INDIAN OCEAN: SALIENCE, OPPORTUNITIES AND OBSTACLES TO INDIA'S ECONOMIC & STRATEGIC INTERESTS

Dr. D. Chandramouli Reddy

Assistant Professor, Department of Political Science & Public Administration, Sri Krishnadevaraya University, Anantapuramu, Andhra Pradesh.

Abstract

India is in a position where it has no choice but to strengthen its security installations inside the Indian Ocean maritime zone since the security matrix of this zone is becoming more complicated and the strategic scenarios are becoming more perilous. To strengthen its position in the region surrounding the Indian Ocean, India has prioritized increasing the scope of its military presence in the Malacca Straits and across the rest of the region. Before this point, India's military activities and humanitarian efforts were restricted to the immediate surrounding region. The Indian Ocean will continue to be an important maritime zone since this area is responsible for 75 percent of the world's marine traffic and 50 percent of the world's oil imports. As a direct consequence, all the "major powers," whether based "inside or outside the region," are putting up the maximum amount of effort possible to secure a strong presence within the region. As a direct result, India has no valid reason to progress even further in the wrong direction.

Keywords: Geo-political, India, Indian Ocean, Maritime zone, Security.

"Whoever controls the Indian Ocean will dominate Asia. This Ocean will be key to the seven seas in the 21st century. The destiny of the world will be decided on its waters".

-----By Alfred Thayer Mahan (1897), An Admiral in the US navy

Introduction

The maritime domain has been essential in shaping regional dynamics throughout history by helping to create complete security architecture. The Indian Ocean has historically served as one of the most important maritime lanes for communications and is gradually developing into a region of geo-political significance. The Ocean has seen the birth of new regional powers vying for impact and desiring exposure to the huge natural riches of the region, which are essential to their economic growth and development. These new powers might be seen as competitors for influence. Energy security is, without a doubt, of the utmost importance to these countries' conflicting interests. This has led to increased intra-regional and extra-regional trade and investments, contributing to this region's exponential growth. The topography of the Indian Ocean is such that the choking points on all sides constrain the route from its captivity. Yet, the reliance on energy reserves sets a great global stake on those who are outside of "the territory of the Indian Ocean." In addition to causing an imbalance, the region's economic interests continually burden the available resources, bringing the regional security issue into question. [1]

In the future decades, the essential to the safety and prosperity of the most populated section of the planet will be to address these difficulties and manage the numerous inconsistencies in the economic and political forms of the regions surrounding "the Indian Ocean." "This region is vulnerable to a wide range of non-traditional security risks and economic and political dangers it faces. Over 2.5 billion people live in the countries that border the Indian Ocean, approximately one-third of the planet's total population." This region will gain tremendously due to its demographic dividends; nevertheless, it is unavoidable that there will be stark differences in the standards of life and extremes of per capita income. ^[2] The reasons for these differences stem from a composite of historical and modern factors.



Some of the problems the marine region has been experiencing include operations on the high seas, overfishing, piracy, drug trafficking, and the trafficking of narcotics. In the Indian Ocean, it is clear to see how the strategic interests of regional governments and the economic interdependence of those states with states from further afield are intertwined. It has turned the maritime region into a geostrategic theatre on the front lines and the unavoidable lifeline of the global economy. The Indian Ocean Region has witnessed a tremendous transformation in both the economic and strategic levels over the past few decades, which has led to the rise of a new major power that is analyzing the immense capacity to impact world activities with the increasing economy and its security preparations. The geography of the Indian Ocean is quite complicated since it contains many islands, an archipelago, and several tight straits. In these areas, oil tankers must navigate congested traffic while passing one another. Therefore, secure and accessible choke points are of the utmost importance to international trade and Security, and they are located across the Ocean. It should be no surprise that nations today are working toward being present and, more crucially, maintaining their representation throughout these choke spots. A military presence near these chokepoints allows for better surveillance of anyone or anything that uses them. Because of this, we have an opportunity over other countries in terms of our access to energy, communications, and commerce. For more than three decades, the United States has directed its attention and efforts elsewhere.^[3]

There were two major powers in "the Indian Ocean, and India emerged as the more dominant one," while France guarded the waters in the western and southwestern parts of the Ocean. But this dynamic is shifting today because, in 2017, China established its first overseas military installation in Djibouti, located in the Horn of Africa. "Through its diplomatic mission, China is also steadily working to improve its connections and engagement with the six island states in the Indian Ocean region. These nations include Comoros, Madagascar, Maldives, Mauritius, and Seychelles. Sri Lanka is also one of these nations." Russia in 2020 has made public its intention to establish a new base in Sudan, which it has purchased for a term of twenty-five years and which will provide Russia with accessibility to the red sea. Saudi Arabia and Turkey are working to develop their ties with the island states in the Indian Ocean, particularly those around the coast of Africa. [4]

Consequently, India would want to keep track of these events to adapt to the shifting dynamics of the Indian Ocean. However, for India to have a cohesive strategy or even a vision for this fragile zone, it must abandon its traditional methods of thinking about the Indian Ocean from the geographical perspective and instead regard it as an ocean of opportunity. To achieve this goal, India could adopt a new perspective by viewing the entire Indian Ocean as a single, continuous theatre. This would allow India to first comprehend the new trends and interrelations in the Indian Ocean and then resolve the latest evolving hazard and obstacles that are present in "the Indian Ocean." In this study, the author examines India's role, priorities, stakes, and difficulties in "the Indian Ocean region to investigate India's approach to the region of the Indian Ocean. The first part of the paper focuses on India's significance in the Indian Ocean and the many opportunities presented to India due to its location in this region. As a result, India's leadership role in the area has been analyzed to formulate a plan for the country's long-term Security." The region around the Indian Ocean has become more militarized due to China's rise. Considering India's political considerations and strategic objectives, this is unquestionably a huge source of worry. In addition, the paper outlines India's approach to the new threat landscape created due to China's expanding influence. India is aware of the potential that may be unlocked via collaborative efforts to overcome these difficulties and achieve common objectives. "In addition to this, the article focuses on recent developments and conversations that have taken place between India and the island states located in the Indian Ocean region."^[5]



The Importance of the Indian Ocean to India

India has always placed a high priority on the region surrounding the Indian Ocean. Nevertheless, for a limited time, India could not comprehend its value. As a result, the region surrounding the Indian Ocean was largely disregarded as an important concern for the first few years after India gained its independence. Following the election of a new government in India in 2014, the country's goals in the vicinity of the Indian Ocean have started to take form. ^[6] India has realized the significance of this region, and China's growing influence in the area has also catalyzed for India to reflect on and take the initiative regarding the region. The region surrounding the Indian Ocean is important for several reasons, including the following:

- As a massive reservoir of untapped resources;
- As a significant means of conducting business;
- As a foundation for long-term resource availability;
- As a territory that is protected from intensified military competition but plagued by a high frequency of catastrophic natural calamities.

Therefore, to accomplish these goals, India has been increasing the amount of money invested, increasing the level of openness, and establishing confidence across the island states. India has also been working to strengthen its military ties with the countries that are located on the surrounding islands. As a result, India is working hard to strengthen its command and control of the region in the light of its increasing strategic problems.^[7]

India's Importance in the Region Surrounding the Indian Ocean

India places a high value on "the Indian Ocean" for a number of factors. India is situated in the geographic middle of the Ocean and has a coastline that extends for more than 7,500 kilometers. Given that India is the most populated nation in the area its leadership position is of the utmost significance in shaping the direction the region's strategic agenda will take. The fact that it is the only Ocean in the world to be named after a country illustrates the significance that India attaches to its name sake body of water. There are even those in other parts of the world who have begun to refer to it as India's Ocean. This was the nature of India's involvement in the region. [8]

On the other hand when a new administration took office in India in 2014, the region surrounding "the Indian Ocean became the primary focus of India's calculations for its foreign policy. Consolidating India's maritime domain policy in the Indian Ocean has been facilitated by frequent trips made by Prime Minister Narendra Modi and leaders of India's armed services to countries that sit astride in this maritime zone." In 2015, Indian Prime Minister Narendra Modi made substantial trips to the countries of Seychelles, Mauritius, and Sri Lanka, all of which are located in the Indian Ocean. This was a clear signal to the nations in this area and to China and other major world powers that India is ready to consciously release its obligations in the maritime zone to make it a more gradual and peaceful region. China and other major powers of the world also received this message. The Ocean has played a significant role in establishing India's cultural footprints, with people, religious goods, and customs spreading from India to Africa, the Middle East, South Asia, and vice versa. The Ocean has also played a role in establishing India's cultural footprints. Consequently, the Indian Ocean has developed into a significant conduit for conducting trade and commerce and energy needs. [9] Each of the world's most powerful nations, including "the United States, France, the United Kingdom, India, and China," established a firm foothold in the waters of the Indian Ocean.



"The Following Factors Explain the Growing Strategic Significance of the Indian Ocean

The first important aspect to consider is the commerce in this marine area, as this is where the significance lies. Additionally, India's economy is growing at the quickest rate of any nation on the planet, and the global world trade order is essential to India's commercial success. The Indian Ocean has emerged as a significant maritime gateway, and safeguarding critical international shipping channels has gained a position of preeminent significance for India's commercial endeavors. Maritime transport accounts for "around 95 percent of India's trade volume and 68 percent in value." The maritime trade continues to be unrivaled as the most effective mode of transportation, and this trend is expected to continue. The Indian Ocean is responsible for transporting approximately one-third of all bulk cargo traffic, one-third of all container traffic, and two-thirds of all oil shipments. India and China rely on the Straits of Malacca and the Straits of Hormuz to ship a significant amount of oil. "These two straits are located in the Indian Ocean and are considered to be of the utmost significance. The Gulf of Oman, the Arabian Sea, and the Persian Gulf are all connected by a body of water known as the Strait of Hormuz, situated between Oman and Iran. Because of the massive amounts of oil that pass through the Strait of Hormuz daily, it is considered the most important oil choke point on the entire planet. Every day, around 18 million barrels of oil are transported through the Strait, which accounts for one-third of the world's total oil commerce." [10]

Additionally, the Strait serves as a transportation route for "one-third of the world's total LNG commerce. The Strait is extremely important for India when importing oil and liquefied natural gas (LNG)." Imports across the Strait of Hormuz supply India with two-thirds of its oil and fifty percent of its natural gas liquids (LNG) requirements. Because of this, the strategic importance of preserving the freedom to go across this Strait is made abundantly obvious by the evidence presented here.^[11]

The state of fisheries is the second important factor contributing to increased strategic concerns. "The Indian Ocean is home to some of the most significant fisheries in the world, accounting for more than 14 percent of the total amount of fish taken in the wild worldwide." Nearly 20 percent of the world's demand for tuna is satisfied by fisheries in the Indian Ocean, which have a combined value of more than USD 6.5 billion per year. India is a long way behind China when using the Ocean's marine resources; although China's illegal and uncontrolled fishing in the Indian Ocean is increasing. India is the world's third-greatest fish-producing country, contributing 7.96 percent of worldwide production. However, regarding fish produced by aquaculture, India is only surpassed in this category by China. It was projected that 14.73 million metric tonnes of fish would be harvested worldwide for the entire year of 2020-21. [12]

Regarding the sector of the world economy that deals with fishing, China holds an unrivaled position. China invested nearly US\$ 6 billion in this area in 2018, and investment levels have steadily risen since that year. Fishing and other aquaculture activities support the livelihoods of a significant portion of India's people. In contrast to China, India has not successfully expanded its capabilities to combat China's illegal fishing in the region.

The ocean floor is home to a tremendous amount of mineral resources, which is the third significant reason for developing strategic concerns. The Indian Ocean contains enormous quantities of untapped mineral riches. The region surrounding the Indian Ocean is home to two important mineral resources: polymetallic nodules and massive polymetallic sulfides. Both of these resources are found in vast quantities. "Polymetallic nodules are nodules that range in size from golf balls to tennis balls and contain nickel; manganese, cobalt, and iron. Copper, iron, zinc, sulfur, and gold are the elements that

IJBARR

can be found in massive polymetallic sulfides. India was granted special rights to explore the Central Indian Ocean in 1987, and since then, it has mapped over four million square miles of this region and constructed two mining sites. The Ministry of Earth Sciences initiative on the "Deep Ocean Mission" to discover the deep Ocean for resources and establish sea technologies for the sustainable use of ocean resources was endorsed by the Cabinet Committee on Economic Affairs of the Government of India in 2021." [13] Oceans cover over 70 percent of the earth's surface, while approximately 95 percent of the world's ocean depths have not been explored. The resolution to allow deep-sea mining would promote growth in Marine Biology and provide more job prospects in India. "India has a distinctive maritime position in the Indian Ocean," and this decision will allow the country to use this position. An initial inquiry implies that 380 million metric tonnes (MMT) of polymetallic nodules consisting of copper, nickel, cobalt, and manganese are available "for exploration in the Central Indian Ocean Basin." This information was provided in a public report by the Ministry of Earth Sciences. The Central Indian Ocean Basin is an area that has been allocated 75,000 kilometers. The value of these metals is approximately 110 billion US dollars. India has been interested in the polymetallic nodules in the Indian Ocean because these mineral resources can be utilized in various electronic devices, including smartphones, batteries, and even solar panels.

Fourthly, the Indian Ocean region is significant because petroleum is one of the major sources of nonrenewable energy there. In "the Arabian sea and the Bay of Bengal," two bodies of water that are thought to contain significant petroleum and natural gas reserves, offshore petroleum and natural gas explorations have gotten underway. Only India and the countries in the Persian Gulf can extract substantial quantities of oil from offshore regions. A significant proportion of India's output comes from the field located off the coast of Mumbai. India has successfully established a separate field outside of Mumbai, even though it has special rights to harvest oil for commercial purposes. India is forced to rely on imports to satisfy 85 percent of its demand for oil and 50 percent of its demand for natural gas. This is because the capability of our local production is insufficient. [14] With an eye on satisfying the nation's ever-increasing need for oil and natural gas, India's Government is preparing to establish an oil and gas exploration company. Installation is located in the Andaman Sea's deeper waters. At a time when the prices of oil and gas are at an all-time high, the Government has announced that it intends to fund a drilling campaign that ONGC will head to increase native production of oil and gas and reduce imports.

"The Indian Government takes initiatives in the Indian Ocean's Maritime Zone:"

India's top concern continues to be the continued involvement of "China in the area surrounding the Indian Ocean. Through its Belt and Road Initiative, China has been steadily establishing its presence in the countries located around the Indian Ocean, in Africa, and on other island continents (BRI)." Additionally, China is investing significantly in various infrastructure projects in this region. The purpose of these investments is to bring the economy of the countries and islands in the region, particularly the smaller ones, to a state of economic instability, allowing China to carry out many projects unimpeded. The most current example of China's role in the economic collapse of a country is Sri Lanka, which serves as an important cautionary tale. Because of safety concerns, India has voiced opposition to China's motive on several platforms. [15] These activities by China not only pose a threat to the Security of India, but they also pose a threat to the smaller islands located in the vicinity. In this light, India has made significant strides toward being a provider of network security in the area, which may be broken down into the following categories:



The SAGAR program in its entirety

The Indian Government's "Security and Growth for All in the Region" plan aims to protect the maritime concerns of India's mainland and its islands. It does its best to foster collaboration amongst the various state actors and works toward achieving peace and prosperity. It is a point of convergence for maritime cooperation, naval Security, and economic growth. It also highlights the significance of "Coast Guard Agencies" of littoral governments as an important component in the fight against acts of piracy committed by non-state actors. The SAGAR strategy is implemented through regional organizations such as BIMSTEC, ASEAN, and IORA and is considered an essential component of the Neighborhood First Policy (Indian Ocean Rim Association).

Communications and Monitoring Systems for Coastal Areas

The 26/11 attack on Mumbai brought to light the appalling lack of coastal surveillance conducted by the Indian Government and its naval forces. As a direct result of the incident, India has made major improvements to the level of Security and surveillance around its coastline. As part of its strategy to improve its military diplomacy through security deals with friendly countries in the region, India has been installing a coastline surveillance radar system in the surrounding area. This is being done as part of the program. These attempts are being taken to compete with the impact and presence that China has in the region of "the Indian Ocean. Sri Lanka, Mauritius, and Seychelles" are the three locations where radars designed for maritime monitoring have already been placed. In addition to that, these configurations will be installed in the Maldives, Myanmar, and Bangladesh. The Coastal Surveillance system can monitor unlawful or suspicious activities and detect small boats and ships used for fishing. It is also capable of detecting fishing vessels ships. The goal of SAGAR, which was described above, includes the installation of various systems. [16]

Relationships Concerning Defense and Security:

"The coastal states of the Indian Ocean Region have defense and security relationships that are amicable and cooperative with India. The Indian Ocean is home to three of the seven chokepoints associated with oil transit." A few bottlenecks connect these pinch spots. Any disturbance to these bottlenecks will cause a traffic jam in the shipping industry, and any other route will be more time-consuming and costly than this one. A robust naval presence is required to navigate these bottlenecks without incident.

Additionally, the presence of a navy makes a nation's military forces more effective and assists in carrying out surveillance operations. As a result, many countries along the coasts of Africa, "the Middle East and South Asia will look to any government that maintains a significant naval presence in the Indian Ocean Region as a loyal and helpful ally." India holds the greater hand in this situation and has made it a priority throughout its history to work toward the preservation of peace and stability in the area. In addition to protecting against non-traditional and traditional security threats, the robust naval presence in the region is also intended to deter traditional security threats. In this region, there has been an uptick in maritime terrorism, smuggling, illegal fishing that goes unreported, and piracy, all of which require immediate action. India's efforts have significantly aided the elimination of these dangers. As a result, India is actively working toward establishing itself as a provider of internet security in the region. [17]

Reactions to Natural Disasters and Humanitarian Crises

India has recently played a significant role in the humanitarian and disaster relief activities going place in the Indian Ocean basin. India has successfully saved its residents from crisis zones and, in the process, has assisted several other countries in successfully evacuating their citizens. 'Samudra Setu'



and 'Mission Sagar' are examples of the Navy's role as a key instrument of India's COVID outreach, offering help and support to India's maritime neighbors and partners in the Indian Ocean region. These two missions are only two of the many examples. The speed with which the Indian Navy responded to the incident highlighted India's ambition of becoming a "Preferred Security Partner" and "First Responder" in the region comprising the Indian Ocean. As a result of the tsunami that occurred in 2004, India has also been providing humanitarian and relief help to Indonesia and Sri Lanka. Additionally, India has assisted "Myanmar, Bangladesh, and Sri Lanka in the aftermath of cyclones Nargis, Sidr, and Ronau." India has been at the frontline of the effort to rescue and support the coastal countries in "the Indian Ocean" region.

"India's Challenges in the Indian Ocean

Due to its geostrategic location, India is a natural and primary factor "in the region encompassing the Indian Ocean." India has the potential to become a significant regional force in the area. With the assistance of the littoral governments, it can initiate free commerce movement throughout the region. It can offer relief as well as help humanitarian efforts in the countries that are located in this region. It maintains a sizable naval presence in the Ocean to counteract the impending dangers. Despite these factors, India needs to reevaluate its strategy for the Indian Ocean to compete with China's influence in the region. China's standing in the region has been bolstered due to its participation in various economic and infrastructure projects. One of India's many concerns over China in the Indian Ocean is China's actions in India's Exclusive Economic Zone (EEZ). India has several other issues "with China in the Indian Ocean (EEZ)." In 2019, a Chinese vessel, the Shi Yan, attempted to enter Indian waters close to "the Andaman and Nicobar Islands." The vessel was accused of conducting an ocean survey within "India's exclusive economic zone (EEZ)." The Indian Navy maintains vigilance in the Indian Ocean region to monitor actions outside the region. Another issue that India took issue with was the presence of Chinese surveillance vessels in the port of Hambantota, which is located in Sri Lanka. The installation of China's aircraft carrier "in the Indian Ocean," which is part of China's attempt to militarize the region, will naturally heighten the rising maritime conflict "between China and India." The development of an additional naval facility in the region will allow China to address some of the geographical disadvantages it faces in addition to Diibouti. [18]

Another issue that causes India concern "in the Indian Ocean" is the issue of unchecked and uncontrolled overfishing. Thirty percent of the region's estimated stocks have already been fished above what is considered to be sustainable limits. "The current legal structure for fisheries in the Indian Ocean suffers from regulatory gaps in the geographical areas and the species they cover, leading to unregulated fishing throughout the region. These regulatory gaps affect the geographical areas and the species they cover." The fact that China has around 17,000 fishing vessels registered indicates the flagrant overexploitation of its fisheries resources. The estimated number for China is thought to be substantially greater than the actual number because China has many ghost ships, which are ships that have not been registered. "China is looking to establish a foothold in the water of the Indian Ocean due to the diminishing resources in the South China Sea and the East China Sea. This may make matters even worse for India."

The sole objective of "China's activities in the Indian Ocean are to lessen India's footprint and scope of influence in the area." In response to China's "Tit for Tat" policy, India implemented their strategy version, following in China's footsteps. If India is going to mount a challenge to China's "Belt and Road Initiative (BRI), it would be wise for them to use the Andaman and Nicobar Islands' strategic location." To compete with China's strategic positioning in Gwadar and Djibouti, India has established its base in



the port of Duqm, which is located in Oman. From this location, India buys crude oil from the Persian Gulf and has a view of the Arabian Sea and the Indian Ocean. Because it is situated in the narrowest part of the Strait of Malacca, Nicobar Island is in a position to impede the flow of trade and oil into China. The development of the Andaman and Nicobar Islands as a trans-shipment hub is also receiving 10,000 crores of investment from India. [19]

Consequently, India has also implemented preventative measures to respond to the presence of the Chinese "in the Indian Ocean." As a result, India continues to face various strategic challenges due to the ever-increasing presence of China in several different ways. Given the warming of relations between "China and the United States" over the past decade, the United States may become more involved in the politics of this maritime region to compete with China. Other great powers may do the same thing. Because of this, the Indian Ocean would become an even more complicated maritime zone, turning it into a "regional flash point" of international affairs. [20]

Analysis and Recommendations

India has no choice but to reinforce its security installations "in the Indian Ocean maritime zone due to the developing complexities in the security matrix of the Indian Ocean maritime zone and the sharpening strategic scenarios in the region." As part of an effort to bolster its position in the region surrounding the Indian Ocean, India has prioritized expanding its military presence. Previously, the country's armed forces were only active in its immediate neighborhood, but now they are active across the entire region, from the Malacca Strait to Africa. "Because this region is responsible for 75 percent of the world's marine trade and 50 percent of the world's oil imports, the Indian Ocean will continue to be a maritime zone of vital importance. As a result, all of the major powers inside and outside the region exert as much effort as possible to establish a firm foothold within the region." As a result, India has no excuse for falling further behind.

India needs to collaborate with other regional countries to maintain its place in the strategic game and provide its neighbors with other connectivity options. Connectivity is going to be the factor that ultimately decides how future foreign policy is calculated. India needs to contact countries such as "Australia, France, Germany, the United States of America, and the United Kingdom" to improve maritime surveillance in the Indian Ocean. This is necessary because geopolitics and geo-economics are moving from the west to the east. India should concentrate its efforts on several industries to foster output and growth geared toward export and strengthen its domestic manufacturing capabilities. For India to involve littoral states in its future policies and regional politics on this marine bed, the country had to emphasize developing its capabilities.

References

- 1. Bowman, L. W., & Clark, I. (2019). *The Indian Ocean in global politics*. Routledge. Available at https://books.google.co.in/books?hl=en&lr=&id=DgaiDwAAQBAJ&oi=fnd&pg=PT7&dq=India%27s+Interests+and+Obstacles+in+the+Indian+Ocean+Region&ots=ePCsecm2cz&sig=d5JBaFklhw7z1BjvmoxYGVjqw8&redir_esc=y#v=onepage&q=India's%20Interests%20and%20Obstacles%20in%20the%20Indian%20Ocean%20Region&f=false.
- 2. Pant, H. V., & Rej, A. (2018). Is India Ready for the Indo-Pacific? *The Washington Quarterly*, 41(2), 47-61.
- 3. Mohan, C. R., & Baruah, D. M. (2018). Deepening the India-France Maritime Partnership. *Carnegie India, February 23*.



- 4. Doyle, T. (2018). The blue economy and the Indian Ocean rim. *Journal of the Indian Ocean Region*, *14*(1), 1-6. Available at https://www.tandfonline.com/doi/full /10.1080/ 19480881 .2018.1421450.
- 5. He, K., & Feng, H. (2020). The institutionalization of the Indo-Pacific: Problems and prospects. *International Affairs*, 96(1), 149-168.
- 6. Fatima, D. Q., & Jamshed, A. (2020). The political and economic significance of Indian Ocean: An analysis. *South Asian Studies*, *30*(2).
- 7. Kumar, P., Kaur, S., Weller, E., & Min, S. K. (2019). Influence of natural climate variability on the extreme ocean surface wave heights over the Indian Ocean. *Journal of Geophysical Research: Oceans*, 124(8), 6176-6199.
- 8. Seth, C. K., & Shriwastav, A. (2018). Contamination of Indian sea salts with microplastics and a potential prevention strategy. *Environmental Science and Pollution Research*, 25(30), 30122-30131.
- 9. Thompson, J. O., Moulin, M., Aslanian, D., De Clarens, P., & Guillocheau, F. (2019). The new starting point for the Indian Ocean: Second phase of breakup for Gondwana. *Earth-Science Reviews*, 191, 26-56. Available at https://www.sciencedirect.com/science/article/abs/pii/S0012825218304409
- 10. Voyer, M., Schofield, C., Azmi, K., Warner, R., McIlgorm, A., & Quirk, G. (2018). Maritime security and the Blue Economy: intersections and interdependencies in the Indian Ocean. *Journal of the Indian Ocean Region*, *14*(1), 28-48.
- 11. Krishnan, R., Sanjay, J., Gnanaseelan, C., Mujumdar, M., Kulkarni, A., & Chakraborty, S. (2020). Assessment of climate change over the Indian region: a report of the ministry of earth sciences (MOES), Government of India (p. 226). Springer Nature.
- 12. Baruah, D. M., & Joshi, Y. (2021). India's policy on Diego Garcia and its quest for Security in the Indian Ocean. *Australian Journal of International Affairs*, 75(1), 36-59.
- 13. Hermes, J. C., Masumoto, Y., Beal, L. M., Roxy, M. K., Vialard, J., Andres, M., ... & Yu, W. (2019). A sustained ocean observing system in the Indian Ocean for climate-related scientific knowledge and societal needs. *Frontiers in Marine Science*, 355.
- 14. Yuan, Z. Y., Zhang, B. L., Raxworthy, C. J., Weisrock, D. W., Hime, P. M., Jin, J. Q., ... & Prendini, E. (2018). Natatanuran frogs used the Indian Plate to step-stone, disperse and radiate across the Indian Ocean. *National Science Review*, 6(1), 10-14.
- 15. Roxy, M. K., Gnanaseelan, C., Parekh, A., Chowdary, J. S., Singh, S., Modi, A., ... & Rajeevan, M. (2020). Indian ocean warming. In *Assessment of climate change over the Indian region* (pp. 191-206). Springer, Singapore. Available at https://link.springer.com/chapter/10.1007/978-981-15-4327-2 10
- 16. Muhammed Naseef, T., & Sanil Kumar, V. (2020). Climatology and trends of the Indian Ocean surface waves based on 39-year-long ERA5 reanalysis data. *International Journal of Climatology*, 40(2), 979-1006.
- 17. Potgieter, T. (2018). Oceans economy, blue economy, and security: notes on the South African potential and developments. *Journal of the Indian Ocean Region*, *14*(1), 49-70.
- 18. Bateman, S., & Bergin, A. (2011). New challenges for maritime Security in the Indian Ocean—an Australian perspective. *Journal of the Indian Ocean Region*, 7(1), 117-125.
- 19. Techera, E. J. (2018). Supporting blue economy agenda: fisheries, food security and climate change in the Indian Ocean. *Journal of the Indian Ocean Region*, *14*(1), 7-27.
- 20. Roy, A. (2019). The blue economy in the Indian Ocean: Governance perspectives for sustainable development in the region. *ORF Occasional Paper*, *181*.