



Sociology & Cultural Research Review (SCRR)
 Available Online: <https://scrrjournal.com>
 Print ISSN: 3007-3103 Online ISSN: 3007-3111
 Platform & Workflow by: [Open Journal Systems](#)



Understanding Maritime Security in the Indian Ocean: Challenges for Pakistan

Dr. Saeed Ahmed Butt

Assistant Professor, Government College University, Lahore.

saeedbutt@gcu.edu.pk

ABSTRACT

The Indian Ocean is one of the most critical maritime regions in the world today, given its centrality for trade, energy transportation, and geopolitical competition. Indian Ocean accounts for about 80 percent of the world's seaborne oil supplies and almost one-third of international maritime commerce passes through Strait of Hormuz, Bab el-Mandeb and Strait of Malacca known as Sea Lines of Communication (SLOCs). As a result, maritime security has become an integral part of national security, economic development and regional peace and stability. The Indian Ocean, with its geographical location and its growing maritime jurisdiction, Gwadar Port and the China-Pakistan Economic Corridor (CPEC), is a strategic and economic opportunity for Pakistan. Pakistan has multifaceted traditional and non-traditional security challenges in the maritime domain. The key challenges for India are traditional ones such as maritime boundary disputes, strategic competition in the Arabian Sea and maritime modernization. Maritime terrorism, piracy, illegal fishing, narcotics trafficking, human smuggling, vulnerabilities of port infrastructure to cyber attacks, marine pollution and environmental degradation caused by climate change are all non-traditional threats. At the same time, amongst major powers, the United States, China and India have witnessed a growing competition, leading to greater militarization of the Indian Ocean and complicating the maritime security landscape in Pakistan. In this paper, the concept of maritime security has been critically reviewed, the geopolitical importance of the Indian Ocean has been highlighted, and Pakistan's maritime interests have been analyzed in the context of maritime security. A qualitative research methodology has been used in this study that relies on secondary sources like scholarly books, peer-reviewed journal articles, policy reports and official documents to study the emerging maritime security challenges faced by Pakistan. The paper also reviews the maritime strategy and Pakistan's naval capabilities and involvement in regional and international maritime security efforts.

Keywords: Maritime Security, Indian Ocean, Pakistan Navy, Gwadar Port, CPEC, Indo-Pacific, Blue Economy, Sea Lines of Communication.

1.Introduction

Historically the sea has been cornerstone of international trade, strategic competition and military force. The oceans have been essential to world's supply of energy products, manufactured goods, food products and digital communications since dawn of globalization, using submarine cables. In the world, over 90 percent of trade value is carried by maritime transport, and maritime security is an important aspect of international peace and economic development. Indian Ocean is a uniquely strategic position among all maritime regions. The Indian Ocean links economies of Europe, Middle East, Africa and Asia, from east coast of Africa to Australia, with northern border at South Asia. Some of most significant maritime chokepoints in world such as Strait of Hormuz, Bab el-Mandeb, Mozambique Channel, Lombok Strait, Sunda Strait and Strait of Malacca. SLOCs disruptions have a significant impact on global energy markets and international trade. The celebrated American naval strategist Alfred Thayer Mahan said: "Who controls the sea, controls commerce, wealth of world." (Mahan,

1890) Mahan's statement, though made a century ago, is still very relevant to today's geopolitical landscape. The maritime power remains to be a driving force of national wealth, military influence, and international relations. The post-Cold War era transformed the concept of maritime security. Maritime security used to mainly mean naval warfare and territorial defense. In 21st century, a host of new nontraditional maritime threats have entered scene, such as piracy, maritime terrorism, transnational organized crime, illegal fishing, environmental degradation, cyber attacks to maritime systems and infrastructure, and climate change. Thus, concept of Maritime security has become multidimensional, including military, economic, environmental, legal and humanitarian aspects. Maritime security has turned into an "umbrella concept" that integrates national security, marine environmental protection, economic development and human security, according to Christian Bueger. He says: "Maritime security is not a coherent concept but rather a policy framework that brings together various policy fields." (Christian Bueger, 2015). Such a multidimensional approach is particularly applicable for Pakistani context. Pakistan is a geopolitically significant country with northern coastline of Arabian Sea with length of about 1,050 kms. Vastly extending its own Exclusive Economic Zone (EEZ) in accordance with international maritime law, country possesses an Exclusive Economic Zone (EEZ) area of more than 290,000 sq. km. Karachi Port, Port Qasim and strategically important Gwadar Port, gateway to China-Pakistan Economic Corridor (CPEC) are Pakistan's maritime venues. As a result of Belt and Road Initiative (BRI), connectivity projects in region and growth in maritime trade, the significance of Pakistan's maritime sector has grown significantly. The city of Gwadar could develop into a big logistics and transshipment hub to connect Central Asia, Western China, Middle East and Africa. In meantime, rising strategic importance has sparked off geopolitical rivalry in Arabian Sea. India has been modernizing its navy, building aircraft carriers, procuring submarines, adding anti-submarine warfare capabilities, and strengthening its ties with United States, Japan, Australia, and France, which has led to a shift in balance of power in region. At the same time, China's growing presence in Indian Ocean region through Belt and Road Initiative has raised the concerns of regional and extra-regional powers, and has also been adding to militarization of Indian Ocean. Besides the traditional challenges, Pakistan has to deal with several non-traditional maritime threats. Maritime terrorism continues to be a threat after incidents involving naval vessels and coastal installations. The traffic of drugs has become a serious cross-border problem with Arabian Sea. The issue of illegal, unreported and unregulated (IUU) fishing poses a risk to Pakistan's marine resources and coastal economy of the country. In context of climate change, coastal erosion, sea-level rise, sea pollution, and ecological degradation has become more accelerated which has impacted the sustainability of Pakistan's marine environment. Moreover, port management systems, shipping logistics and maritime communication networks are exposed to new challenges in the field of maritime security due to cyber threat. With digitisation of ports and maritime trade, cyber resilience has become a key element of a national maritime strategy. The Pakistani security scenario has become more complex due to growing rivalry among the great powers. Indo-Pacific Strategy, China's Maritime Silk Road, India's SAGAR (Security and Growth for All in Region) and Quadrilateral Security Dialogue (Quad) all play a role in shaping security landscape of Indian Ocean region. Thus, a comprehensive framework for maritime security in Pakistan is required, which encompasses aspects of modernisation of navy, development of maritime domain awareness, blue economy, regional diplomacy, environmental sustainability and international cooperation.

This research aims to thus shed light on changing maritime security environment in Indian Ocean and critically analyse strategic outlook, vulnerabilities and policy options of Pakistan.

2. Literature Review

The Indian Ocean is becoming a hub for geopolitical competition, international trade, energy supply and shipping in wake of naval engagement, so maritime security is becoming an important sub-field of International Relations and strategic studies. The past scholarship proves maritime security cannot be viewed merely as naval security or territorial defence, but involves piracy, terrorism, illegal fishing, smuggling, maritime crime, environmental degradation, cyber threats, critical infrastructure protection and security of sea lines of communication. Bueger (2015) defines maritime security as multidimensional approach to security involving national security, human security, marine environment, economic development and maritime crimes. (Bueger C. , What is maritime security?, 2015) Bueger and Edmunds then propose to rethink maritime security scholarship from its traditional "sea blindness" orientation and to combine security governance, maritime law, economic interests and human security into a more comprehensive analytical perspective. These views offer a valuable framework to analyse Pakistan's oceanic weaknesses in broader Indian Ocean context. (Bueger C. &, 2017)

The geopolitical literature on Indian Ocean accentuates increasing significance of Indian Ocean in distribution of world power. Indian Ocean is also a growing space of geopolitical rivalry due to its strategic waterways, its energy resources, its commercial routes and its proximity to emerging powers, as described by Kaplan (2010). The Indian Ocean is also gaining importance in strategic competition of Asia, in opinion of Brewster (Brewster, 2010), who points out that India, China and other Asian countries are trying to exert greater influence over oceans. Brewster's analysis is particularly pertinent in context of Pakistan due to its geographical location on Arabian Sea and its role on crossroads of South Asian, Middle Eastern and broader Indo-Pacific maritime dynamics. The geographical advantage presents Pakistan with opportunities for connectivity and country's maritime economy, but also with inter-state competition and security concerns.

There is a significant literature that has exclusively concentrated on strategic rivalry between India and China and impact on Pakistan. Mahanian concept of sea power is based on significance of naval strength, commercial shipping, strategic ports and national power. (Mahan, 1890). Today's scholars have updated these arguments to Indian Ocean, where China is strengthening its naval footprint and India is trying to assert itself as a regional power. Given the close interconnection of naval power, economic connectivity and maritime geography, Medcalf states that Indo-Pacific is emerging as a theatre of strategic influence contest. (Medcalf, 2020) This competition has a special importance for Pakistan as country's maritime region and ports have been connected to Belt and Road Initiative and China-Pakistan Economic Corridor (CPEC) with China. Another strand of literature to that effect is one on Gwadar Port and CPEC. It has been studied as an economic connectivity and strategic maritime asset in Gwadar. Abbas and Habiba suggest that as maritime competition has increased in western Indian Ocean and Gwadar has been developed, (Abbas, 2022) Pakistan Navy has new responsibilities and challenges. The study highlights that security of maritime environment is a key factor in sustainability of CPEC and Gwadar related infrastructure. Abid and Nouman (2024) have conducted research on China Pakistan maritime strategic partnership and conclude that China Pakistan Economic Corridor (CPEC) and port of Gwadar have enhanced Pakistan's geopolitical significance in Indian Ocean and have also made it more vulnerable to growing strategic rivalries in region. (Abid, 2024) Recent studies also point

to Gwadar as a new hub for regional connectivity, but highlight security issues, competition between India and China, and need for good governance at local and national levels (Imran, 2025). The other significant research area is on blue economy and maritime potential of Pakistan. Syed and Safdar believe that Pakistan has huge but untapped maritime resources such as fisheries, shipping, ports, coastal tourism, offshore resources, and Exclusive Economic Zone (EEZ). (Syed, 2022) Based on their analysis, they recommend that maritime insecurity is linked to economic development as it can have a negative impact on country's capacity to harness its marine resources. Similarly, Khan has been pointing out that transitioning from a land-centric security and development paradigm to a more maritime-centric national strategy will be key to strengthening national economic resilience and strategic power if Pakistan is to develop its blue economy. (Khan A. M., 2025) In recent times, there has been a growing focus on non-traditional threats to maritime security in Pakistan. Smuggling, illegal fishing, maritime crime, environmental degradation, terrorism and institutional coordination deficiencies are also observed as significant issues in Pakistan's maritime security by Hashim et al. (Hashim, 2025). They call for better surveillance of seas, better coordination between marine law enforcement, satellite and Automatic Identification System (AIS) technologies, and greater collaboration between them through organisations like Indian Ocean Rim Association (IORA), Indian Ocean Naval Symposium (IONS) and Combined Maritime Forces (CMF). This is an emerging literature that is of particular importance, as maritime issues cannot be discussed in context of Indo-Pak naval rivalry alone. One more research area that is emerging is cybersecurity and technological transformation. Digital navigation, communication, logistics and information systems are vital to modern ships and ports, making them more vulnerable than ever. Caprolu et al. (Caprolu, 2020) point out flaws in maritime communication and navigation systems and show that impact of cyberattacks can be economic and disrupt operation of a vessel. Digitalization of Karachi and Gwadar ports, maritime logistics and coastal monitoring have potential to increase efficiency in Pakistan, but also present new cyber security risks which have been comparatively under-researched in Pakistan-specific literature. To sum up, existing scholarship is useful in understanding maritime geopolitics, naval competition, Gwadar, CPEC, blue economy and non-traditional maritime security threats. However, there is still a large gap in research. These problems have been explored separately in a large part of literature without attempting to present a complete picture in framework of International Relations. The volume shows a lack of focus on linkages between Pakistan's maritime security and interplay between India-China strategic rivalry, CPEC and Gwadar, UNCLOS-based maritime governance, non-traditional threats, blue economy and maritime institutional capacity. The present study aims at filling this gap by conceptualizing Pakistan's maritime security as multi-dimensional national-security and international-relations issue in context of changing order of the Indian Ocean region.

3. Research Methodology

The research method used in this research is qualitative research, which is mainly secondary sources. The study uses scholarly books, peer-reviewed journal articles, government publications, reports from international organisations, policy papers, think-tank analyses, naval doctrines, newspapers and official documents. The academic debate on maritime security, geopolitics of Indian Ocean and Pakistan's maritime approach has been analyzed using content analysis. The theoretical framework contains elements of classical realism, neo-Realism, maritime geopolitics and comprehensive Security theories, which explain behaviour of states in maritime competition. Comparative analysis is also used in study by analyzing

maritime strategies of the maritime neighbours of India, China, United States and selected Indian Ocean littoral countries to draw out lessons that can be useful to Pakistan context.

4. Conceptual Framework of Maritime Security

Maritime security as a topic has grown to be one of the most important ones in modern international relations, strategic studies and national security agenda. Traditionally, maritime security has been defined as protection of territorial waters, naval superiority and defense of sea lines of communication (SLOCs) during a war. Globalisation, technology, transnational crime, environmental issues and reliance of global commerce on maritime transport have, however, made maritime security a multi-dimensional concept, involving security of military, economy, environment, law and human person. Maritime security is more than just naval security for Pakistan. It encompasses the protection of the EEZ, security of maritime trade, the protection of strategic ports like Karachi, Port Qasim, Gwadar, the fight against piracy and maritime terrorism, prevention of narcotics and human trafficking and the development of sustainable exploitation of marine resources and strengthening maritime cooperation in the region. Geoffrey Till explains; "the sea is no longer just a theatre of war, but also a space for trade, diplomacy, environmental stewardship and international governance." (Till, 2018) In this wider context, this is especially significant for the Indian Ocean, where geopolitical tensions meet global trade and energy security.

4.1. Defining Maritime Security

The term maritime security has not yet been defined in a standard way, as is the case in area of traditional security. It is defined by strategic priorities of different states, international organizations and scholars. The concept of maritime security is not limited to naval security because maritime issues have many facets, amongst which national security, economic development, marine environment and human security are important aspects. Maritime security, as defined by International Maritime Organization (IMO) is about measures taken to keep ships, ports, marine infrastructure, cargo, crews and passengers safe and secure from unlawful acts, including terrorist attacks, piracy, sabotage, smuggling and cyber attacks. This definition underscores that maritime security is not a matter of military force alone, but rather an issue of peace and order and economic activity. All these factors are embedded in Pakistan's policy on maritime security and are being addressed through various elements of country's naval preparedness, coastal defense, law enforcement, development of blue economy, and cooperation in the maritime environment.

4.2. Evolution of Concept of Maritime Security

In 19th and 20th centuries, term maritime security was associated with naval warfare, protection of sea areas and control of sea routes. The great naval strategist Alfred Thayer Mahan (1890) said, "Control of sea by maritime commerce and naval supremacy means predominant influence in world." (Mahan, 1890) For Mahan, sea power was needed for economic progress and geopolitical power. In same way, Julian Corbett reiterated importance of maritime power to aid national political goals in terms of maintaining freedom of navigation and safeguarding maritime communications. (Corbett, 1911) Maritime security was focused on naval deterrence, protection of merchant shipping, amphibious warfare, submarine operations, Maritime blockades and Sea control during both World Wars, and throughout Cold War. Maritime security took on a different meaning after Cold War. Maritime trade became more dependent on globalization and non-state actors became an important security hazard. These included piracy, maritime terrorism, drug trafficking, human trafficking, illegal fishing, marine pollution, climate change and cyber-security. According to Christian Bueger, trend in maritime security is from state-centric security to comprehensive

maritime governance. Christian Bueger states that shift in maritime security is from State-centric security to a comprehensive maritime governance. (Bueger, 2015) Maritime security now embraces military, economic, environmental, legal and humanitarian aspects.

4.3. Dimensions of Maritime Security

These Maritime security dimensions are multidimensional and interconnected such as Military, Economic, Environmental, Human Security and legal dimensions. The military aspect is about ensuring the maritime sovereignty, by means of naval forces. The main goals are territorial water defense, EEZ defense, sea denial, sea control, naval deterrence, Protection of strategic ports and Protection of off shore energy infrastructure. In Pakistan, Pakistan Navy is the foremost institution to defend maritimes. Almost 90 percent of world trade is transported via sea. Maritime security therefore is about protection of commercial shipping, oil transport, ports, fisheries and offshore energy and blue Economy. For Pakistan's economic growth, safe sea trade via Karachi, Port Qasim and Gwadar has become critical. Marine ecosystems are increasingly under threat due to Oil spills, Plastic pollution, Overfishing, Coastal erosion, coral reef destruction and climate change. Food security, fisheries, tourism and coastal livelihoods are all impacted by environmental degradation. Maritime security also ensures safety of lives. This encompasses search and rescue, disaster relief, maritime migration, maritime trafficking prevention, protection of fishermen and humanitarian assistance. Pakistan Navy routinely carries out humanitarian assistance and disaster relief (HADR) missions in the event of cyclones and floods. International maritime law is law that governs oceans. The main legal instrument is United Nations Convention on Law of Sea. (Nations., 1982) UNCLOS defines territorial Sea, contiguous Zone, Exclusive Economic Zone (EEZ) and continental Shelf, high Seas and rights of innocent passage Pakistan's maritime claims are based upon UNCLOS provisions.

4.4. Traditional threats to maritime security include

The traditional threats are largely from competition in interstate arena such as naval competition, maritime boundary disputes and strategic Chokepoints. Strategic dominance is achieved by warships including aircraft carriers, nuclear submarines, ballistic missile submarines, destroyers, frigates and anti-submarine warfare. Indian Ocean has become arena of navies' competition between India, China and United States. There are many issues that have not been resolved. Examples include India–Pakistan maritime boundary (Sir Creek), Somalia–Kenya, Iran–UAE and South China Sea disputes (comparative example). EEZs can be complicated by boundary disputes, which can hinder management and use of EEZs. The chokepoints in Indian Ocean include Bab el-Mandeb, Strait of Malacca and Mozambique Channel, all of which are of global importance. If disrupted at any of these choke points, they may impact global energy supplies and trade.

4.5. Non-Traditional Maritime Security Threats

These include non-traditional threats such as piracy, maritime terrorism, drug trafficking, human trafficking, Illegal, unreported and unregulated (IUU) fishing, marine pollution, climate change and cybersecurity. Piracy is an armed attack on a commercial ship. The Somali piracy crisis (2005-2012) illustrated the potential for non-state actors to have an impact on international shipping and to raise insurance and transportation costs. The Pakistan Navy actively engaged in anti-piracy operations in Gulf of Aden with other multilateral navies. Maritime terrorism includes attacks on maritime ports, naval installations, oil tankers, maritime passenger ships, and offshore energy facilities. The vulnerability of maritime infrastructure was underscored by attack on USS Cole (2000) and by maritime infiltration during Mumbai attacks in 2008. Pakistan has beefed up its coastal surveillance and maritime

intelligence to deal with such threats. Arabian Sea now plays a crucial role as a trade route for narcotics smuggling into world markets from south-west Asian countries. During maritime interdiction operations, Pakistan Maritime Security Agency (PMSA) and Pakistan Navy have already captured substantial amounts of narcotics. Maritime smuggling is a common method of trafficking migrants across regions, used by criminal groups. The issue of human trafficking affects national security and it is a violation of international human rights law. Loss of revenue, marine biodiversity depletion, food insecurity and damage to local fishing communities are some of the negative impacts of illegal fishing. In Arabian Sea, IUU fishing is still a top economic and environmental problem for Pakistan. Plastic waste, chemical discharge, oil spills and Ballast water contamination are all examples of Marine pollution. Fisheries, tourism and biodiversity of ocean are all negatively impacted by pollution. Ocean acidification, coast erosion, sea-level rise, cyclones, saltwater intrusion and damage to port infrastructure are some of serious maritime risks caused by Climate Change. The coastal regions of Pakistan, especially Karachi and Balochistan are facing increasing threats from these effects. The digital logistics, satellite navigation, automatic cargo systems, electronic customs and vessel traffic management are all core elements of modern ports. A cyber attack might be able to cause a halt to maritime trade without coming to any physical fights.

4.6. Global Security Challenges and Maritime security

Theoretical perspectives. Realist scholars regard maritime security as an “achievement of power and survival.” States ensure their navies are strongest it can be in order to safeguard their sovereignty and keep their rivals at bay. The naval expansion of India and maritime modernization of Pakistan may be seen in this context. The principle of liberalism is cooperation by means of international law, regional organisations, trade interdependence and Collective security. Examples of this include IMO and regional maritime programmes. According to constructivist theory, shared norms, identities and international institutions have an influence on maritime security. Cooperation can change state action from one of power politics to another. Maritime geopolitics is the study of impacts of geography, sea routes and chokepoints on state strategy. Theory of Mahan on sea power continues to be useful to understand economics of naval power and strategic ports in interests of states. Blue Economy focuses on sustainable use of oceans for socio-economic development, enhancing living conditions and environmental protection. Pakistan's blue economy segments consist of fisheries, port development, maritime tourism, offshore energy, shipbuilding and Marine biotechnology. These opportunities can only be realised in a secure Maritime environment.

4.7. International legal and institutional framework

International law and cooperative institutions underpin effective maritime security; important international conventions include Convention on Law of Sea (UNCLOS, 1982), Convention for Suppression of Unlawful Acts against Safety of Maritime Navigation (SUA Convention, 1988) and International Ship and Port Facility Security (ISPS) Code (2004). United Nations Convention on Law of Sea (UNCLOS, 1982) draws boundaries for territorial sea, defines EEZ and outlines rights and responsibilities of states with regards to navigation and dispute settlement. (Nations., 1982) International Maritime Organization (IMO) establishes worldwide rules and regulations for maritime safety, security and environmental protection. ISPS Code (2004) was adopted following events of 9/11 to increase level of security for ships and port facilities. The Convention for Suppression of Unlawful Acts against Safety of Maritime Navigation (SUA Convention, 1988) makes criminal acts like hijacking ships and maritime terrorism. These frameworks are the foundation of Pakistan's maritime governance and cooperation at an international level.

5. Strategic significance of Indian Ocean

Indian Ocean is becoming one of the most strategically important maritime zones of twenty-first century. The Atlantic Ocean was the centre of international politics in colonial era, while the Pacific Ocean has acquired a new profile in wake of economic development of East Asia, but the Indian Ocean is main water route linking Europe, Africa, the Middle East and Asia, making it the focus of international geopolitics. Its significance is due to its role in global trade, transportation of energy resources, important choked points, fisheries, undersea communication cables and growing rivalry among great powers. Indian Ocean is not just a geographical region for Pakistan; it is also a strategic lifeline. Maritime security is an integral part of national security and economic development for Pakistan with its approximately 1050 km of coastline, Exclusive Economic Zone (EEZ), ports of Karachi, Port Qasim, and Gwadar with its borders with South Asia, Central Asia and Middle East. Robert D. Kaplan (2010), in his article, is right to say that Indian Ocean is main stage of twenty-first century's power and influence game. Robert D. Kaplan (2010) is correct to state that Indian Ocean is the main stage of power and influence game of twenty first century. (Kaplan, 2010) This assessment is in line with increasing prominence of the region in the strategic affairs of the world.

5.1. Geographical importance of Indian Ocean

Indian Ocean is the third largest ocean in the world, covering an area of around 70.56 million km², which is about 20 percent of ocean's surface area. It is surrounded by Asia continent in north, Africa in west, Australia in east and Southern Ocean/Antarctica in south. Indian Ocean is a vital link between economies of Europe, Middle East, Africa, South Asia, Southeast Asia and East Asia. Indian Ocean is one of the most politically diverse maritime regions in the world, with more than 40 littoral and island states that border ocean. Significant coastal and island states include Pakistan, India, Sri Lanka, Bangladesh, Iran, Oman, Saudi Arabia, United Arab Emirates, South Africa, Kenya, Tanzania, Mozambique, Indonesia, Australia, Madagascar, Maldives, Seychelles and Mauritius. Maritime stability is a critical factor for economic development of the region and for human security and sustainable development, as the region is home to almost one-third of world's population.

5.2. Sea Lines of Communications (SLOCs)

Sea Lines of Communications (SLOCs) is term used to describe sea lanes used for commercial shipping, naval operations, energy and international trade. They form backbone of world economies. United Nations Conference on Trade and Development (UNCTAD) estimates that approximately 70 percent of international maritime trade by value and 80-90 percent by volume moves around the world. Therefore, any disruption to SLOCs can have immediate repercussions on global supply chains, energy markets and food security. There are several of busiest SLOCs in the Indian Ocean, connecting Europe to Asia, Middle East to East Asia and Africa to South Asia and Persian Gulf to world. Secure SLOCs are also very important for Pakistan, as over 90 per cent of country's foreign trade is conducted via sea. The major entry point of petroleum imports is port of Arabian Sea. Gwadar, Karachi and Port Qasim are reliant on uninterrupted sea trade. The security of shipping routes is the key to CPEC's maritime arm.

5.3. Strategic Maritime Chokepoints

The Indian Ocean has several key maritime choke points of international importance. These narrow waterways act as gateways for international trade and energy supplies. Located between Iran and Oman, Strait of Hormuz connects Persian Gulf with Arabian Sea. It is seen as one of most significant energy choke points in world as a large percentage of the world's traded crude oil and liquefied natural gas (LNG) move through it. It is main shipping channel for Gulf's energy exporters. For Pakistan, if Strait of Hormuz becomes unstable it could not

only cause disruptions in its energy imports but also introduce additional shipping expenses and impact national economy. *Bab el-Mandeb* is located between Djibouti/Eritrea and Yemen, connecting Red Sea and Gulf of Aden with Suez Canal. It plays an important role in trade between Europe and Asia. The maritime insecurity in this region, whether in war, or as a result of piracy or attacks on shipping, may have to divert ships around Cape of Good Hope, resulting in longer transit times and higher costs. Strait of Malacca is the narrowest strait between Indian and Pacific Ocean, between Malaysia, Singapore and Indonesia. It is a crucial conduit for energy imports and manufactured exports to and from China, Japan and South Korea, all of which are key economies in East Asia. Mozambique Channel, separating Mozambique and Madagascar, is becoming a vital shipping lane and is an energy exploration hotspot between Southern Africa and Asia.

5.4. The Energy Security and Indian Ocean

Indian Ocean's strategic importance is largely related to the issue of energy security. The area connects hydrocarbon-rich Persian Gulf with energy-intensive Asian and European economies and beyond. Countries like China, Japan, South Korea, India and Pakistan are dependent on uninterrupted flow of sea-borne transportation of crude oil and LNG via Indian Ocean. Conflicts, piracy and geopolitical developments can have economic repercussions. Imported oil & gas accounts for 76% of Pakistan's energy requirements, highlighting significance of safe maritime passages. Therefore, safe transportation of energy through Arabian Sea and the adjacent waters becomes a crucial part of Pakistan's national security.

5.5. The Blue Economy

The Blue Economy has been a key theme in maritime development debates. It means the sustainable consumption of ocean resources for economic growth, employment creation and protecting environment. The major areas of the Blue Economy for Pakistan are Fisheries and aquaculture, port development, maritime transport and logistics, coastal tourism, offshore renewable energy, shipbuilding, ship repair and marine biotechnology. The presence of a large coastline and enlarged EEZ of Pakistan is a great opportunity for economic development. These opportunities, however, will only be realised through good maritime governance, investment in marine infrastructure and conservation of marine ecosystems.

5.6. Indian Ocean and Great Power Competition

The Indian Ocean has turned into a theatre of strategic rivalry between great powers. United States wants freedom of navigation, safe international trade routes, and a balance of power favorable to United States. Its collaborations with regional countries and its overall Indo-Pacific policy demonstrate this. To support China's reliance on maritime trade and on imported energy, investments have been made in ports, infrastructure and maritime connectivity under Belt and Road Initiative (BRI) and Maritime Silk Road. The Gwadar Port in Pakistan is an important part of this connectivity initiative, offering China a better link to the Arabian Sea. India considers Indian Ocean as key to its security and strategic power. India is actively pursuing development of maritime partnerships, security of sea lines of communication and maritime capabilities as a leading power in region through various initiatives, including SAGAR (Security and Growth for All in Region) and ongoing naval procurement. Naval deployments, exercises and partnerships are increasing for Indian Ocean engagements between nations like Japan, Australia, France, and United Kingdom. This is indicative of heightened significance of this region in global geopolitics. Pakistan is located at a strategic position of northern Arabian Sea near Strait of Hormuz. This is considered to be a strategic site due to several advantages including proximity to important maritime trade routes, a gateway between South Asia, Central Asia and Middle East, strategic ports that

facilitate trade and connectivity within the region and potential for growth of maritime commerce and Blue Economy. Meanwhile, Pakistan has critical maritime security issues like defending its ports and EEZ, securing commercial shipping, combating transnational maritime crime and countering new and emerging maritime realities in Indian Ocean. The security environment in Indian Ocean is determined by overlapping of traditional and non-traditional security concerns such as modernisation of navies of region, maritime terrorism and transnational organised crime, Piracy and armed robbery at sea, IUU fishing, climate change, sea-level rise and sea-ways degradation, cyber risks to ports and maritime infrastructure, and competition over undersea communication cables and critical maritime infrastructure. Such dynamics need a holistic and integrated approach, involving military preparedness, diplomacy, economic resilience, environmental stewardship and international cooperation.

6. Maritime Environment – Strategic significance, Maritime institutions and development of blue economy in Pakistan

The maritime environment in Pakistan holds key role in national security, economic development and foreign policy of Pakistan. Pakistan is a continental country, but its sea sovereignty has taken on a new dimension in 21st century due to its maritime borders with India, Iran, China and Afghanistan. Arabian Sea serves Pakistan in following ways as it opens access to international markets, imports energy resources and facilitates maritime trade, which is backbone of national economy. The project of Gwadar Port and development of China-Pakistan Economic Corridor (CPEC) along with growing Exclusive Economic Zone (EEZ) of Pakistan has further enhanced importance of maritime sector of the country. Geoffrey Till states that “Maritime power in twenty-first century is not just product of naval power but also exploitation of maritime resources, protection of maritime commerce and impact on maritime stability” (Till, 2018) in region. Maritime security is thus not just about naval defence for Pakistan, but also economic resilience, sustainable management of maritime resources, maritime governance as well as regional cooperation.

6.1. Pakistan's Maritime Geography

The length of Pakistan's coastline is about 1050 kilometres from Sir Creek in Sindh to Jiwani near Iranian border in Balochistan. The seashore can be subdivided into Sindh Coast (about 250 km) and Makran Coast in Balochistan (about 800 km). Makran Coast is of special significance due to its close proximity to Strait of Hormuz and potential for deep-sea port construction. Pakistan's Maritime domain consists of territorial Sea (TS=12NM), Contiguous Zone (CS=24NM), Exclusive Economic Zone (EEZ) and continental Shelf. After approval by United Nations Commission on Limits of Continental Shelf (CLCS) Pakistan extended its continental shelf, area under Pakistan's maritime jurisdiction and allowed more opportunities for exploration and development of resources under sea. Pakistan's maritime geography has an advantage for international shipping, energy transportations, fisheries, offshore resource exploration, maritime trade, Coastal tourism and naval operations.

6.2. Pakistan's Exclusive Economic Zone (EEZ)

According to United Nations Convention on Law of Sea (UNCLOS), Pakistan has vast EEZ area in Arabian Sea for purposes of exploration, exploitation, conservation and management of its natural resources. There are potential for Fisheries activities, Offshore Oil and Gas, Marine Minerals and Renewable Energy in EEZ. Thousands of Pakistani people's livelihoods are linked with marine fisheries and export items like shrimp, tuna and other seafoods are produced via marine fisheries. This is only possible by sustainable management to avoid over-exploitation and illegal fishing. Offshore hydrocarbon reserves are possible based on geological studies. While exploration in EEZ is not as intensive as in some of Pakistan's neighbours, in the longer

term this may help to improve energy security of Pakistan. The sea bed may also contain valuable mineral resources, such as heavy mineral sands and other mineral deposits which may be utilised for future industrial development. The country of Pakistan has coastal areas that have potential for offshore wind and wave energy, and can help diversify the country's energy sources.

6.3. Major Ports of Pakistan

Ports are lifeline of Pakistan maritime economy. Karachi Port is the oldest and busiest port of Pakistan. It accommodates all kinds of goods shipped in containers such as Petroleum imports, Bulk commodities and general cargo. The port is situated in close proximity to Pakistan's industrial and commercial hub and is significant for nation's economy. Karachi port has a great strategic importance in form of principal commercial gateway, key naval logistics hub which supports industrial supply chains, which is vital for import-export trade. Port Qasim is an eastern port of Karachi, built to alleviate congestion and to cater to growing industrial development of Pakistan. It provides LNG terminals, coal imports, industrial raw materials, steel industry and agricultural commodities. Port has emerged as a vital part of Pakistan's logistics and energy infrastructure. Gwadar Port is one of most important infrastructure developments in Pakistan. It is located in a geopolitical and geoeconomic sensitive area, near the entrance to Strait of Hormuz. Gwadar is a gateway to international shipping lanes, gives access to western China via CPEC, offers opportunities for regional trade with Central Asian countries, offers opportunities for logistics and transshipment and prospects for industrial development through special economic zones. While the port is poised to play a role in regional connectivity and economic integration, its future success hinges on security, infrastructural growth, and economic viability.

6.4. Pakistan Navy as Guardian of Maritime Security

The principal institution which protects Pakistan's maritime interests is the Pakistan Navy. Over last two decades a lot of effort has been put into modernizing Navy's fleet, upgrading maritime domain awareness, increasing interoperability with friendly navies and developing Navy's role in humanitarian assistance and disaster relief (HADR) and involvement in multinational maritime security missions. Pakistan has been making efforts to enhance the capacity of its maritime arm via following modern frigate, fast attack craft, Maritime patrol aircraft, Submarine fleet modernization, unmanned systems and surveillance technologies, Coastal radar networks. These developments seek to enhance deterrence, sea line of communication and maritime surveillance and protection. Under Maritime Zones Act 2014, Pakistan Maritime Security Agency (PMSA) has been established to conduct law enforcement within Pakistan's maritime zones. Its prime functions is EEZ surveillance, protection of fisheries, prevention of illegal fishing, anti-smuggling operations, search and rescue (SAR), marine pollution response, Assistance to fishermen and Maritime law enforcement. PMSA collaborates closely with various national agencies and Pakistan Navy for enhancement of maritime governance. Pakistan's economy is intricately linked to maritime activities. The volume of international trade in Pakistan is carried out largely by sea. Import key items are crude oil, LNG, machinery, chemicals and food products. The key export products are textiles, rice, Leather goods, sports equipment, surgical instruments and seafood. Therefore, it is important for economic stability and growth to have uninterrupted access to secure sea routes.

6.5. The Blue Economy of Pakistan

Pakistan's Blue Economy has great potential for sustainable economic development. They can be related to fisheries and aquaculture, coastal tourism, maritime transport and logistics,

shipbuilding and ship repair and Offshore Renewable Energy. Productivity and incomes can be improved through modernization of fishing fleet, development of cold chain and value-added seafood exports. The beaches, islands and marine ecosystems of Pakistan's Makran Coast have significant potential for eco-tourism and tourism for recreation. Infrastructure investments in ports, shipping services, and logistics can enhance Pakistan's position as a trade hub in the region. The expansion of domestic capacity for shipbuilding and ship maintenance can help minimise reliance on foreign facilities, adding skilled jobs. Offshore wind and other offshore renewable energy sources can help achieve long-term energy security. Successful exploitation of these opportunities depends on having coherent policies, investments, skilled human resources, and effective environmental regulation in Pakistan.

6.6. China–Pakistan Economic Corridor (CPEC) and Maritime Dimension

The sea-side leg of CPEC has boosted strategic significance of Pakistan in Indian Ocean. This is done through a number of key objectives which are: Improving port facilities at Gwadar, Road and rail connectivity to hinterland, regional trade facilitation, strengthening logistics system and support industrial development through special economic zones. The sea route aspect of CPEC also calls for security of sea ports, shipping routes and related infrastructures. The significance of an integrated maritime approach has been gradually gaining ground in Pakistan. Some of key institutions involved in maritime governance are Ministry of Maritime Affairs, Pakistan Navy, Pakistan maritime security Agency, Karachi Port Trust, Port Qasim Authority, Gwadar Port Authority, Marine Fisheries Department and Pakistan National Shipping Corporation. To have a successful national maritime strategy, it is essential that these institutions cooperate closely in the field of security, trade, environmental protection and sustainable use of resources.

7. Major Maritime Security Challenges for Pakistan

Major Maritime Security Challenges for Pakistan as traditional security threats, transnational maritime crimes, environmental threats, and geopolitical competition in the Indian Ocean Region (IOR) have all come together, Pakistan's maritime security environment has grown more complex and multifaceted. The country's strategic location on seaboard of Arabian Sea, close to Strait of Hormuz and development of Gwadar Port under China–Pakistan Economic Corridor (CPEC) has increased the country's importance as a seaway, but has also made it vulnerable to a wide range of security threats. In contrast to Cold War, in which maritime security was mainly about naval warfare, Pakistan faces multidimensional security threats now that need an integrated national maritime security strategy. Some of these challenges are growing naval strength and expansion of India's maritime potential, maritime disputes, maritime terrorism, piracy, narcotics trafficking, illegal fishing, cyber threats, climate change, and high strategic rivalry among the major world powers. It is worth noting that maritime security today includes military, economic, environmental and human security dimensions that are closely intertwined. (Bueger, 2015)

7.1. India–Pakistan Maritime Rivalry

The sea battle between Pakistan and India is a part of their overall strategic competition. The competition has always been about land borders and nuclear deterrence but the maritime domain has garnered more attention as a result of naval modernization, strategic ports and competition in Arabian Sea. India has been on its quest to build up its naval prowess and has invested in aircraft carriers, nuclear-powered submarines, destroyers, frigates, maritime patrol aircraft and surveillance systems in long term. These developments will further bolster India's capacity to safeguard sea lines of communication (SLOCs), project power and exert influence in Indian Ocean. The developments require Pakistan to continuously upgrade its

maritime capabilities to protect its coastline, ports, and maritime trade, and also to ensure its credibility while maintaining a military deterrent capacity.

7.2. The Sir Creek Maritime Boundary Dispute

Sir Creek dispute is one of longest-standing maritime issue between Pakistan and India which lies on marshy estuarine area on border between Sindh Province in Pakistan and Gujarat State in India. While Sir Creek is itself quite a small area, it carries an important implication for Delimitation of maritime boundary, Exclusive Economic Zone (EEZ) claims, Continental shelf rights, Access to offshore resources and Fishing rights. Lack of a recognized maritime boundary had meant some fishermen have been detained at times for "accidentally" entering disputed waters. A peaceful solution with bilateral talks and international law under auspices of United Nations Convention on Law of Sea (UNCLOS) would help to ensure maritime peace and cooperation in management of fisheries resources, search and rescue.

7.3. India's Naval Modernization

The modernization of the Indian Navy is one of the most important strategic advances in Indian Ocean region. It is being modernized, which contains Aircraft carriers. Nuclear-powered ballistic missile submarines (SSBNs), Nuclear-powered attack submarines (SSNs), Advanced destroyers and frigates, maritime reconnaissance aircraft. Anti-ship missiles and Integrated maritime surveillance systems. India has also invested in field of maritime domain awareness, satellite technology and anti-submarine warfare. For Pakistan, the developments call for continued investment in Maritime surveillance, anti-submarine capabilities, coastal defence, naval aviation, modern surface combatants and Submarine deterrence.

7.4. The Indo Pacific Strategy & Strategic Competition

India's Indo- pacific concept has greatly contributed to strategic environment of Indian Ocean. Indo Pacific concept focuses on following principles: freedom of navigation, secure sea-lanes, Rules-based maritime order and regional partnerships. It has helped to promote greater cooperation in sea domain between a group of regional and extra-regional actors. The strategic implications for Pakistan are a greater presence of Pakistani naval vessels in Indian Ocean, growing geopolitical rivalry, enhanced strategic value of the Arabian Sea and new opportunities and challenges in the context of regional connectivity initiatives including CPEC. Pakistan wants to have a balanced approach with the big powers and also wishes to ensure the regional peace and freedom of navigation as per international law.

7.5. Maritime Terrorism

Maritime terrorism is one of the biggest non-traditional threats to Pakistan's maritime security. Commercial ports, naval installations, Merchant vessels, Offshore energy infrastructure, Coastal industrial facilities, and any Passenger terminals are all possibilities. The Mumbai attacks of 2008, where terrorists infiltrated through maritime route and hit Indian coast, further emphasized impact of coastal attack and need for coastal surveillance and maritime intelligence. Pakistan has enhanced radar coverage and Maritime agencies exercises at coast and improved coordination of intelligence among maritime agencies. However, need for ongoing investment in Maritime Domain Awareness and Maritime Inter-agency Coordination is a constant challenge, given the changing tactics of those who wish to wreak havoc on the effective functioning of maritime and aquatic systems.

7.6. Piracy and Armed Robbery at Sea

While piracy has generally decreased in waters off Somalia since arrival of multinational navies to region, other waters in western Indian Ocean and Gulf of Aden continue to be a danger and require vigilance. Piracy poses risks including threats to merchant shipping, Increased insurance premiums, disruption of trade routes and Risks to seafarers. Pakistan has

actively participated in anti-piracy initiatives at international level including by naval deployment and engagements in multi-national maritime security efforts. The operations have helped Pakistan Navy to gain more experience and developed good cooperation with other nations.

7.7. Narcotics Trafficking and Human Smuggling

The Arabian Sea is also used to transport transnational organized crime (noc) and human smuggling. Maritime routes are used by drug trafficking networks to smuggle drugs throughout the region. These activities included organization of criminal groups, undermining governance, threatening regional security and generation of illicit financial flows, all of which were organized by these activities led by Finance. Maritime Security operations conducted by Pakistan Navy and Pakistan Maritime Security Agency (PMSA) have been successful, with seizure of large amounts of narcotics, sometimes in collaboration with international partners. Maritime smuggling is also used by organised crime groups to smuggle migrants. Enhanced Maritime law enforcement and international cooperation is needed to address maritime law enforcement challenges and humanitarian concerns caused by human smuggling endangering lives.

7.8. Illegal, Unreported and Unregulated (IUU) Fishing

Fishing is one of significant challenges for Pakistan's marine economy. It has implications such as Fish Stocks Depletion, Loss of Government Revenue, Economic problems for local fishing communities, Damage to marine biodiversity and Food security concerns. Effective fisheries management, regional information sharing, Satellite monitoring and Modern patrol vessels are needed to combat IUU fishing.

7.9. Climate Change and Environmental Security

Climate change is now a key maritime security issue. Sea Level Rise, Coastal erosion, Saltwater intrusion, Cyclones and storm surges and Marine ecosystem degradation are all escalating threats for Pakistan's coastline. These impacts pose a threat to Coastal communities, Port infrastructure, Fisheries, Tourism and Economic development. Environmental stresses are exacerbated by marine pollution, including plastics, oil spills and untreated industrial effluent. Enhancing coastal resiliency and mainstreaming climate adaptation into maritime planning are thus crucial aspects of Pakistan's long-term maritime strategy.

7.10. Security for Maritime Infrastructure

Ports, shipping, customs and logistics products are more efficient due to digital transformation. But it has simultaneously made them more susceptible to cyber attacks. Potential targets are Port management systems, Cargo handling systems, Vessel traffic management (VTM), Shipping company networks and Navigation and communication systems. If the cyberattack is successful, its disruption of trade, delay of cargo and impact on critical national infrastructure could have negative consequences. Pakistan has to improve Cybersecurity for the ports, Incident response, Staff training, Public-private partnership and Information sharing.

7.11. Great Power Competition in Indian Ocean

Today, major powers are making this Indian Ocean a key strategic battleground. The key dynamics are naval deployments, Infrastructure investments, Strategic partnerships and Competition for ports and sea lines of communication. This scenario gives opportunities and challenges for Pakistan. Improved connectivity can contribute to economic development but improved competition can also lead to greater potential for regional tensions and lead to a greater focus on the need to balance foreign relations and to safeguard national maritime interests. Apart from external challenges, limited maritime research and innovation, need for

increased investment in maritime education and training, and coordination among maritime institutions, resource constraints impacting surveillance and enforcement and requirement for expanding maritime domain awareness through advanced technologies are some of the challenges facing Pakistan. Solving these challenges will boost Pakistan's capacity to effectively counter both conventional and unconventional threats from the seas.

8. Maritime Strategy of Pakistan and role of International and regional organizations

Over the years, Pakistan has made significant strides in its maritime strategy, adapting to the dynamic geopolitical landscape, technological advancements, and traditional and non-traditional maritime threats. In the past, Pakistan's security policy had been more or less continental with emphasis on land-based threats. The world's maritime trade has been on the rise, however, the strategic significance of the Gwadar Port and the China Pakistan Economic Corridor (CPEC) and the competition in the Indian Ocean have put the maritime domain at the core of Pakistan's national security and foreign policy. Modern day naval strategy is no longer limited to the naval arena. It includes protection of maritime trade and the flow of goods, protecting offshore resources, protecting critical infrastructure, protecting the Blue Economy, environmental sustainability and maritime cooperation in the region. As Geoffrey Till (2018) says, "Securing and stabilizing maritime conditions is not just about winning maritime wars, but about creating maritime conditions conducive to maritime success, prosperity and security." This necessitates a holistic strategy that involves naval readiness, maritime diplomacy, legal frameworks, and international collaboration efforts in Pakistan.

8.1. Pakistan's Maritime Strategy

The maritime strategy aims at protecting national sovereignty, assuring the security of sea lines of communication (SLOCs), securing the maritime infrastructure, and securing the regional stability. The strategy is a blend of military and non-military instruments for tackling a broad range of maritime issues. Amongst its main goals are Defending the Exclusive Economic Zone (EEZ) and territorial waters, ensuring maritime security of Karachi Port, Port Qasim and Gwadar Port, protecting maritime energy supplies and maritime commerce, countering maritime terrorism, Transnational organized crime and piracy, enhancing maritime domain awareness and strengthening regional and international maritime cooperation. The strategic perspective of Pakistan is such that the economic and national security discourse is converging in the maritime domain.

8.2. Pakistan Navy as fundamental pillar of country's maritime security

Pakistan Navy is a key component of Pakistan's maritime security. Pakistan Navy is main body that safeguards Pakistan's maritime interests. Its primary duties include Coastal and offshore defence, protection of commercial shipping, maritime surveillance and reconnaissance, anti-submarine warfare, mine countermeasure operations, maritime interdiction, Humanitarian assistance and disaster relief (HADR), Search and rescue (SAR) and Participation in multinational maritime security operations. The Pakistan Navy has been engaged in a comprehensive modernization program to enhance its operational capabilities and maritime deterrence for the past two decades. The areas of modernization that are key are acquisition of modern frigates, Expansion and modernization of the submarine fleet, improvement of maritime patrol aircraft, integration of unmanned aerial systems (UAS) for surveillance, improvement of coastal radar and maritime domain awareness systems and development of network-centric operational capabilities. The programs are designed to enhance capacity of Pakistan to safeguard its maritime rights and help maintain regional maritime security.

8.3. Maritime Domain Awareness (MDA)

Maritime Domain Awareness (MDA) is defined as ability to inform and understand all aspects of maritime environment that may impact national security, safety, economic and environmental interests. The successful MDA system consists of coastal radar stations, Satellite imagery, Automatic Identification Systems (AIS), maritime patrol aircraft, intelligence sharing and Vessel Traffic Management Systems (VTMS). In Pakistan, improved MDA is vital for Monitoring of maritime traffic, detecting illegal fishing, Countering narcotics trafficking. Anti-maritime terrorism, defence of offshore infrastructure, search and rescue. Advancement of surveillance technology and inter agency coordination is thus a strategic priority.

8.4. Pakistan Maritime Security Agency (PMSA)

Pakistan Maritime Security Agency (PMSA) is an important body in enforcement of Maritime security in Pakistan's maritime zones. It has various functions such as Protection of fisheries, enforcement of maritime laws, prevention of smuggling, countering illegal, unreported and unregulated (IUU) fishing. Environmental monitoring, search and rescue operations and help to fishermen and Protection of offshore installations. PMSA is in addition to Pakistan Navy and concentrates on peacetime maritime law enforcement and governance. Diplomacy on sea is a crucial tool of Pakistan's foreign policy. Through naval engagement, goodwill visits, joint exercises and participation in international forums, Pakistan seeks to build confidence among regional states, promote freedom of navigation, enhance interoperability with partner navies, strengthen maritime cooperation and improve regional stability. Naval diplomacy also enhances Pakistan's international image as a responsible maritime stakeholder. One of the greatest achievements of Pakistan in the field of maritime cooperation in the region is AMAN, which is a multinational naval exercise. The purpose of the exercise is to Promote regional maritime security, improve interoperability between the navies of the participating countries, strengthen counter-piracy cooperation, enhance counter-terrorism capability, build confidence between maritime partners, Encourage information sharing. The involvement of many countries reflects Pakistan's commitment to cooperate in the field of maritime security and confidence building.

8.5. International & Regional Maritime Organization's role

International Maritime Organization (IMO) is the specialized agency of United Nations for maritime safety, security and environmental protection. Pakistan is cooperating with IMO in implementation of international standards on various aspects of maritime safety, Ship security, Port security, marine pollution prevention and Seafarer training, search and rescue and Maritime environmental protection. Adopting IMO conventions enhances maritime governance of Pakistan and enables trade with other nations. The Indian Ocean Rim Association (IORA) fosters cooperation and cooperation between Indian Ocean states. It has established initiatives on maritime safety and security, trade facilitation, fisheries management, Disaster risk reduction, Development of Blue Economy and Academic and scientific cooperation. While Pakistan does not have membership of IORA, Organization's agenda shows its increasing recognition of need to take cooperative action for good governance in waters of Indian Ocean. More participation in regional forums can help in long term interests of Pakistan. Combined Maritime Forces (CMF) is a maritime alliance composed of nations from different countries, with a headquarters in Bahrain. It aims at Counter-piracy operations, counter-terrorism, maritime interdiction, combating narcotics trafficking, ensuring maritime security and protecting international shipping. Pakistan has also been involved in CMF activities, a testament to its dedication to global maritime security and cooperation. The Indian Ocean Naval Symposium (IONS) is a gathering of navies of Indian Ocean states. It aims to improve confidence building, professional exchanges, maritime

cooperation, Humanitarian assistance, Disaster response, search and rescue and maritime security dialogue. Such forums help to improve communication among regional navies and help ease tensions.

8.6. Join the United Nations and Maritime Governance

United Nations Convention on Law of the Sea (UNCLOS) is main legislation governing maritime affairs by United Nations. The advantages of UNCLOS for Pakistan are: Protection of sovereign rights over Pakistan's EEZ, Regulation of maritime boundaries, peaceful resolution of disputes, Sustainable utilization of resources and Freedom of navigation. Pakistan is also involved in collaboration with different UN agencies on maritime crime prevention, environmental protection and sustainable development. Cooperation in the region is still vital as many maritime threats are transnational. Armed with insights gained from the operational experience, they are working to strengthen collaboration in the following areas: Intelligence sharing, Counter-piracy operations, Maritime search and rescue, Marine pollution response, Fisheries management, Humanitarian assistance and disaster relief and Capacity-building and training. Better cooperation with the Gulf nations, China, Türkiye, ASEAN nations and the African littoral states can help to build a more secure maritime environment.

9.1 Policy Recommendations

Pakistan's maritime security landscape is a result of geopolitical competition, development of naval power, transnational maritime crime, environmental risks and growing strategic significance of Indian Ocean. Given multi-dimensional challenges, Pakistan needs a holistic maritime strategy for Pakistan, incorporating military preparedness, economic growth, maritime governance, technological advancements and international cooperation. The following policy recommendations are suggested.

9.1.1 Develop a National Maritime Security Strategy

A National Maritime Security Strategy (NMSS) should be formulated and periodically revised that would include the contributions of all maritime stakeholders. This should set national priorities, institutional responsibilities and how they coordinate with each other with the Pakistan Navy, Pakistan Maritime Security Agency (PMSA), Ministry of Maritime Affairs, Ministry of Foreign Affairs, intelligence agencies, port authorities and provincial governments. The strategy should also tackle traditional and non-traditional security threats such as maritime terrorism, maritime piracy, cyber threats, environmental degradation and climate change as well as sustainable economic growth through sustainable development of 'blue economy'.

9.1.2. Modernize Naval Capabilities

In changing maritime security scenario in Indian Ocean, Pakistan should continue to upgrade Pakistan Navy by deploying Advanced frigate and corvettes, Endurance and Stealth conventional submarines, maritime patrol aircraft, long range surveillance drones, coastal missile defence systems, integrated command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR), anti-submarine warfare assets and Mine countermeasure vessels. A balanced fleet with sea denial, maritime surveillance and protection of critical infrastructure will enhance deterrence and flexibility of operations.

9.1.3 Develop and enhance Maritime Domain Awareness (MDA)

To keep a track on activities in Pakistan's maritime zones, an integrated Maritime Domain Awareness system is needed. Pakistan needs to increase coverage of coastal radar network, connect satellite imagery with maritime radar network, strengthen Automatic Identification System (AIS) monitoring, use unmanned aerial systems (UAS) for persistent surveillance and develop a common maritime information fusion centre among the maritime agencies.

Enhanced MDA will deliver better early-warning, law enforcement, and operational response in support of maritime threats.

9.1.4 Enhance Maritime Cybersecurity

As ports, logistics and shipping become more and more digital, strong cybersecurity is essential. Create a National Maritime Cybersecurity Framework, conduct cyber risk assessments on a regular basis, protect port management systems and critical infrastructure from cyber threats, train maritime workforce on how to respond to cyber incidents, and ensure public-private partnerships for cyber defence.

9.1.5: Support the development of Blue Economy

The Blue Economy should be a crucial component of Pakistan's long-term economic policy. Sustainable fisheries and aquaculture, offshore renewable energy, Coastal tourism, maritime logistics, shipbuilding and repair, marine biotechnology and Oceanographic research are considered priority sectors. Investment in these sectors can create jobs, diversify exports, and strengthen economic resilience and sustainability of marine resources.

9.1.6 Enhance Port Facility and Connectivity

For maximum strategic utility of Karachi Port, Port Qasim and Gwadar Port, Pakistan should upgrade cargo handling infrastructure, enhance customs and digital logistic systems to enhance hinterland road and rail connectivity and establish multimodal transport systems. Pakistan needs to further improve physical and cyber security of ports and encourage environmentally sustainable port operations. The trade, investment and regional connectivity will be facilitated by efficient port infrastructure.

9.1.7. To enhance Maritime Law Enforcement

Pakistan Maritime Security Agency (PMSA) should be provided more resources to fight illegal, unreported and unregulated (IUU) fishing, narcotics trafficking, human smuggling, marine biodiversity protection, incident of marine pollution and search and rescue. Maritime governance will be enhanced through increased patrol capacity, through modern surveillance technologies and special training.

9.1.8. Need of Urgent Action on climate change and environmental security

Climate change is an emerging maritime security threat. Pakistan should build climate resilient coastal infrastructure and improve marine pollution control mechanisms. Pakistan must also rehabilitate mangroves, enhance management of coastal zones, promote sustainable fisheries and integrate adaptation planning for climate change into maritime planning process. Conservation of marine ecosystems will help to ensure food security, disaster resilience and economic sustainability.

9.1.9. Expand Maritime Diplomacy

Pakistan should boost its maritime diplomacy by engaging in multinational maritime exercises, confidence building measures with regional countries, bilateral and multilateral maritime agreements, joint search and rescue exercises, academic and scientific cooperation, information sharing mechanisms. Measures in maritime diplomacy can help to defuse a situation, foster trust and promote mutually beneficial solutions to common issues.

9.1.10. Support Maritime education and research

Skilled human resources are needed for long-term maritime development. More emphasis should be put on establishing maritime universities and training institutes in country and on research in oceanography and marine science. Policy-oriented study of maritime-related matters and promotion of innovation in field of maritime technology through establishing collaborative network of maritime academic institutions and creating maritime knowledge

base will strengthen evidence-based policy making and technological self-reliance for Pakistan.

10. Conclusion

Indian Ocean is one of the most geopolitically important regions of twenty-first century and main maritime passage for global trade, energy transportation and interaction. Maritime security has grown from a purely military dimension to a holistic security concept that involves defence, economic development, environmental sustainability, legal governance and human security, due to its strategic sea lines of communication, critical maritime chokepoints and increasing economic opportunities. Maritime security is a part of Pakistan's national security and economic development. The country is geopolitically positioned to enjoy a significant regional connectivity, trade and Blue Economy through its long coastline, growing Exclusive Economic Zone (EEZ) and Gwadar Port. Meanwhile, Pakistan is grappling with a host of maritime challenges such as competition with India over waters and maritime boundary, piracy, maritime terrorism, narcotics trafficking, illegal fishing, cyber threats, environmental degradation and general security rivalry between major powers in Indian Ocean. The study highlights key role of a national approach in maritime security, as opposed to a purely military approach. In addition to Pakistan Navy, other institutions such as Pakistan Maritime Security Agency, port authorities, environmental agencies and economic planners need to be made to work together to keep maritime interests of Pakistan safe and secure. A comprehensive approach that includes strong maritime governance, improved maritime domain awareness, technology, sustainable management of marine resources and respect for international maritime law. Cooperation on the international level is also essential. Numerous maritime issues, including trafficking, marine pollution, climate change and piracy, are not confined to borders of any one state and require multi-national solutions. Pakistan's ongoing negotiations with International Maritime Organization (IMO), multi-national maritime projects and confidence building measures in region can help in making of a peaceful and secure Indian Ocean. In future, Pakistan must have a pro-export policy for the sea, and at the same time give due consideration to security concerns. Pakistan's navy modernization efforts, the development of maritime institutions, investments in Blue Economy, cyber security, maritime diplomacy and research and innovation can all help make Pakistan's maritime domain a sustainable source of national strength. Overall, sustainability of Pakistan's maritime security will rely on integration of strategic foresight, institutional coordination, technological advancements, and regional cooperation. This would not only help Pakistan to protect its sovereignty and maritime interests but would also help Pakistan to positively contribute to the peace, stability and prosperity of the Indian Ocean Region at large.

References

- Abbas, S. Q. (2022). Maritime power play in the Indian Ocean and challenges for Pakistan Navy. *Journal of Research in Social Sciences*, 11(1).
- Abid, A. &. (2024). Geopolitics of maritime security in the Indian Ocean: The strategic partnership between China and Pakistan. *Annals of Human and Social Sciences*, 5(3).
- Brewster, D. (2010). *An Indian Ocean dilemma: Sino-Indian rivalry and regional security*. Routledge.
- Bueger, C. &. (2017). Beyond seablindness: A new agenda for maritime security studies. *International Affairs*, 93(6), 1293–1311. , 1293-1311.
- Bueger, C. (2015). *What is maritime security?* 159-164: Marine Policy, 53,.
- Bueger, C. (2015). *What is maritime security?* Marine Policy, 53, 159-164.

- Caprolu, M. D. (2020). Vessel's cybersecurity: Issues, challenges, and the road ahead. *IEEE Communications Magazine*, 58(6), 90-96.
- Corbett, J. S. (1911). *Some Principles of Maritime Strategy*. Longmans, Green and Co.
- Hashim, S. A. (2025). Non-traditional maritime threats in the Indian Ocean region: A rising challenge for Pakistan's national security. Hashim, S., Ali, Z., Rasheed, N., & Ahmed, R. G. (2025). *Non-traditional maritime threats in tReview Journal of Social Psychology & Social Works*, 3(2), 1352-1366.
- Imran, M. R. (2025). Gwadar Port as an emerging hub in New Great Game: Opportunities and challenges for Pakistan. *Global Foreign Policies Review*, 8(1), 35-45.
- Kaplan, R. D. (2010). *Monsoon: The Indian Ocean and the Future of American Power*. Random House. Random House.
- Kaplan, R. D. (2020). *Monsoon: The Indian Ocean and the battle for supremacy in the 21st century*. Random House.
- Khan, A. M. (2025). Blue economy—Prospects & challenges for Pakistan. *Journal of Nautical Eye and Strategic Studies*. 5(1), 15–27.
- Mahan, A. T. (1890). *The influence of sea power upon history, 1660–1783*. Little, Brown and Company.
- Medcalf, R. (2020). *Indo-Pacific empire: China, America and the contest for the world's pivotal region*. Manchester University Press.
- Nations., U. N. (1982). *United Nations Convention on the Law of the Sea*. United Nations.
- Syed, R. &. (2022). Revisiting blue economy: Challenges and prospects for the maritime sector of Pakistan. *Journal of Contemporary Studies*, 10(2), 16–37., 16-37.
- Till, G. (2018). *Seapower: A Guide for the Twenty-First Century (4th ed.)*. Routledge.