

Economic Opportunities for Islamic Financing-From Green to Blue Economy

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Abstract

Disproportional exploitation and scarcity of land resources has forced maritime states to look towards oceans to sustain their economic development. This concept is known as "Blue Economy". Subject research focusses the importance of shifting from Green economy to Blue economy, while emphasizing the potential and challenges being faced by Pakistan Blue Economy as a case study. Pakistan has yet to tap its rich resources to the optimum advantage. The data collected during the course of subject research dictates that the resources of blue economy are not being exploited due to various challenges being faced by Pakistan. Whereas this is simply a myth, in reality these challenges are already being thwarted. The actual reason for not exploiting these resources is the absence of WILL at all levels. It is concluded that major hurdle in development of Pakistan Maritime Sector is lack of maritime awareness and vision to look towards sea often referred to as Sea Blindness. Islamic countries must join hands to develop a common strategy to shift from Green Economy to Blue Economy to meet the future requirements using Islamic financing through musharka, ijar and sukuk.

Keywords: Blue Economy, Scarcity of land resources, Islamic financing.

1.1 Introduction

According to definition, economy is social science that seeks to analyze and describe the production, distribution, and consumption of wealth. (Definition of Economy, 2019). Whereas the green economy aims at reducing environmental risks, ecological scarcities, and that aims for sustainable development without degrading the environment (Definition of Green Economy , 2019). Owing to scarcity of land resources, maritime nations have started looking towards oceans to sustain their economy. Today, this concept is commonly known as "Blue Economy". Blue economy seeks to enhance economic growth, social inclusion and embarks upon elevating living standards of people while ensuring environmental sustainability. Blue Economy encompasses established oceanic industries of hydrocarbons extraction, fisheries and marine tourism as well as emerging industries including off shore renewable energy, aquaculture and seabed mining. Coastal development, shipping and port infrastructure also factors into Blue Economy. The economy of Muslim countries differs from low to medium and high income. Based on World Bank classification, 18 OIC countries are classified as low income countries, 34 are middle income (18 lower middle and 16 upper middle), and 7 countries

are categorized as high income countries. More so, it is observed that there is a significant gap between the rich and poor countries. This gap will keep increasing due to population outburst and scarcity of resources on land thus now shifting from green to blue economy is imperative. Before proceeding further, it is essential to scroll basic definitions relating to various sea zones.

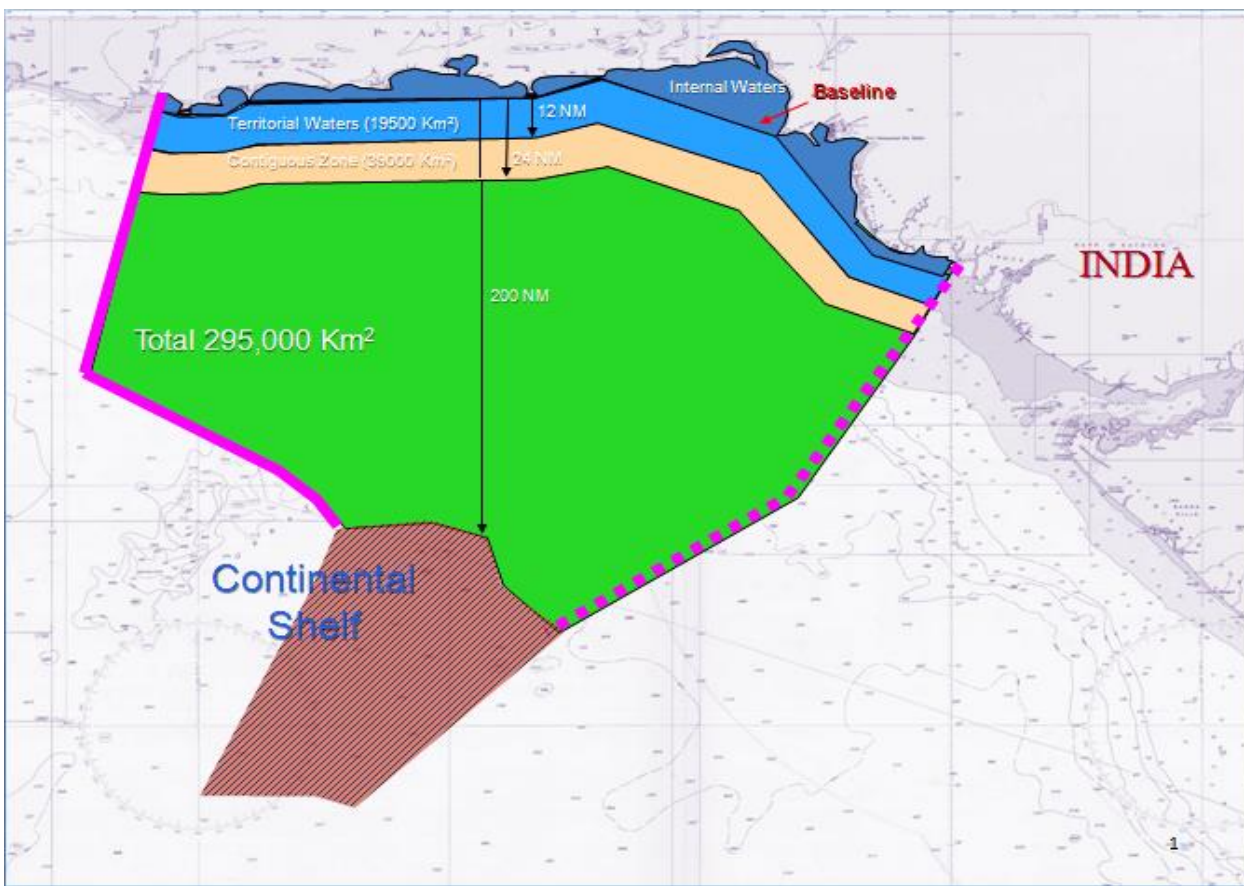
1.2 Pakistan Maritime Zones

The United Nations Convention on the Law of the Sea (UNCLOS) 1982 depicts a detailed legal structure of various Maritime Zones. Pakistan is among the 166 countries (till Nov 2019) which have signed the (UNCLOS, 1982). Measuring from the baseline, next 12 NM breadth of the water is called territorial sea. Measuring from the baseline, 24 NM breadth of water is called Pakistan's contiguous zone. Whereas Maximum limit of Pakistan's Exclusive Economic Zone (EEZ) is up to 200 NM as declared by the country (ibid), which covers an area of 240,000 sq km. Nonetheless, this entire research hinges upon this zone, as the topic of subject research is shifting from Green economy to Blue Economy which is directly proportionate to the potential of Pakistan's Exclusive Economic Zone. Pakistan got an additional area of 50,000 sq km on 13 March 2015, with the approval of this claim; Pakistan now has an extension in sea area from 200 to 350 NM. A total 290,000 sq. km sea area is now belongs to Pakistan in the Indian Ocean (Khan, 2015).

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Map No 01 Pakistan Maritime Zone's



Source: (Pakistan Hydrography Department Karachi)

1.3 Literature Review

The dangers of scarcity of food, energy and mineral resources on land will ultimately force the maritime nations including Islamic states to explore the resources out at sea for which proper research and mapping of the EEZ is required. Nonetheless, analysis of available material is appended in subsequent paragraphs to find out the relevant material and gaps left by the authors for future research.

In research, “Exclusive Economic Zone Claims: An Analysis and Primary Documents” the authors has carried out an in-depth study of various claims submitted to UNO for extension of their EEZ and Continental Shelf by various coastal states. In fact, it is a vivid account of facts which by compulsion needs to be revised time to time as obviously latest standing of coastal states regarding their claims to be reviewed. Many of such claims of extension have been recently approved including the extension of continental shelf case of Pakistan (Smith, 1986).

In a research, “Maritime Security and the Law of the Sea” the author has given a detailed brief of fragile maritime security and its fallout on Coastal states and blue economy, the author has also discussed other maritime threats like maritime terrorism. The role of security forces out at sea is also well mention in the book, while dealing various maritime security threats under

particular security situations by various regional states (Klein, 2011). Klein’s research work is immensely useful as author has maintained neutrality.

In a research “Trade and civilization in the Indian Ocean” the author has painted the importance of sea trade. An analysis of the long chain of oceanic trade, from the South China Sea to the eastern Mediterranean, which dominated seaborne commerce for many centuries up to the Industrial Revolution, reveals the unique features of Asian commercial capitalism. Author has also described how the unification of the Middle East and North Africa under Islam helped bond the regions around the Indian Ocean into an economically dynamic system. Trade in the ocean was largely peaceful until the Portuguese entered the ocean. The study, presents an in depth analysis and interpretation of Asia's historical position and development in relation to blue economy (Chaudhri, 1985). The author has missed the challenges being faced by merchants out at sea.

The research “Influence of sea power history” contains Mahan's analysis leading to Britain's naval domination in the eighteenth century. The Influence of Sea Power upon History, 1660-1783 assert that, beginning in the time of Alexander the Great, those nations with strong commercial and military command of the seas were the nations of greatest economic strength, wealth, and power. The author argue, that how the use of

strategy of using a strong navy to protect the fleet of an aggressive merchant marine, is the single most important root cause of advancing blue economy and therefore military prosperity in any nation. It unquestionably shaped the imperialistic policies of pre-World War I and pre-World War II, Germany and Japan respectively (Mahan A. T., 1989).

In a study, "Strategic concepts of the Indian Ocean" the author has emphasize the importance of the Indian Ocean, role of Big powers, sea wars, prospects of deterrence, the Naval Arms race and effect of Nuclear War at Indian Ocean, which will have far reaching effects on blue economy. There are forty-eight Countries which either drain into the Indian Ocean or lie landlocked, and have no way out except across a neighbor's territory to reach the global sea. (Akhtar, 1981)

According to Kaplan, "India's and China's aspirations for great power status, as well as their quest for energy security, have compelled them to redirect their gazes from land to the seas" (Kaplan R. D., 2011) means India and China are also planning to shift from green to blue economy. China needs a shorter route for her trade in the Indian Ocean via Gwadar port. Whereas, US using her absolute energy, and weight to promote India as counter check on China is likely to play further greater role in Indian Ocean.

After in-depth consultation of available literature, author has enhanced the scope of the research on scholarly lines with a prism of relevant International Relations (IR) theories. The conclusion is also drawn at the end of the research so that policy makers of the Islamic countries may use it as a guide line while giving due importance to blue economy by exploitation and exploration of EEZ of respective country and while drafting relevant policies and strategies for shifting from green to blue economy.

1.4 Research Methodology

Since already existing theories have been tested in various situations thus it is a deductive research. Both quantitative and qualitative data has also been analyzed. Thus, subject research is hinges upon synthesis of research methods. The sea water data of quantitative nature tested in Dockyard laboratory was a proof to support argument during discussion regarding pollution in Karachi harbor. Nonetheless, major reliance of this research is of qualitative nature. While qualitative data compiled through the primary and secondary sources by taking interviews of relevant stakeholders to support the argument to study the sources of blue economy in Pakistan.

2. Why the shifting from green economy to blue economy is important?

The Organization of Islamic Cooperation (OIC) is the second largest inter-governmental organization (IGO)

after the United Nations having 57 Islamic countries as members. One of the aims of this organization is to achieve sustainable human development and economic well-being in member countries. Few OIC member countries are vulnerable to natural and man made hazards. Some of them are among the most disaster prone areas of the world, like African countries, and some of them are suffering from significant human casualties and economic losses, like Libya, Syria and Iraq. Only, a few OIC member countries are planning to shift from green economy to blue economy for their economic well being and to adopt their national sustainable development goals.

The most important reason of shifting from green economy to blue economy is scarcity of resources on land. More so, the population outburst and national, regional and international conflicts are becoming a further cause of reduction of natural resources on land. Same is the case with non-renewable energy which is also decreasing but requirement is increasing thus in future such requirements may not be fulfilled easily (Weeks, 2013). Presently, maritime nations have already started looking towards sea resources for supporting population which is increasing day by day (Dirk, 2001). Most of the maritime nations are progressing fast with adaptation of the concept of Blue Economy for sustainable growth and prosperity, which is the basic reason for shifting from green economy to blue economy. Nonetheless, in most of the Islamic countries including Pakistan, these vital avenues have not drawn required attention of public and private sectors. The major hurdle in development of maritime sector is lack of maritime awareness.

Muslim countries are at different levels of economic development. Out of the world's remaining 48 Least Developed Countries (LDCs), 21 are Islamic countries whose development depends on the export of non-oil products such as agricultural products. However, growth and development of around 17 Islamic countries, which are categorized as high or upper middle income nations, mostly depends on the export of oil and gas (Risks, 2018). The development gap between low-income and high-income countries has continued to widen, to mitigate this development gap, shifting from green economy to blue economy is most important in present day scenario.

It is a known phenomenon that Exclusive Economic Zone of any country contains natural resources, which are not explored to its full extent in the Indian Ocean (Arunachalam & Suryanarayan, 1993). The resources of the ocean from hydrocarbons, marine and botanical products to metals, can be exploited jointly (Nadir, 2010) using Islamic financing contemplating all three segments i.e musharka, Ijar and sukuk.

2.1 Potential and Resources of Pakistan Blue Economy

2.1.1 Fishery Resources

An official study claims Pakistan's coastal area produces (2015) around 359,534 M.Tons of fish, out of which only

130,358 M.Tons was exported worth US \$325 Million (Ahmed D. I., 2019). If fish catch is fully materialized, the export of fish from Pakistan can fetch an additional \$2.5 to 3 billion annually with the help of Islamic financing. In terms of quantity, seafood export in March 2016 grew fast from 10,482 metric tons to 11,358 metric tons (Khan A. , 2016). Moreover, as per WWF Pakistan report, roughly 1,000 species of fish and 12 species of cetacean, or marine mammals, are available in Pakistan's EEZ. There are over 332,000 active fishermen in Pakistan, with another 90,000 people associated with the trade and ancillary industries. The fisheries resources play a significant role in blue economy, employment and food security of a country. Investment for deep sea fishing through Islamic financing using Musharka can be contemplated. Other Islamic countries can take lead in this sector while shifting from green to blue economy. In Pakistan, annual fish production and export is appended below:

Table: 01 Fish Exports from Pakistan

Year	Total Exported in M. Tons	Earning from Export in Million US\$
2009-2010	133,200	296
2010-2011	134,624	315
2011-2012	138,680	317
2012-2013	150,498	369
2013-2014	137,381	349
2014-2015	130,358	325
2016-2017	152,858	394

Source: GOP Ministry of Maritime Affairs

2.1.2 Sea Weed Resources

The nutritional values and chemical properties of sea weeds make them the perfect source for medicines, fertilizer and phycocolloids (Saifullah, 2002, p. 160). The sea weed market demand is for nearly about \$5 billion. Around 12.4 million tons is estimated to be the world's total annual harvest. Due to their chemical nature some of the byproducts of sea weeds have proven to be extremely useful in many industries. It is believed that the winter season is comparatively favorable for sea weeds as there levels in the sea escalate to reach estimated values as high as 112 tons/hectares (Rizvi, 2010, pp. 53-57). A variety of marine benthic algae belonging to Chlorophyta, Phaeophyta and Rhodophyta are available around coastal area of Pakistan. Despite their immense untapped potential at present sea weeds are not being exploited to the extents where they can be beneficial (Afzal & Shameel, 2005, pp. 97-107). Among the advantages promised by this sector huge benefits lie in the region of job generation. Great Investment opportunity for Islamic financing in this sector is available by allocating block area on Ijar.

2.1.3 Mineral Potential of EEZ in Indian Ocean

On the sea bottom abundance of nonliving resources are available, taking the example of only mine and minerals massive stocks of precious metals can be found such as zinc aluminum, cadmium, cobalt, Iron, copper and nickel. Admiral Kohli in his book "The Indian Ocean and the India's Maritime Security" has explicitly explained these deposits with specific commercial value as appended below:

It is reported that one square mile of sea bed where these nodules are found may be covered with 70,000 tons of minerals yield about 30,000 tons of manganese, 3,600 tons of aluminum, 2,300 tons of cadmium, 17,000 tons of Iron, 4,00 tons of cobalt, 1,200 tons of Nickel, and 650 tons of Copper. The value of the manganese nodules alone can be as high as £40,000 per square mile (Kohli, 1997, p. 5).

It is pertinent to mention that the estimated commercial value provided by the Admiral is decades old. The current commercial value of these metals can be calculated according to present market value. Imagine the value of one Square kilometer area of Pakistan EEZ if explored for these mineral. Presently mostly Islamic countries are relying on agriculture based green economy which is prone to weather conditions but exploration of sea bed resources can yield economic benefits many fold which is free of weather conditions. Thus Islamic financing using musharka can be considered in true later and spirit.

3. Environmental challenges and role of blue economy

Over exploitation, urbanization, climate change, and other environmental challenges on land are resulting in ecosystem and biodiversity loss and destroying the benefits associated with natural resources. Thus, it is necessary for the Islamic countries to protect their natural capital and adopt policies of shifting from green economy to blue economy owing to these challenges on land.

3.1 Challenges relating to green economy

- Main challenges to implement green economy in most of Islamic countries are weak management, increasing poverty, many local and border conflicts, and increasing food insecurity.
- The limited access to investment, lack of public support for entrepreneurs, weak environmental legislation, lack of market incentives, poor entrepreneurial culture, low interest from consumers, and governmental bureaucracy (Islamic Conference of Environment Ministers, 2012).
- Most of the Islamic countries have arid and semiarid climate which caused to have a desert environment, especially in the Middle East and North Africa, where cultivation may not be that easy.

d Deforestation is one of the important environmental challenges in Islamic countries. Among these countries, some African countries have highest rate of deforestation, which is also one of the challenge to green economy on land.

e Since the urbanization in most Islamic countries is expanding, particularly in Bahrain, Malaysia, Turkey and Pakistan, The urbanization subsequently, increase energy use, solid waste, and thereafter increased emission contribute to the climate change. Due to urbanization the cultivable area on land is decreasing thus effecting green economy.

f Some of the Muslim countries which are located in South Asia, South East Asia, North Africa and Middle East are affected by extreme weather such as drought and flood. Which also affect the green economy on land and force for shifting to blue economy.

g Some of the OIC member countries such as Indonesia, Bangladesh and Pakistan are the most populous countries. High population growth imposes pressure on all dimensions of sustainable development especially green economy which intern force shifting to blue economy.

h In some low income countries of Africa, rural poverty is very high which is due to inadequate access to land, lack of irrigation infrastructure, high illiteracy rate, and living in remote areas. Besides, the poverty in some Islamic countries corresponds with increasing conflicts and tensions, green economy is suffering due to these reasons subject countries may invest in blue economy.

j Poverty alleviation and income equality are the most important economic goals of Islam. To achieve these goals, the socio-economic processes and environmental priorities should be interacted to support the sustainable development concept. If not possible due to green economy theses countries may shift from green to blue economy.

The economic growth is usually accompanied by environmental degradation. Degradation of environment generates a poverty trap, which causes a reinforcing loop of further degradation and worsening poverty. Thus, environmental challenges increase critical concerns for the welfare of current and future generations (Szovics P, 2009). The land based challenges of green economy are not attached with blue economy. The world's trade will increase as quest by the nations to have more economic gains will increase vis-à-vis rivalry, which will further add the significance of the Indian Ocean with specific challenges. Some of these challenges pertaining to blue economy are appended below.

3.2 Challenges relating to blue economy

3.2.1 SLOC Protection

Sea lines of Communication (SLOC) are principal sea routes between various ports, used for trade (import/export), logistics and oil transportation. Yet the

North Arabian Sea (Pakistan offshore areas) has one of the busiest sea lanes with 2,500 vessels, carrying 33 million tons of crude oil annually from the oil rich gulf countries. The threat to maritime trade from non-state actors has taken prominence and is a serious challenge for world in general and Indian Ocean in particular. Indian Ocean is now referred to as the 'Centre Stage for the 21st Century' where protection of SLOCs has gain importance. To keep the sea trade safe and secure these SLOCs need to be protected, which is quite challenging.

3.2.2 Narcotics/ Weapons Smuggling

Pakistan is the most affected country as supplies of narcotics and illegal weapons has free flow from neighboring countries. The UN estimates that Afghan insurgents extract approximately \$125 million per year from taxing opium farmers and traders (Mumtaz, 2011, p. 103). Fighting against Narcotics/ Weapons Smugglers out at sea is again challenging.

3.2.3 Illegal Immigration/ Trafficking

Movement of illegal immigrants is carried out through the Indian Ocean from Pakistan – Iran border. Despite best efforts, illegal immigration remains continue. Illegal immigrants are recruited in groups by the agents and are given a cover story including details of border towns. All those using Iran as transit country have final destinations in Europe through Turkey or Middle East. Most of these illegal immigrates either die in the boats due to scarcity of food and fresh water, few of them are also shot down by the coast guards of respective landing State. Nonetheless, some swim across and enjoy their success.

3.2.4 Piracy yet another Challenge at Sea

Piracy is another Challenge since centuries out at Sea, which increased manifold during year 2010-2012 close to Somalia. It became obvious from the statistics where 26 ships had been captured in each of the years 2009 and 2010, with unsuccessful attempts on 68 vessels in 2008 and 52 vessels in 2010. The activity peaked in February 2012 when pirates held 10 vessels and 159 hostages. The state of piracy attack and armed robbery in the IOR from 2010-2014 are appended below:

Table: 02 Details of Piracy Attacks and Armed Robbery in the IOR

Types of Attack	2010	2011	2012	2013	2014
Attempted	89	105	67	28	28
Boarded	196	176	174	202	183
Fired Upon	107	113	28	22	13
Hijacked	53	45	28	12	21
Total	445	439	297	264	245

Source: (Pakistan Navy War College Review 2014-2015, p.14)

3.2.5 Maritime Terrorism

The terrorists are increasingly aware of the fact that the maritime industry represents and exploitable soft target in terms of smuggling of arms, personnel or lethal Weapons. The maritime terrorist groups routinely make use of commercial shipping to pursue their ends and more disturbingly have planned further attacks on maritime communications (Azam, 2008) thus posing a great challenge to shipping out at sea.

3.2.6 Pollution in Karachi Harbor

Yet another challenge at Karachi harbor is pollution which is the biggest hurdle in smooth functioning of merchant vessels in the harbor. To testify the increasing pollution in Karachi harbor samples of contaminated water were taken from both east and west wharfs for laboratory test. The results show dissimilarity from standard values. The under mentioned chart depicts that the basic composition of seawater has changed.

Table: 03 Lab tests of sea water collected from Karachi Harbor by Laboratory at Karachi

S No	Tests	Standard Value of Seawater	East Wharf (MS Jetty)	West Wharf
1.	PH	8.2	7.15	6.25
2.	Conductivity	52,000 mMho/Cm		47,000 mMho/Cm
3.	Chloride	19,350 ppm	17,800	18,400
4.	Sulphate	2,712 pmm	2,256	2,240
5.	Sodium	10,760 ppm	10,500	10,500
6.	Potassium	387 ppm	360	360
7.	Calcium	413 m		370 m
8.	Magnesium	1,294 ppm	1,282	1,350
9.	Alkalinity	142 ppm	130	152

Source: Dockyard Laboratory Karachi

4. Potential opportunities for Islamic finance industry in Blue Economy

Tremendous potential opportunities for Islamic finance industry in Blue Economy are available covering all three segments i.e. musharka, Ijar and sukuk if respective governments could introduce policies, regulations, and incentives to promote blue economy. They could also invest in sea based technology, renewable energy, ship building, ship breaking, fishery, coastal tourism, sea transport, etc. In other words, transition to blue economy creates jobs, such as renewable energy generation, eco coastal system protection, coastal tourism, etc, which in turn would reduce the unemployment rate in Muslim countries. Islamic finance industry may invest in following sectors in Pakistan.

4.1 Shipbuilding at Karachi Shipyard

Karachi Shipyard, provide Shipbuilding and Repair facilities to local/foreign customers and offers great

Potential opportunities for Islamic finance industry in blue economy. Shares of this specific industry can be floated in shape of sukuk for Islamic financing as all major customers have been well served over the past six decades. Since its inception, Karachi Shipyard has constructed and delivered over 445 Crafts for local and foreign clients including China, Iran and UAE (Obaidullah, 2015, p. 114). The secondary role of Shipyard is construction of heavy machineries like sugar plants, industrial boilers and cranes. Nonetheless, Karachi shipyard has also assisted in the establishment of Guddu Thermal power Plant, Kot Adu". Power Plant, Korangi Thermal Power Plant, Hubco Power Plant, Lalpir Power Plant and Uch Power plant by manufacturing steel structural parts in bulk tonnage, piping and bulk storage tanks. Other products include pressure vessels, LPG storage tanks, cement plants machinery and equipment including kiln shells, heat exchangers, pressure vessels, equipment for petro-chemical. Two new shipyards at Karachi and Gwadar are planed to be established by 2022 which provide a great opportunity for Islamic financing through Musharka or Ijar.

4.2 Ship Breaking Industry of Pakistan

Ship breaking industry also offers great Potential opportunities for Islamic financing through Ijar with local factory owners. An area of 1,256 hectares exactly on 132 plots and 50 miles west of Karachi, the ship breaking activities are performed in Gadani open yards. Eight to ten vessels per month are dismantled or approx 100 vessels per year, predominantly from Europe, through beaching method (Masood, 2016, p. 149). Subject industry has been a source of raw material for steel products although the volume of its input has been quite low if seen in a larger context. Aside from providing an alternative supply for the steel industry, the country's main ship-breaking yard at Gadani is also a centre of blue economic activity in an otherwise impoverished area in Baluchistan (Birkett, 2016). Gadani Ship Braking yard received a total of 111 vessels in 2014, 124 vessels in 2012, 105 vessels in 2013. With Islamic financing through Ijar with local factory owners, a pilot model ship recycling yard at Gadani, is to be established, this model if proven acceptable to the entrepreneurs, it may be replicated in other yards to be established at Gwadar and Pasni. With the same patronage of Islamic financing through Ijar with local factory owners, a model waste reception facility may also be developed and later replicated in other parts. The potential of subject industry can be gauged as more than 12,000 workers operating in 68 Plots (factories) of Ships breaking industry which pays around Rs. 5 Billion tax annually. It is pertinent to mention that Globally 862 Ships were dismantled in 2016 as compared to 768 ships in 2015 where as in South Asia, the figure stood 668 in 2016 as against 469 in 2015.

4.3 Ports and Harbors

Investment for ports and harbors infrastructure development also offers great Potential opportunities for Islamic financing in the coastal areas which plays a pivotal role in strengthening the national blue economy. When Pakistan came into being in 1947, there was only one port, i.e. Karachi port trust later in early 70’s Port Qasim was constructed and both ports combating the sea trade of Pakistan and are considered as back bone of Pakistan Blue Economy. Keeping in view the increasing trade activity and Chinese interest for their import exports through Pakistan, yet another port at Gwadar was constructed and now handed over to Chinese authorities, China Overseas Port Holding Company (COPHC) for operation (Khan M. A., Maritime History and Muslims-II, 2013, p. 7).

Although strategically located Gwadar port is away from existing port complex of KPT and Port Qasim but it may serve international shipping on the gateway to Persian Gulf. Islamic Investment opportunity not only for ports and harbors infrastructure development along the Pakistani coast still exists but cargo handling can also be considered by allocating some berths on Ijar. Imports & Exports data of KPT and Port Qasim is appended below, it may be considered for Islamic financing as cargo lifting capacity is increasing regularly.

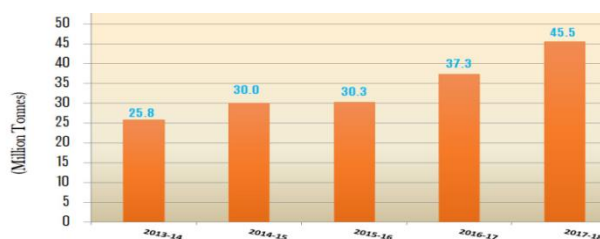
Karachi Port Trust (KPT)

Table: 04 Imports & Exports (Cargo Handling in Million Tons)

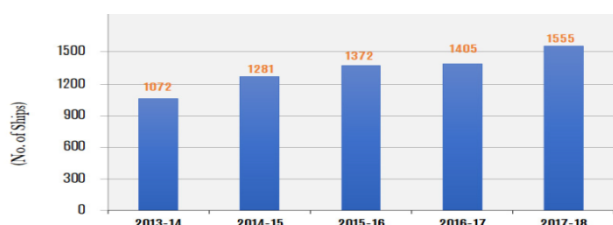
Type of Cargo Handled	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
TOTAL IMPORTS & EXPORTS (MILLION TONS)					
Dry General Cargo	22.076	25.867	26.498	21.619	25.692
Dry Bulk Cargo	7.596	8.727	10.675	7.173	7.052
Liquid Bulk Cargo	13.750	15.451	15.320	16.314	14.149
GRAND TOTAL	43.422	50.045	52.493	47.108	46.893
CONTAINER HANDLING (TEUs in MILLION)					
No. of Imports	0.896	1.006	1.077		1.067
No. of Exports	0.826	0.951	1.032		1.093
TOTAL TEUs	1.724	1.956	2.109	2.52	2.161
SHIP MOVEMENT (IN NOS.)					
Total	1,732	1,893	1,922		1,651

BIN QASIM PORT

Cargo Handling (Five years)



Merchant Shipping Traffic (Five years)



5 Harnessing the power of technology and oceans to create sustainable environment for future generations

5.1 Feasibility of Sea Windmills on Coastal Area

Owing to shortage of electricity there is a dire need to develop alternate energy sources like hydropower, solar and wind energy. Due to high wind speed in particular areas on Pakistani coast can provide conducive environment for installation of windmills. Harnessing the power of technology in this particular field sustainable environment for future generations can be created. Although in Pakistan, Ministry of Environment has already initiated a first wind power project in the southwestern coast of Baluchistan in 2012 and has completed its feasibility study for establishment of farms on different locations on coast. Moreover different foreign investors from Islamic countries may also invest in the wind power generation projects.

In Pakistan close to coastal belt the area of Gharo and Jhim Pir is very suitable for installation of windmill. The wind mills have already started generating electricity in the Gharo area The Research and development work in this field is primarily being carried out by public sector organization owing to lack of capabilities at private sector. Under mention organizations are very active in Pakistan since 2001 (Mirza & Ahmed, 2006, p. 5).

- Pakistan Council for Renewable Energy Technologies (PCRET)
- Alternative Energy Development Board (AEDB)

5.2 Possibility of Tidal Energy from Ocean Waves in Pakistan EEZ

Mechanical energy is being generated from Ocean waves and tides at various parts of the world. Indus deltaic

region is situated about 170 km South East of Karachi with composite network of creeks. The tidal water maintains higher speed (0.2-0.5m/s) throughout flood and ebb tides while flowing in and out of these complex creeks. Preliminary feasibility surveys conducted by NIO Pakistan for drawing out of energy all along the Indus deltaic stream structure estimates approx. 1100 Mega Watt power can be generated from the 17 main creeks. The salt water inundates approximately around 80 km inland owing to the tidal rise and fall which is a positively help drawing out of energy from subject tidal currents (Wright, 2016). The Islamic countries may invest in this particular field of blue economy.

6. Major Findings/Results

Just seven countries out of 57 OIC members classified as high income countries which is mostly due to their high oil revenues. Although about 17 oil producing and exporting countries (OPEC) have crude oil and refinery industries, most of them do not have main industrial base. Around 22 out of 50 least developed countries of the world are the OIC member states (Islamic Conference of Environment Ministers, 2012). Among OIC countries, most of low income (e.g. African countries, Bangladesh) and lower middle income (e.g. Indonesia and Pakistan) countries has high population growth and unequal income distribution. All such countries now must look for alternate economy e.g. blue economy. Pakistan coast has vast potential for development of ports, harbours, shipyard, tourism and other allied industry, investment here can boost blue economy. There are several places along the Makran coast which could easily be turned into vibrant ports, commercial spots and tourist resorts to help country earn blue economic dividends and build positive image. Islamic countries may invest in these commercially viable projects.

Given Pakistan's seaborne trade volume of 62.414 million tones projected to spike in foreseeable future, this requirement becomes urgent, Islamic countries may invest in shipping sectors keeping in view the emergent requirement. Likewise expansion in local shipyards should also be undertaken on priority basis. With Islamic financing assistance in constructing a new shipyard at Gwadar will be a significant step in the direction. The beach at Gadani, located on 10 Km stretch, having Pakistan ship-breaking industry. It has capacity of breaking over 100 ships per year including small and large ships. The industry can flourish if the Islamic financing is made available for subject industry. Blue economy would support coastal communities as their livelihoods depend on natural resources, through conservation and proper investment in natural capital, and make a good economy sense. It may bring solutions to unemployment issue through job creation by government to promote economic growth, increase income, reduce poverty, and finally to achieve the sustainable development.

Conclusion

Conscientious effort has been made during this research to find out the true potential of Pakistan maritime resources for shifting from green economy to blue economy. According to perception sea resources are not being fully explored due to certain challenges out at sea. But the reality is that these challenges can be taken care with the help of international collaboration, as these challenges pose less threat compare to challenges on land for green economy. In case of Pakistan and many other Islamic states the actual reason is the absent of will to look towards sea or respective EEZ. This can be easily created through conducting maritime awareness campaign by involving Policy makers, academia, private and public sector. Furthermore, a realization needs to be created that future belongs to nations which build sufficient maritime infrastructure on their coast. This realization then needs to be brought forward by reciprocating the interest of other Islamic countries and South Asian landlocked countries including Central Asian States. Nonetheless, prior concluding let me reiterate that, there is a dire need to create will and awareness at all tire of Islamic countries by explicitly explaining the benefits which can be extracted from respective EEZ prior shifting from green to blue economy. Moving towards blue economy should aim at increasing regional partnership and encouraging joint projects among Islamic countries. An Islamic maritime authority needs to be created in order to jump start the blue economy in Muslim countries.

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