weather seasons (November-March) may be arranged. During the fishing season, deep-sea fishing may be organised as a sport. The Karachi harbour has a lot of pollution and congestion. There is hardly any jetty which can be used by tourists. Another location may be developed for this purpose. There are huts in Sandspit and Hawkes Bay which are not in good shape. This aspect may be looked into to enhance tourism and to provide recreation facilities. Gwadar, Ormara and Pasni are reasonably developed cities. Almost all civic amenities and hospitals are now available. These may be further developed for tourism. A coastal service from Karachi to Ormara and Gwadar may be started for tourists as well as for transportation of general public.

³⁶ International Maritime Organization, “Sulphur 2020 – Cutting Sulphur Oxide Emissions,” accessed January 15, 2020, <http://www.imo.org/en/mediacentre/hottopics/pages/sulphur-2020.aspx>.

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Most coastal and island countries have developed tourist attractions and are earning a great deal of money. Maldives, a small country consists of 1,192 tiny low lying islands. Tourism, fishing and shipping are the major constituents of its economy. Tourism contributes more than 30 per cent to its Gross Domestic Product (GDP) and over 60 per cent of foreign currency earnings. Presently, there are 20 four-star and above hotels; 132 guesthouses; 106 luxury resorts; about 143 safari vessels, 12 picnic islands and yacht marinas. It has been reported by its Tourism Ministry that 1.7 million tourists visited the country in 2019 – the largest number in its history.

Maritime Awareness

Pakistan needs to focus on a ‘Sustainable Ocean-led Development Paradigm’ to ‘improve the policy and governance of the marine ecosystem.’ In this regard, ‘knowledge and capacity development’ are vital areas of concern, which have received limited attention in the country.³⁷ Citizens should be made aware of the importance and potential of this sector for the economy and for job creation. Maritime-related subjects should be included in the curriculum of universities. More research centres should be established to carry out research in marine studies.

Conclusion

Pakistan needs to exploit its sea resources. Avenues need to be explored by the government to give more incentives to businessmen to invest in this sector. Presently, all maritime-related activities are not being handled by one ministry. It is recommended that all commercial segments of maritime power (military constituents may continue as is) should be handled by the Ministry of Maritime Affairs for better coordination and efficiency. A sustainable ‘blue growth’ model that includes improving maritime governance; capacity development in research and development; and creating conducive conditions for this social, economic and ecological transition, is a need of the hour.³⁸ ■

³⁷ Aneel Salman and Jawaria Abbasi, “Towards Blue Growth: A Sustainable Ocean-led Development Paradigm (SODP) for Pakistan” (paper, Maritime Study Forum, Islamabad, 2019), <https://www.maritimestudyforum.org/wp-content/uploads/2020/02/Towards-Blue-Growth.pdf>.

³⁸ Ibid.