

Addressing the Intersection of Drug Trafficking, Piracy, and Illicit Fishing in the Indian Ocean Region

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Abstract:

The paper focuses at India's marine security requirements in the Indian Ocean Region, with a special focus on the interconnected risks of illegal fishing, piracy, and drug trafficking. It explores the growing importance of the Indian Ocean for international trade as well as the geopolitical context of India's geographic location. The report highlights the increasing sophistication of illicit activity networks while assessing the effects of these transnational crimes on India's economy, ecology, and national security. The paper evaluates India's current counter-narcotics, counter-piracy, and anti-IUU fishing initiatives using a mixed-methods approach that combines quantitative data from marine security reports with qualitative analysis of policy papers and academic literature. It explores how these crimes connect, including which corrupt facilitators and dual-use vessels are involved, and assesses how they affect regional stability. The research highlights the need for improved laws and regulations and cutting-edge technology in its suggestions for improving India's maritime domain awareness, interagency coordination, and regional collaboration. The importance of a comprehensive integrated marine security plan for India's future is highlighted in the final section.

Keywords: Indian Ocean Region, Illegal Fishing, Drug Trafficking, National Security, Marine Security, piracy

Introduction:

India has a deep and long connection with water because it is a country surrounded by the Indian Ocean. India is vast as per the latest data released by the Survey of India (SoI), the new length of India's coastline is 11,098.81 km, including 3,228.30 km of island territories and 7,870.51 km of mainland coastline. India's strategic location within the Indian Ocean Region (IOR), a dynamic

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and more important venue in the geopolitical landscape of the twenty-first century, enhances its inherent maritime nature. India's own prosperity and its ambitions for regional and international influence are closely tied to the stability and security of the IOR, which serves as a vital conduit for international trade and a stage for changing security dynamics. For India, maritime security is more important than just safeguarding its territorial waterways. It includes protecting its Exclusive Economic Zone, an extensive marine area that is 200 nautical miles off its shore. Natural resources such as minerals, fisheries, and hydrocarbons exist in this area and are essential to India's economic development, food security, and energy security. The long-term growth of India and the well-being of its expanding population depend primarily on the free entry to and sustainable usage of these resources. Maintaining the seamless operation of trade and commerce both locally and internationally depends on the security of India's ports, shipping lanes, and offshore installations. India's economy and reputation around the world may suffer if its maritime environment is disrupted. A broad spectrum of complex and changing challenges constitute an increasing threat to India's maritime region, because of the modern world's interconnectedness and the ocean's size and relative unregulated areas, illegal activity has flourished. Maritime law enforcement authorities have a major problem as a result of growing worries about drug trafficking, a transnational crime with disastrous social and economic repercussions. Although it is currently less common than it was in earlier decades, the resurrection of piracy in some areas of the IOR poses a latent threat to shipping and maritime trade routes (Suri, *India's Maritime Security Concerns and the Indian Ocean Region*, 206). The widespread problem of illegal, unreported, and unregulated (IUU) fishing has possible connections to other unlawful activities in addition to depleting important fish populations, endangering marine ecosystems, and threatening the livelihoods of coastal communities. An even greater problem arises when organized crime, terrorism, and marine security threats are combined. Terrorist groups may use the marine sector for their malicious activities as they look for new ways to obtain money, logistics, and operational reach. The transit of people, weapons, and illegal money can be facilitated by the porous nature of maritime borders and the challenge of monitoring large maritime areas (Cordner, 2010).

India's national security and regional stability are seriously threatened by the possibility of maritime terrorism, which could target crucial infrastructure or disrupt important sea lanes. For India, maritime security is more than just border security; it is a complex necessity that includes

national security in its widest meaning as well as economic, energy, food, and environmental security. It requires a thorough and coordinated strategy to combat the underlying socioeconomic issues that can contribute to maritime crime, promotes regional cooperation, improves intelligence collection and sharing systems, and strengthens naval capabilities and maritime law enforcement organizations. The importance of maritime security for India will be further examined in this in-depth analysis, which will also highlight the strategic value of India's coastline and placement within the Indian Ocean Region. IUU fishing, drug trafficking, piracy, and the complex connections between organized crime and maritime terrorism will all be examined, along with other new concerns that threaten this crucial marine area. We may better appreciate the urgent need for a strong and flexible maritime security framework by comprehending the complex nature of these threats and their possible effects on India's security and prosperity. To properly protect India's marine interests and support a stable and secure Indian Ocean Region, this framework needs to be proactive, cooperative, and technologically sophisticated. Each of these elements will be carefully examined in the parts that follow, giving readers a thorough grasp of the difficulties and the necessity of India having a robust and resilient maritime security posture in the twenty-first century (Gautam, 2024).

Emerging Threats in the Indian Ocean Region (IOR):

Drug Trafficking

In light of its vast marine network and complex shipping lanes, the Indian Ocean Region (IOR) has recently grown to be a major hub for illegal drug trafficking. The IOR has become a crucial transit corridor for a range of drugs headed for markets in Asia, Africa, Europe, and beyond because to its close proximity to important global drug production hubs, as well as the difficulties of maritime monitoring and law enforcement over such a vast region. Developing successful counter-narcotics policies and preserving regional security and stability require an understanding of the complex channels and patterns of this illegal activity (Chatterjee, 2024). Maritime arrests increased from 2019 to 2023, hitting a five-year high of about 2,826 kg of heroin and cocaine in Indian ports in 2023 and 3,132 kg recorded at sea in February 2024, valued at about ₹1,000 cr (\$119 million). In 2021, India also seized 2.5 tons of high-purity methamphetamine off the coast of Kerala, valued at an estimated ₹12,000cr (US\$1.6 billion) (Ayjaz Wani, 2024). Then came

significant collaborative operations, In February 2024, Sagar Manthan-1 produced a 3.3-ton haul close to Gujarat. Nearly 6 tons of methamphetamine worth ₹36,000 cr were intercepted by India's Coast Guard off the Andaman & Nicobar Islands in late 2024. In 2024, meth seizures in East and Southeast Asia reached 236 tons, a 24% increase over 2023. This indicates that networks of maritime dealers are expanding into South Asia. All of these numbers point to the IOR's rise as a vital international transit route and show an ongoing rise in large-scale maritime drug trafficking in it.

The Shadowy Supply Lines

The Golden Crescent and the Golden Triangle are two infamous areas that are the main suppliers of illegal substances that are transported across the IOR. Historically, the world's leading producer of heroin and other opium derivatives has been the Golden Crescent, which includes Iran, Pakistan, and Afghanistan. Despite global efforts to stop poppy growing, Afghanistan in particular remains a significant supply. The region's porous borders and difficult terrain make it easier for raw opium and processed heroin to go to Pakistani and Iranian coastlines, where they are frequently transported over the Arabian Sea. Pakistan is an important transport hub due to its lengthy coastline and close proximity to Afghanistan; the provinces of Sindh and Balochistan are especially at risk. Iran is another important link in the heroin trafficking network because of its lengthy border with Afghanistan, as well as its access to the Arabian Sea and the Gulf of Oman (Dua Sisi, 2021).

Although the production and trafficking of synthetic drugs has increased significantly in recent years, the Golden Triangle, which is the intersection of Myanmar, Thailand, and Laos, is a major global hub for the production of methamphetamines and other synthetic drugs, as well as opium and heroin. Large amounts of these extremely addictive compounds are produced in the covert labs that operate in this area. These drugs are then frequently transported over land routes in Southeast Asia to ports on the Bay of Bengal, where they are incorporated into networks of maritime criminals (Pandit & Basu, 2012).

Paths and Strategies

Various and ever-changing maritime routes used for drug trafficking in the IOR take advantage of weaknesses in maritime security and adjust to the demands of law enforcement. One of the main routes for the trafficking of heroin from the Golden Crescent is the Arabian Sea. In order to reach

markets in Europe, these illegal shipments are frequently transported westward into East Africa and the Red Sea and southern toward the beaches of India, Sri Lanka, and the Maldives. Traffickers find cover in the Arabian Sea's enormity, as well as in the many little islands and fishing villages that are present. The Bay of Bengal, located in eastern India, is a major transit route for narcotics coming from the Golden Triangle, especially synthetic substances like methamphetamines. These materials frequently travel across the waterways of Southeast Asia before entering the Bay of Bengal, where they may arrive on the eastern coasts of Bangladesh, Sri Lanka, and India (Amit Ranjan, 2024). With its many river deltas and coastline inlets, the Bay of Bengal's complicated marine geology makes effective surveillance difficult. To transport their illegal goods, traffickers use a range of ships, frequently taking advantage of the obscurity and accessibility of the maritime industry. Due to their widespread use and the challenge of keeping an eye on their operations across large fishing grounds, unregistered fishing vessels are commonly deployed. These boats can pass for regular fishing vessels, making it difficult to detect them. Traditional dhows are also used because of their low profile and capacity to maneuver in coastal waters; they are especially common in the Arabian Sea. Although a large number of dhows are engaged in lawful commerce, others are employed for the covert and maritime transportation of drugs. Furthermore, drugs can be trafficked in greater quantities via cargo ships that operate on international trade routes, with the drugs stored in hidden compartments or inside genuine goods. Advanced concealing techniques are frequently used, such as hiding drugs in engine rooms and fuel tanks or incorporating them into genuine cargo shipments. Traffickers are always coming up with new ways to avoid detection, which makes marine interdiction a more difficult task (Chalk, 2000).

Implications for Regional Stability and Security

The security and stability of the IOR are significantly impacted by the growing drug trade in the area. Organized crime networks are fueled by the money made from this illegal activity, and these networks can be connected to other types of transnational crime, such as the trafficking of guns or even terrorism. Illicit financial flows have the potential to weaken governments and destabilize economies. Additionally, impacted countries bear a heavy burden from the societal consequences of drug addiction, which include elevated crime rates and public health emergencies. Because of the IOR's advantageous location along important international trade routes, drug trafficking across this area affects not only littoral states but also worldwide trade and security. Even small-scale

disruptions to maritime security can have a domino impact on international supply chains and financial stability. Drug-related crime increased by 35% in major IOR countries between 2020 and 2024, while the UNODC reports that illicit drug profits worldwide total more than \$100 billion yearly. The immediate impact on regional and global economic security was shown by the stoppage of trade across 12 international routes caused by maritime drugs seizures in 2023.

Impacts on India

The vast coastline of India, especially the states of Gujarat, Maharashtra, Kerala, and Tamil Nadu, is becoming more and more susceptible to the influx of illegal drugs from the Golden Triangle (Myanmar, Laos, Thailand) and Golden Crescent (Afghanistan, Pakistan, Iran). Methamphetamine, heroin, cocaine, and synthetic substances are among the drugs that are frequently trafficked through maritime channels, which take advantage of the comparatively laxer security measures than those found at land borders. For law enforcement agencies, detection and interception are extremely difficult due to the enormous volume of marine activity that passes through the IOR.

This drug infiltration has far-reaching and seriously negative effects on India. First of all, it contributes to an increase in drug-related offenses in the nation. Illicit substance availability raises the prevalence of addiction, especially among young people who are already at risk, which fuels social unrest, public health emergencies, and an increase in organized and petty crime. A downward spiral of criminality and addiction is sustained by the demand this influx creates, which further encourages the trafficking networks. There is growing evidence connecting the illegal money obtained from drug trafficking to the support of terrorist and extremist organizations. These illegal businesses frequently work with or donate money to these organizations, which further destabilizes the area and puts national security at serious risk. Due to its relative confidentiality and ease of mobility, the maritime sector can be used to convey money, weapons, and even people connected to these extremist groups. The combination of terrorism and drug trafficking is a fatal and complicated security threat that necessitates a strong and well-coordinated response. Coastal areas suffer significant social and economic consequences as a result of the drug traffic. These areas, which are frequently distinguished by lower socioeconomic metrics, may be vulnerable to the lure of rapid cash provided by drug cartels. Local inhabitants may become involved in trafficking as a result, upsetting customary means of subsistence like fishing and encouraging a

criminal and dependent culture. In addition, the drug inflow puts a burden on the community's healthcare and law enforcement systems, taking resources and focus away from other vital developmental needs. Additionally, drug misuse and associated criminal activity can weaken the social framework of these communities, creating social instability and unrest.

India's Counterstrike

India has taken a holistic strategy to combating drug trafficking in the IOR after realizing the seriousness of the problem. In this endeavor, a number of important agencies are essential.

Narcotics Control Bureau: The NCB, India's top drug law enforcement organization, is in charge of coordinating the activities of numerous federal and state organizations to prevent drug misuse and trafficking. It is essential for obtaining intelligence, carrying out investigations, and bringing drug offenders to justice. In order to coordinate cooperative efforts and exchange information, NCB also maintains tight ties with its foreign counterparts.

Indian Coast Guard (ICG): Drug shipments in India's territorial seas and EEZ are intercepted by the Indian Coast Guard (ICG), the country's main maritime law enforcement organization. The ICG regularly conducts patrols, surveillance operations, and anti-smuggling drills using its fleet of ships and planes. It collaborates closely with the Navy and other agencies and is frequently the first to respond to threats to maritime security, such as drug trafficking.

Indian Navy: The Indian Navy is vital in combating drug trafficking, especially in the deeper ocean and in international shipping lanes, despite its primary concentration on maritime security and national defense. It can identify and prevent large-scale drug shipments thanks to its sophisticated monitoring skills and long-range patrol boats. Additionally, the Navy supports the ICG with vital intelligence and participates in joint operations.

Strengthening Maritime Surveillance and Port Security: India has concentrated on improving security at both its main and minor ports since it understands that ports are possible entry locations for illegal narcotics. More strict screening protocols, the use of cutting-edge detection tools, and enhanced intelligence exchange between law enforcement and port authorities are all part of this. At the same time, efforts are being made to improve maritime surveillance capabilities by using satellite imaging, long-range observation aircraft, and coastal radar systems to keep an eye on questionable activity in the IOR (Suri, India's Maritime Security Concerns and the Indian Ocean

Region, 2016). Cooperation with Foreign Organizations: India regularly works with a number of foreign organizations to strengthen its anti-narcotics initiatives since it acknowledges the transnational dimension of drug trafficking. This involves strong collaboration on collaborative projects, information exchange, and capacity building with the United Nations Office on Drugs and Crime (UNODC) (Daniel Twining, 2021). India and INTERPOL collaborate extensively to monitor global drug trafficking networks and support cross-border investigations. India actively participates in regional security frameworks such as the Colombo Security Conclave, which gives member governments a forum for collaborative exercises and intelligence sharing related to maritime security. In order to mitigate this threat and protect its maritime domain, India has implemented a number of multifaceted countermeasures, including the diligent work of the NCB, ICG, and Navy, as well as strategic initiatives to improve maritime surveillance, fortify port security, and promote international cooperation. To effectively address this transnational threat, however, a constant and changing strategy that makes use of technical breakthroughs, improves inter-agency coordination, and promotes more regional cooperation is required due to the size of the ocean and the adaptability of criminal networks (Tim Legrand, 2021).

Threats to India's Maritime Trade:

A significant portion of India's goods are moved via vital sea routes across the Indian Ocean and beyond, making maritime trade a vital part of the country's economy. This crucial economic lifeline is still under threat from piracy and maritime crime. Seafarers are put in peril, supply lines are disrupted, rates for insurance rise, and India's economic development is seriously jeopardised. Geographically and in severity, pirate hotspots including the Gulf of Guinea, the Strait of Malacca, and the Gulf of Aden have had a long-lasting effect on India's maritime interests. The Gulf of Aden saw a dramatic increase in Somali piracy in the late 2000s and early 2010s, which had an impact on ships passing through the Suez Canal, one of the biggest commerce routes linking Asia and Europe (Neslihan Küçük, 2025).

Humanitarian crises and expensive rescue operations resulted from the regular targeting of Indian ships and crew. Trade expenses increased as a result of Indian shipping businesses being compelled to reroute vessels, increase security measures, and pay higher insurance premiums due to the enhanced threat level. Although piracy off Somalia has decreased as a result of multinational naval

operations, worries about a comeback because of regional instability remain. In a similar vein, sea robberies frequently occur in the Strait of Malacca, which is crucial to Indian trade. These attacks, which are frequently opportunistic and take place in territorial seas, endanger the safety of Indian mariners by targeting crew members and goods.

(Evers, 2006). Despite being physically far away, piracy in the Gulf of Guinea affects insurance rates and worldwide shipping patterns. Additional security problems are brought up by transnational criminal organisations' involvement in terrorism, arms smuggling, and piracy. Ransoms have the potential to finance terrorist organisations, endangering not just India's maritime territory but also the security of the entire region (Bateman, 2015). India must bolster naval patrols, implement cutting-edge surveillance systems, enhance regional cooperation, and make investments in littoral states' capacity-building in order to combat these threats. Safeguarding seafarers, preserving trade routes, and maintaining regional and national stability all depend on maritime domain awareness and international cooperation (Khurana, 2017). In order to improve coastal nations' capacity to monitor their own seas and stop piracy from spreading, capacity building programs are crucial in the IOR. In order to protect its maritime trade and guarantee the safety of its seafarers in an increasingly complex maritime environment, India must invest in cutting-edge surveillance technologies, strengthen the capabilities of its coast guard and navy, and actively participate in regional security initiatives (Kumar, 2022).

Strengthening India's Maritime Security Framework: Improved Monitoring and Surveillance

Comprehensive surveillance and monitoring capabilities are essential to a strong marine security infrastructure. India needs a sophisticated, integrated network that offers real-time situational information in order to protect its large maritime sector. Enhancing the Information Management and Analysis Center (IMAC) is a key component of this project. IMAC, the nodal hub for maritime security information fusion, is essential to the collection, evaluation, and distribution of intelligence from several sources. In order to enable smooth real-time information sharing among every relevant party, including the Navy, Coast Guard, and other maritime security agencies, IMAC enhancements include integrating advanced data analytics, artificial intelligence, and secure communication channels. Active threat assessment, efficient resource allocation, and prompt reactions to new security threats all depend on this enhanced information flow (Gopal, 2020). The

strategic use of satellites, RADAR networks, and Unmanned Aerial Vehicles (UAVs) for wide-area surveillance complements IMAC's expanded capabilities. With real-time imagery and data on vessel movements and possible threats, UAVs provide continuous overhead surveillance over large maritime zones. They are incredibly useful for exploring faraway locales and performing search and rescue missions because of their adaptability and stamina. A more comprehensive, synoptic view of the marine environment is offered by satellite-based monitoring, which makes it possible to watch big ships and identify suspicious behavior over extended maritime regions. Because they can identify and monitor surface vessels even in inclement weather, advanced RADAR networks—both ship-borne and coastal—play a vital role in maritime domain awareness. India's capacity to effectively detect, deter, and respond to a wide range of maritime security threats will be greatly enhanced by the synergistic integration of data from these disparate platforms UAVs, satellites, and RADAR into an upgraded IMAC, which will produce a comprehensive and dynamic maritime surveillance picture. Maintaining the safety and security of India's maritime trade, safeguarding its offshore assets, and guaranteeing general maritime stability in the Indian Ocean Region all depend heavily on this improved situational awareness.

A robust and adaptable maritime security framework is essential for India's ongoing development and stability in an era that includes growing maritime complexity and changing security concerns in the Indian Ocean Region (IOR). The renovation and capacity building of the navy and marine security forces are key components of this system. These programs are intended to strengthen India's capacity to project power, protect its wide marine interests, and successfully address a wide range of challenges, both conventional and unconventional. Increasing the Indian Navy's Blue Water Capabilities is a crucial component of India's capability growth. This entails a strategic push to build a navy that can function efficiently over the wide oceans, much beyond its immediate territorial waters. A purchase of innovative naval assets, such as aircraft carriers, destroyers, frigates, conventional and nuclear-powered submarines, and long-range maritime patrol aircraft, is required to achieve this goal (Michelle Voyer, 2017). Assets are essential for projecting influence in the larger IOR, guaranteeing the security of critical sea lines of communication (SLOCs), and upholding a credible deterrent posture. A key element of this modernization program is the growth of domestic shipbuilding skills, which promotes independence and lessens reliance on outside sources. The Navy's operational efficacy and seamless integration with other maritime

security agencies are further improved by investing in state-of-the-art technologies, such as advanced sensors, communication systems, and weapons.

The Indian Coast Guard plays a vital role in supporting the Navy's blue-water goals and is being bolstered with additional patrol boats and planes. In its capacity as the principal law enforcement agency in India's maritime zones, the ICG is essential to maintaining coastal security, implementing maritime regulations, carrying out search and rescue missions, and thwarting illicit activities including illegal fishing, poaching, and smuggling. The ICG's surveillance capabilities and responsiveness are improved by expanding its fleet with more contemporary patrol boats, such as offshore patrol vessels (OPVs) and fast patrol vessels (FPVs), throughout India's vast coastline and EEZ. In the identical way, adding cutting edge helicopters and maritime surveillance planes to its air wing improves its capacity to conduct aerial reconnaissance, keep an eye on marine activity, and offer vital assistance in times of need. The ICG must be equipped with contemporary infrastructure and technology in order to carry out its duties in a marine environment that is becoming more and more complicated (Roy-Chaudhury, 2008). Comprehensive training programs for port authorities and maritime security forces are an essential component of capacity building. Employees with proper training are the foundation of any successful security system. Specialized skills in areas including maritime interdiction, search and rescue, handling hazardous items, anti-piracy activities, and port security protocols are the main focus of these programs. To improve inter-agency cooperation and interoperability, the Navy, Coast Guard, and other pertinent agencies must participate in joint exercises and drills. Port officials also receive training, giving them the know-how to put strong security measures in place, run port operations effectively, and stop illegal activity on port property. India's maritime security forces will be efficient to handle the changing challenges in the maritime sector thanks to investments in human resources made through ongoing training and professional development.

In order to establish a more resilient and coherent marine security system, India is implementing substantial legal and policy reforms in addition to bolstering its people and physical resources. To create a solid legal foundation for prosecuting maritime crimes and discouraging future offenders, this includes fortifying the Maritime Anti-Terrorism and Drug Trafficking Laws. Effective law enforcement and the accountability of individuals who risk marine security depend on clear and comprehensive regulations. Improving coordination amongst various agencies (Navy, Coast

Guard, Customs, and Intelligence Bureau) is another essential component of policy reform. Because maritime security is an intricate issue, different government entities must work together and share information in a seamless manner. For a cohesive and successful response to marine threats, interagency processes must be strengthened through regular coordination meetings, intelligence sharing platforms, and joint operating guidelines. Enhancing maritime domain awareness, expediting operational responses, and avoiding duplication of effort are all made possible by improved agency coordination. Important policy projects like the Deep Ocean Mission and the Sagarmala Project also make a substantial contribution to India's long-term marine security. Through infrastructure improvement, logistics simplification, and the creation of economic possibilities in coastal areas, the Sagarmala Project, which aims to modernize India's ports, improve connectivity, and encourage coastal economic growth, indirectly increases marine security. Long-term security and resource management depend on India's ability to comprehend and manage its enormous maritime domain, which is demonstrated by the Deep Ocean Mission, which is centered on discovering and using ocean resources responsibly. In an increasingly active and difficult IOR, India's dedication to navy modernization and capacity growth is strategically necessary to protect its maritime interests. India is creating a strong and flexible maritime security framework by enhancing its naval capabilities, strengthening the Coast Guard, funding extensive training initiatives, and passing significant legislative and regulatory changes. Its extensive maritime resources, the safety of its maritime trade, and the preservation of peace and security in the Indian Ocean Region all depend on these efforts. To properly handle upcoming maritime security issues and reach its full potential as a major maritime power, India would need to make consistent investments and have a strategic approach in these areas.

India's Anti-Piracy Measures

The smooth running of India's maritime trade and the general security of the Indian Ocean Region (IOR) are seriously and continuously threatened by the risk of piracy and sea robbery. India is particularly susceptible to disruptions from these illegal activities because it is a country that depends largely on sea lanes for its economic development and because a significant amount of products and energy resources are carried via maritime methods. Piracy can have serious negative effects on the economy, including higher insurance prices, higher transportation costs due to vessel rerouting, and possible damage to ships and cargo. The human cost, which includes the safety and wellbeing of seafarers, is a major concern in beside the financial burden. Due to coordinated

international efforts, the serious piracy that was observed off the coast of Somalia in the late 2000s and early 2010s has considerably decreased; however, the threat has not been completely eliminated and has even shifted geographically to other areas, such as Southeast Asia and the Gulf of Guinea. Sea robbery, which frequently takes place in territorial seas and closer to coastlines, is another ongoing problem that primarily affects smaller fishing vessels and fishing towns. These activities can nonetheless damage local businesses, put lives in danger, and contribute to an atmosphere of insecurity in marine zones, even though they may not be as dramatic as high-seas pirate. India has taken a multifaceted approach to combating piracy and sea robbery because it understands how vital it is to protect its maritime economy and the safety of its seafarers. Deploying Indian Naval warships in piracy-prone locations is a key component of India's anti-piracy strategy. The Indian Navy consistently patrols, conducts surveillance, and, when required, offers security escorts to merchant boats in the IOR's most important strategic sites. In the event of an assault, this proactive deployment offers a quick response capability, improves maritime domain awareness, and serves as a deterrence. The vulnerability of ships passing through these high-risk areas is greatly decreased by the presence of heavily armed military warships. To strengthen efforts at collective security, India actively collaborates with regional and international organizations. In the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP), it plays a significant role. ReCAAP provides member governments in Southeast Asia and beyond with a forum for information exchange, capacity building, and cooperative activities. India supports a coordinated strategy to combat the changing risks of piracy and sea robbery in this vital maritime corridor by collaborating closely with other countries in the area. The Contact Group on Piracy off the Coast of Somalia (CGPCS), a multinational body that coordinated global efforts to combat Somali piracy, has also seen considerable participation from India. Although Somali piracy gets less attention, India's participation in these forums demonstrates its dedication to cooperative maritime security (Sudler, 2013).

India has also concentrated on bolstering the legal framework for prosecuting pirates, realizing that successful prosecution is essential to discouraging future acts of piracy. Strong domestic laws guarantee that captured pirates can be successfully prosecuted, delivering a powerful message against such illegal activity. This entails defining piracy precisely in accordance with Indian law,

establishing jurisdiction over offenses linked to piracy that are committed by Indian nationals or against Indian interests, and guaranteeing effective legal procedures for punishment.

Sea robbery and piracy continue to pose serious risks to India's maritime commerce and the IOR's overall security. India is committed to protecting its maritime interests and promoting a safe and stable maritime environment, as evidenced by its proactive and multifaceted approach, which includes naval deployments, active participation in regional and international collaborations like ReCAAP and CGPCS, and a strong legal framework for prosecution. To successfully combat these changing challenges and guarantee the uninterrupted flow of maritime commerce, constant international cooperation, flexible tactics, and vigilant caution are still necessary (Vosse, 2017).

Unreported, Unregulated, and Illicit (IUU) Fishing: An Increasing Issue in the Indian Ocean Area

In the Indian Ocean Region (IOR), illicit, unreported, and unregulated (IUU) fishing has become a serious and complex concern with serious repercussions for coastal economies, marine ecosystems, and even regional security.

The scope and effects of IUU fishing are concerning; they are causing fish supplies to critically decline and marine biodiversity to rapidly decline. These illicit activities frequently impede the natural replenishment of fish populations by using destructive gear and targeting immature or spawning fish, among other unsustainable fishing methods. In terms of disrupting the delicate balance of marine ecosystems, this ecological harm has long-term effects on food security and the general health of the ocean (Christensen, 2016). IUU fishing has a significant harmful economic impact on Indian fisheries and coastal life. IUU operators that disrespect fishing quotas and protected areas unfairly trade with legitimate Indian fishing groups that follow regulations and sustainable methods. As a result, local fishermen catch fewer fish, which lowers their revenue, causes unemployment, and makes coastal towns more vulnerable because fishing is an important source of food and economic stability. This problem is made worse by the decline in fish stocks, which jeopardizes the long-term sustainability of India's fishing sector and the livelihoods of the millions of people who depend on it. Along with to operating with no consequences, vessels involved in IUU fishing may also be involved in other illegal activities like drug trafficking, arms

smuggling, and even human trafficking. These operations' absence of oversight and control fosters an atmosphere that is favorable to several types of international organized crime. These links have the potential to destabilize coastal areas and represent a serious danger to maritime security. In order to fight major maritime security concerns and maintain the rule of law in the IOR, IUU fishing is therefore not only an economic and environmental necessity. Strong surveillance, international collaboration, and strict enforcement measures are necessary for effective anti-IUU fishing measures that preserve marine resources and the lives of the region's coastal residents. A major and complex challenge to India's maritime security and sustainable marine resource management is illicit, unreported, and unregulated (IUU) fishing. The country faces serious ecological, economic, and even security issues as a result of this activity, which includes a variety of unlawful actions. The danger can take many different forms, but it usually involves foreign ships operating in India's Exclusive Economic Zone (EEZ) and affects its ties with its neighbors (O'Rourke, 2017). The conduct of foreign deep-sea vessels, especially those from China, are a major source of anxiety. The depletion of fish stocks, harm to marine ecosystems from destructive fishing methods, and possible security ramifications because of the size and frequently opaque operations of these massive fleets are all grave concerns raised by reports and incidents of Chinese fishing vessels illegally entering India's EEZ. These invasions threaten India's marine sovereignty and surveillance capabilities in addition to undermining the livelihoods of Indian fishermen. Fishing rights issues with Sri Lanka in the Gulf of Mannar and the Palk Strait have long been a delicate matter, especially for fishermen from Tamil Nadu. The livelihoods and safety of fishermen from both countries are impacted by the arrests and confrontations that frequently result from the complicated historical background and the overlapping claims in these waters. Joint patrolling systems, sustainable fisheries management techniques that take into account the requirements and rights of both nations, and diplomatic involvement are all necessary to address this issue.

Cross-border infractions by Pakistani fishing vessels constitute another aspect of the IUU fishing problem. Security issues along the maritime border are brought up by incidents of Pakistani fishermen venturing into Indian waters, occasionally apparently engaged in activities other than fishing. To control the problem and stop possible exploitation for illegal purposes, these instances require strong coastal track and efficient communication lines between the two nations. For India, IUU fishing presents an intricate array of difficulties. It has the potential to worsen diplomatic

tensions with nearby nations and create vulnerabilities in maritime security in addition to depleting precious marine resources, endangering food security and the lives of coastal residents. A multifaceted approach is needed to address this growing issue, including improved maritime enforcement and surveillance, fortified legal frameworks, regional collaboration for sustainable fisheries management, and positive dialogue with neighbors to settle fishing conflicts amicably. In order to protect India's marine environment, guarantee the long-term viability of its fisheries, and preserve a safe and stable maritime domain, effective regulation of IUU fishing is essential (Elliott, 2007).

IUU fishing procedures can be connected to other illegal operations, such as drug and human trafficking, in addition to depleting fish supplies, which affects food security and biodiversity. Given the adverse impacts of IUU fishing, India has adopted a multifaceted approach to address this threat. India's reaction includes a major focus on enhancing Maritime Domain Awareness (MDA). In order to improve surveillance capabilities throughout its expansive Exclusive Economic Zone (EEZ) and beyond, this entails utilizing cutting-edge technologies including satellite and AI-driven monitoring systems. While AI systems may evaluate vessel movements and spot potentially suspect behavior suggestive of IUU fishing, satellite photography offers a comprehensive picture of fishing activity. By using technology, fishing fleets may be monitored more effectively and efficiently, which makes it possible to identify illicit activity early on. The creation of vessel tracking systems and Coastal observation Networks (CSN) complements satellite observation (Kiattisin, 2020). By offering vital information on the movements and operations of fishing vessels nearer the coast, the CSN improves real-time monitoring of coastal waters. Even though vessels involved in IUU fishing often turn off vessel tracking devices like the Automatic Identification System (AIS), these systems nonetheless offer useful information when they are in use and help to create a complete picture of maritime traffic. India often seeks bilateral agreements with nearby nations that share maritime borders and fishing interests because it recognizes the transnational aspect of IUU fishing. The main goals of agreements with countries like Bangladesh, Sri Lanka, and the Maldives are to encourage sustainable fishing methods, set up systems for exchanging information on fishing operations, and promote collaboration in monitoring and enforcement initiatives. In order to combat IUU fishing, which frequently crosses international borders and necessitates a coordinated regional response, these partnerships are

essential. In order to combat illegal maritime activities and promote sustainable fishing practices, India's strategy against IUU fishing essentially focuses on improving its capacity to monitor and track fishing vessels through technological advancements, bolstering coastal surveillance, and cultivating cooperative partnerships with neighboring nations. This all-encompassing strategy seeks to preserve India's marine resources, the means of subsistence for its fishing people, and the general well-being and safety of the Indian Ocean (Mohammad Mahmudul Islam, 2018).

International Cooperation: A Fundamental Aspect of India's Maritime Security Approach:

To protect India's extensive marine interests in a maritime environment that is becoming more interconnected and complicated, strong international collaboration is required. The Indian Ocean Region (IOR) faces many hazards and challenges that no one country can adequately handle. Seeing this need, India has been actively promoting a network of regional and multilateral institutions, participating in bilateral and joint military exercises, and carefully navigating the changing geopolitical landscape, especially with regard to China's expanding maritime influence. India's complete marine security strategy is based on this cooperative approach. In intelligence sharing, coordinated efforts, and the development of shared security understandings, India actively participates in a number of important regional and global forums to improve maritime security. Within the IOR, the Indian Ocean Rim Association (IORA) serves as the main forum for advancing sustainable development and regional collaboration. IORA contributes to a more stable and secure marine environment by facilitating communication and cooperation on disaster risk reduction, maritime safety and security, and other relevant topics, even if its purview goes beyond simple security concerns. In the same way, the Colombo Security Conclave (CSC), which began as a trilateral security framework with India, Sri Lanka, and the Maldives and has since grown to include other regional partners, focuses on addressing common security issues like transnational crime, terrorism, and maritime security through intelligence sharing and cooperative capacity-building projects. Significant effects on regional maritime security result from India's participation in larger Indo-Pacific security alliances, particularly the Quadrilateral Security Dialogue (QUAD), which consists of the US, Japan, Australia, and India. The QUAD's emphasis on upholding a rules-based international order, freedom of navigation, and marine domain awareness directly supports regional stability and security in the maritime domain, even though it is not exclusively a maritime

security alliance. By emphasizing on several pillars, such as maritime security, maritime ecology, and maritime resources, India's Indo-Pacific Oceans Initiative (IPOI) further demonstrates its dedication to cooperative maritime security (Rai, 2018).

Enhancing Connectivity and Security using Bilateral Cooperation and Joint Military Exercises

India's active involvement in joint military exercises and the development of solid bilateral ties are concrete examples of its dedication to international maritime security cooperation. In order to improve interoperability, exchange best practices, and foster mutual trust, navies from all across the Indian Ocean region and beyond come together for multilateral naval exercises like MILAN, which is hosted by the Indian Navy. Comparably, the QUAD nations' participation in the Malabar naval exercise emphasizes intricate maritime operations and enhances their combined capacity to handle Indo-Pacific maritime security issues. Partner fleets' operational knowledge and cooperation are further enhanced via bilateral exercises like JIMEX with Japan. India takes part in bilateral cooperation with important maritime neighbors in the IOR in addition to these larger exercises. Maintaining security in the strategically significant western and southern Indian Oceans requires special cooperation with Sri Lanka, the Maldives, and the Seychelles. In order to combat common risks like piracy, drug trafficking, and illicit fishing within their respective maritime zones, these partnerships frequently entail cooperative patrols, capacity building programs, and intelligence sharing. A collective security architecture that improves maritime domain awareness and response throughout the area can be promoted by strengthening these bilateral ties (Bradford, 2005).

A Strategic Necessity for Cooperation in Security to Counter China's Maritime Expansion

The need to handle the ramifications of China's expanding maritime presence and its strategic objectives in the IOR is a major factor behind India's aggressive participation in international maritime security cooperation. Concerns regarding possible strategic encirclement and the loss of India's traditional sphere of influence have been raised by China's String of Pearls policy, which is defined by the construction of port infrastructure and strategic alliances in nations that border

India. India has responded by concentrating on keeping an eye on these changes and protecting key chokepoints that are essential to the flow of marine trade. This involves creating alliances with countries that have similar concerns about upholding a multipolar and balanced maritime order as well as enhancing its naval capabilities in strategic locations. Also, acknowledging the value of cooperation in maintaining freedom of navigation and maritime security in this crucial area, India is aggressively enhancing its relations with ASEAN countries that abut important water routes in Southeast Asia. In a same vein, establishing a wider coalition to tackle maritime security issues and thwart any excessive influence that could damage regional peace requires active engagement with African coastal governments around the western Indian Ocean. India is creating a strong network of international cooperation to protect its maritime interests and support a stable, secure, and rules-based maritime order by actively participating in multilateral frameworks, holding joint military exercises, cultivating strong bilateral relationships, and strategically interacting with countries throughout the Indo-Pacific and IOR. This cooperative strategy demonstrates India's dedication to common security in the face of changing maritime challenges and goes beyond simple strategic necessity.

Future Outlook and Strategic Recommendations

In order to protect its extensive maritime interests and guarantee the security of the Indian Ocean Region, India must aggressively confront upcoming problems and put strategic recommendations into practice as it navigates an increasingly complex and dynamic maritime landscape. Building a strong and resilient marine security architecture for the years to come requires embracing innovation, empowering coastal communities, and encouraging increased interagency coordination.

Maritime Security's Future

Rapid technological breakthroughs have the potential to significantly improve India's marine security capabilities. At the front of this technological transformation are predictive analytics and maritime surveillance enabled by artificial intelligence (AI). In order to spot irregularities, trends, and possible dangers that can go unnoticed by humans, artificial intelligence (AI) algorithms can examine enormous volumes of data from a variety of sources, such as radar systems, satellite images, vessel tracking data (AIS), and even social media. This data can also be used by predictive analytics to predict possible hotspots for piracy, illicit fishing, or even the movement of suspect

vessels, enabling proactive resource deployment and preventative measures. AI may be used, for example, to forecast regions that are more likely to be attacked by analyzing weather patterns, shipping routes, and past data on piracy incidents. This would allow naval forces to focus their patrols in these areas. A viable approach to improving the safety and transparency of maritime trade is the use of blockchain-based secure shipping and cargo tracking systems. Blockchain technology can offer an auditable and impenetrable record of freight movement, ownership, and paperwork because of its decentralized and unchangeable ledger structure. This can greatly lower the likelihood of criminal activities including counterfeiting, smuggling, and trafficking in unlawful items. Blockchain can improve supply chain security, lower fraud, and boost marine trade efficiency by offering a transparent and secure chain of custody. This will ultimately help create a more robust and safe maritime ecosystem. Imagine a system that makes it much more difficult to hide illegal cargo or interfere with products by digitally tagging every container and recording its route on a blockchain. A extensive and diverse population of coastal communities, especially fishermen, inhabit India's vast coastline. These individuals have essential local knowledge and the ability to observe the maritime domain. Involving fisherman in intelligence-gathering projects can greatly improve India's understanding of the maritime domain. Law enforcement agencies can receive important real-time intelligence about suspicious activities, strange vessels, or unexpected movements by creating efficient communication lines and developing trust with these individuals. A more complete and nuanced picture of the maritime environment can be obtained by combining this bottom-up approach with conventional top-down surveillance techniques. A network of maritime sentinels may be established, for instance, by offering fisherman safe communication channels and basic training on how to spot and report suspicious activity. To foster a sense of ownership and accountability for maritime security in these communities, it is essential to support sustainable fishing methods and community-based coastal security initiatives. Unsustainable fishing methods can cause economic hardship and resource depletion, which may increase a person's susceptibility to engaging in illegal activity (Scott, 2006). Coastal communities' economic resilience can be enhanced by promoting sustainable fishing methods and offering alternate sources of income. Community-based coastal security initiatives can improve local security and strengthen ties between security agencies and coastal communities by training and equipping locals to play an additional role in maritime surveillance and security. may entail giving local

fishing cooperatives communication tools so they may alert the Coast Guard to suspect activity and teaching them basic methods of surveillance.

The Navy, Coast Guard, intelligence services, customs, and fisheries departments are just some of the organizations that must respond seamlessly and cooperatively to the complex challenges to maritime security. One of the most important steps in creating this unified command and control structure is the creation of a centralized National Maritime Security Authority (NMSA). As the supreme authority, the NMSA would be in charge of organizing the activities of various agencies, creating a thorough national maritime security policy, and guaranteeing efficient information exchange. Potential jurisdictional overlaps would be removed, decision-making procedures would be streamlined, and resources for marine security would be allocated as efficiently as possible under this consolidated authority. At the operational level, it is critical to support coordinated actions by law enforcement, intelligence, and defense organizations. This calls for creating integrated operational processes, conducting cooperative training exercises, and establishing strong communication channels. To guarantee that pertinent information is distributed among all stakeholders in an efficient manner, intelligence sharing procedures must be reinforced. For example, the Coast Guard should have easy access to real-time intelligence collected by naval assets for law enforcement activities, and vice versa. Building interoperability and improving the efficacy of coordinated responses to threats ranging from maritime terrorism to piracy can be achieved through joint exercises that emulate different maritime security scenarios. India's ability to empower its coastal human beings, adjust to new technological developments, and promote more cooperation and coordination among its security agencies will determine the future of its marine security (Gopal, Maritime domain awareness and India's maritime security strategy: Role, effectiveness and the way ahead, 2020). India can create a strong and future-ready maritime security architecture that can protect its interests as a nation and help maintain a stable and secure Indian Ocean Region by strategically utilizing AI and blockchain technologies, creating resilient coastal communities through engagement and sustainable practices, and establishing a unified maritime security command under the NMSA. These strategic suggestions are necessary measures to guarantee India's ongoing development and security in the marine sector, not just high hopes.

Conclusion

India must constantly pay attention to and respond to a wide range of marine dangers while negotiating the intricate currents of the Indian Ocean. With its disruptive effects on society and the economy, drug trafficking remains a serious threat, taking use of marine routes to transport illegal narcotics. Despite geographical shifts, the threat of piracy continues to pose a real threat to maritime commerce and seafarers' safety. Additionally, the destructive effects of illegal, unreported, and unregulated (IUU) fishing can be connected to larger transnational criminal operations in addition to endangering coastal livelihoods and diminishing essential marine resources. Establishing and consistently implementing a comprehensive and proactive marine security plan is necessary to address these complex issues. This approach must go beyond a strictly reactive stance and concentrate on improving maritime domain awareness, predicting threats, and fostering resilience throughout the maritime ecosystem. It calls for a coordinated strategy that incorporates technology developments, empowers coastal communities, improves interagency collaboration, and cultivates strong international alliances.

A concentrated and persistent effort is necessary to successfully protect India's vast maritime borders and its larger marine interests. This requires more robust regulations that specify roles precisely, improve prosecution tools, and give maritime security a high place in national security plans. To enhance detection skills and operational efficiency, it will be essential to embrace technological innovation, especially in fields like AI-powered surveillance, predictive analytics, and secure tracking systems, addressing transnational maritime threats that cut across state borders requires strong international cooperation through multilateral forums, cooperative drills, and information-sharing agreements. India can steer toward a more secure and rich marine future by establishing deeper international, technological, and policy ties. This would guarantee the safety of its waterways, the health of its trade, and its ongoing influence in the strategically important Indian Ocean Region.

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