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# IUU Fishing in the Bay of Bengal: Ground Reality and Evaluation of the Existing NPOA

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## *Abstract*

The destruction of marine ecosystems by Illegal, Unreported and Unregulated (IUU) fishing is a real concern in the Bay of Bengal (BoB). Bangladesh, ranked 47th on the IUU Fishing Index, is one of the most affected nations, with both local and foreign vessels contributing to this issue. The study aims at identifying key drivers behind IUU fishing in the region and examine how well National Plan of Action to combat IUU fishing (NPOA-IUU) under Bangladesh works. The research used a mixed-methods approach, combining quantitative analysis of IUU fishing intensity scores from the IUU Fishing Index and qualitative interviews with stakeholders such as government officials, fisheries experts, and local fishers. To analyse the quantitative data simple descriptive statistical methods, including frequency and percentage distribution, as well as basic measures such as mean were used to summarize the findings. On the other hand, the qualitative data was processed using a systematic logical approach to explain the issue properly. The result of the present study indicates that foreign fishing vessel scores 04 for most IUU fishing intensity out of 05. IUU fishing from unreported and unregulated methods achieved a score of 03 while its destructive fishing practices scored at level 02. IUU fishing was negatively influenced by low profit, uncertain climate and fish availability at the same time indiscriminate fishing with destructive fishing methods. Elsewhere, the study also assessed applicability and operability of NPOA-IUU using SMART approach and reveals that the NPOA-IUU is moderately effective, with an implementation that places loads on resources, effort and present capacity. In order to fight IUU fishing, Bangladesh must improve law enforcement and monitoring capabilities and advocate for sustainable fisheries.

**Keywords:** IUU Fishing, NPOA-IUU, Bay of Bengal (BoB), IUU Fishing Index, Applicability and Operability

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## Introduction

The economic importance of Bangladesh is improving as it has increased area to assist from the BoB. The total sea area of Bangladesh is approximately 2,07,000 square kilometers, including the additional area gained from Myanmar in 2012 and India in 2014 (Askari, Bushra & Hossain, 2021). This makes Bangladesh's sea area 1.4 times larger than its land area (Belal n.d., p. 5). This opportunity has created a fresh enthusiasm around harnessing the capabilities that lie deep within the sea and the onset of the blue economy.

The benefits are clear, but the management in a sustainable way is urgent at this moment. As the resources from the sea serve as the livelihood of most people in coastal regions, there is efficient management and power projection over oceans.

Still, the country faces various challenges in finding its way through these new economic riptides. Shortcomings in infrastructure, technological disparities, and financial hurdles make monitoring and managing its vast maritime domain difficult. Balancing economic development with ecological preservation is an increasingly difficult task, particularly as pressures are added through climate change impacts on marine systems.

As such, the dilemma of arguably one of the most vexatious situations to address IUU comes into the limelight for Bangladesh. IUU fishing is now the prime of many other issues. This practice is done by locals and foreigners, artisanal fishers, and large trawlers alike within or outside the waters of Bangladesh. IUU fishing mainly stands for defining the way of fishing ignoring the existing rules and regulations both nationally and internationally. Weak enforcement measures alongside corruption and disorganization among the host of governmental bodies responsible for ocean governance simultaneously provide fertile ground for illicit fishing practices to flourish. Those practices are not only repugnant to the dignity of a nation but worsen the problem of effective and sustainable fisheries resource management and marine life conservation.

Field observation claimed that the most significant portion of fishing in the bay area and beyond by the sea-going fisher community is from IUU fishing, which is of deep concern for many coastal countries, especially Bangladesh. The problems are best illustrated through illegal fishing and investigations worldwide, such as BoB, Rann for Kutch, and Palk strait. Various reports/news have come from different parts (Yasmin, Saimum, & Ritika, 2022). Notably, among the

littoral countries, Bangladesh is placed in such a comfortable position that she faces the least of the legal hurdles to brace another coastal fight against illegal fishing.

Bangladesh is ranked 47th among the performance of countries to address IUU Fishing in scoring, and it has a score of 2.41 based on the IUU Fishing Index out of 152 countries (The Daily Star, 2019). This post is, of course, a wake-up call to action.

IUU fishing hampers fisheries conservation efforts, responsible fishery management, and marine environmental protection. It puts the very target of the Bangladesh Department of Fisheries and its regional organizations on the back foot. Illegal fishing has far-reaching consequences that threaten the economy, food security, and fish populations' ability to reproduce. Foreign ships that are downright bestial in fishing enter the Bangladesh water area easily. Every year, 10-12 foreign fishing vessels are captured by Bangladesh's responsible authority, and as per the sea-going fisher community, >200 trawlers enter Bangladesh's jurisdiction (Ritika, 2022).

Bottom trawling up to <40m depth using in the middle water with considerable distance is ruining our ocean ecosystem. Nevertheless, 90% of Bangladesh's marine production is by way of artisanal catch; however, small-scale vessels have no licensing or monitoring rules and regulations. The freezer trawler is allowed to fish for 30 days while non-freezer ones have a limit of max. But the rules are not followed and executed properly.

Even, some of the most critical commercial large fish species are overexploited globally according to the latest Marine Fisheries Survey Report 2019. In contrast, smaller species due to catch should be protected from fishing.

Utilizing its ocean resources is a new field for Bangladesh, and establishing an efficacious ocean economy has always been formidable. We do not have one governance framework or policy to manage the ocean, but there are efforts by several government agencies, non-profit groups (NGOs), and private companies. These efforts are designed to provide the ocean with legislative rights and improved management practices for handling the sea and its assets.

A big step forward was taken in 1974 with the Territory Waters and Maritime Zones Act concerning fishing in oceans (Government of the People's Republic of Bangladesh, n.d.). It outlined Bangladesh's jurisdiction over the areas

of BoB, subsequently, the Marine Fisheries Ordinance of 1983 was passed to create a cogent legal regime for fish resources within its ocean. This law was reviewed and amended in 2020 to increase accountability through the new version of the Marine Fisheries Act of 2020 (Government of Bangladesh, 2020). The National Fisheries Policy 1998 supports this legal framework, stipulating regulations on numerous fish species.

Indeed, in the maritime shipping sector, there is a detailed law for registering and operating sea-going vessels called the Bangladesh Merchant Shipping Ordinance of 1983. The government has also established essential organs such as the Bangladesh Environment Conservation Act of 1995 (with subsequent amendments) and the Environment Conversation Rules of 1997 for environmental protection and pollution control. In addition, the Bangladesh Coast Guard plays a vital role in safeguarding the maritime territory of Bangladesh and maintaining control over the task force by virtue of the Coast Guard Act 1994.

IUU fishing poses an essential challenge as efforts are made to improve ocean governance. Suppose the issue of IUU fishing stands unresolved. In that case, it has a prospected carriage on repercussions over economy and transnational security for the littoral countries from BoB. Bangladesh is somewhat organized in terms of the IUU fishing index, making the enforcement actions against it necessary to be aggressive. Over and above its socio-economic implications, illegal fishing threatens the fragile marine ecosystem as commercially lucrative fish species are hunted to extinction through overfishing or destructive methods.

The menace of IUU fishing is common and takes place both through local commercial and artisanal vessels and foreign fishing vessels within Bangladesh (Temple et al., 2022). The latter is a cause for concern as foreign vessels are not allowed to fish in Bangladesh's Exclusive Economic Zone (EEZ). These vessels, however, are still involved in IUU fishing activities, posing a severe threat to the positive steps taken by the government of Bangladesh towards the sustainable management and development of marine resources. The high level of sophistication and organization in operations by these foreign IUU fishing vessels complicated the enforcement of management measures, especially during ban periods when fishers relied on makeshift gear to target available stocks.

Addressing IUU fishing is essential because this practice threatens the economic and environmental benefits countries receive from utilizing coastal and marine fishery resources. Using illegal net threatens the marine ecosystem and

undermines progress towards sustainable ocean governance achieved through much effort in this region.

Bangladesh faces three types of IUU fishing threats: foreign vessels, industrial vessels, and artisanal craft (Islam & Hasan, 2024). Indeed, a significant problem has been that foreign vessels illegally operate in the Exclusive Economic Zone (EEZ). These vessels tend not to take the measures needed ecologically and do significant harm to local fish populations by targeting both juveniles (small ones) for catch as well as taking up spawning adults. Commercial fishers in local communities face higher costs than poachers (which results in overfishing) with economic consequences on coastal communities (Wtason et al., 2021)

People often talk about IUU fishing, relate it to foreign vessels, and overlook that local fishing techniques also hasten IUU. Fishing without a license or with illegal gear in protected areas, over quota limits imposed by national laws regulating the use of land but under the maximum sustainable yield within an area fished between nations on high seas. IUU fishing also includes all illegal practices in contravention of fisheries laws when these are violated by the vessels that catch protected species. In that way, local or foreign either can provoke IUU fishing.
Initiating a holistic approach to address IUU fishing, Bangladesh formed its NPOA-IUU in 2019 as the first significant step (Government of Bangladesh, 2019). This blueprint for tactical approaches against IUU fishing in this strategic is designed to help or sustain and accord to international sustainability policy which are important of e.g., SDG14.4. Using strengthened monitoring, control, surveillance methods, and comprehensive legal mechanisms, the NPOA aims to combat IUU fishing by ensuring minimal impact on marine biodiversity; safeguarding community food supplies (Fujii et al., 2021).

But the NPOA very effectiveness also depends on its actual implementation. While the fight against IUU fishing becomes ever more intricate, bringing together government and stakeholders in Bangladesh to work toward solutions on one hand; while being met with limited resources, glaring technological deficiencies, and enforcement challenges at field level. Active involvement by fishers and their organizations and collaboration between Government authorities at all levels and non-governmental entities is essential for the success of NPOAs.

Mozumder et al. (2023) conducted a study on “Governance of IUU fishing in Bangladesh: status, challenges, and potentials to generate comprehensive

knowledge of the historical patterns and current status of IUU fishing in Bangladesh's coastal and marine water." The study's objective was to serve as crucial guidelines for managing fisheries sustainably and developing legislation, rules, and regulations to prevent IUU fishing in Bangladesh. In the study by Latif et al. (2022), "An Assessment of the Institutional Policy and Legal Regime to Combat IUU Fishing: A Review on the Journey of Bangladesh Towards Sustainable Blue Economy", the authors examined Bangladesh's efforts to establish an effective institutional policy and legal framework to combat IUU fishing, with a focus on advancing the Nation's journey towards a sustainable blue economy. The authors highlighted the significance of IUU fishing control as a holistic approach to safeguard marine ecosystems, protect endangered species, and sustain livelihoods for small-scale fishers. Additionally, the authors emphasized the importance of integrating the interests of small-scale fishers and adopting an inclusive approach aligned with the Sustainable Development Goals (SDGs) in the NPOA to combat IUU fishing. Bose S. (2021) conducted a study on "Finding solutions to fishermen transgressions in the India-Bangladesh maritime space," and the study aimed to secure their marine resources in the BoB; India and Bangladesh settled their maritime boundary in 2014. Despite the delimitation, however, fishers from both countries continue to commit unlawful forays into each other's sovereign waters, leading to the enforcement of punitive measures against those accused or convicted. Such incidents not only jeopardize the fishers' livelihoods but repeated occurrences also nettle relations between the two countries. This paper calls for a proactive strategy for India and Bangladesh to engage in meaningful diplomatic collaboration to reduce the incidence of fishermen trespassing, mainly through the development of blue economy. Yasmin, Saimum, & Ritika (October 2022) on the "Geopolitics of Confidence and Hope: Assessing the Strategic Significance of the BoB and Choices before Bangladesh" mentioned the gaps of the study on IUU fishing in Bangladesh. Miller et al. (2014), in the paper "An Action Framework to Address IUU Fishing," offered a comprehensive framework to guide regulatory efforts aimed at tackling the issue of IUU fishing. The abstract underscores the dire consequences of global fish demand, depleting resources and ecosystems. IUU fishing emerges due to regulatory ignorance, threatening economies like Cameroons. This study assesses IUU's impact in Central Africa, focusing on Cameroon's South West region. Inadequate management capacity and weak surveillance highlight the need for international cooperation in combating IUU fishing. Depleting resources and ecosystems due to escalating global fish demand has had significant environmental and economic consequences (Mbotiji, 2019). In response to intensified

competition, the emergence of IUU fishing practices is observed, driven by a lack of awareness regarding existing regulations and control mechanisms. Even the driving forces to increase the IUU fishing in Bangladesh are even to the cocoon. Not only that the NPOA-IUU is also a matter of evaluation on existing facilities of the country. To address the gap in the previous research, in this paper, the author explores explicitly the problem of the most adversely affecting factors of IUU fishing in the BoB and the effectiveness of measures within existing NPOA introduced by Bangladesh in order to combat IUU fishing that will help the policy makers and the valued stakeholders to address the issue effectively.

## Methodology

### Data Collection and Analysis

Mixed-method approach (qualitative and quantitative data) was used for the study. Study has been included both primary as well secondary data. This methodology was used in 2019 by Shona McCombes to ensure the validity and reliability of this research (McCombes, 2022).

*Photo: Data Collection in Khulna*

Both Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) were used in the study method. The questions were through open-ended interviews, with insightful responses instead of closed dictionary definitions.

The distribution of questionnaires was targeted at two separate participant categories. The initial targeted group were the sea-going fisher folks; and this was determined through surveys across six exclusive focus groups. The second category related to conducting individual consultations with competent authorities (see below). Crucially, these interactions occurred within a coastal area of Bangladesh ensures its contextual validity and relevance to the research.

The researcher judiciously applied a total of 100 respondents. Of these, half were managed to completion by working sea fishers in those 6 groups and the other 50 had been carefully answered by government authorities and relevant valued stakeholders.

| Respondent Types | Number | Question Types |
|---|---|---|
| Sea Going Fisher | 50 (FGD) | Existing Challenges related to IUU fishing |
| Responsible Authority to Control IUU fishing | 50 (KII) | Existing Challenges related to IUU fishing and effectiveness of NPOA |
| Total | 100 | Existing Challenges related to IUU fishing and effectiveness of NPOA |

Thus, the quantitative data collected for study was analysed by simple descriptive statistical methods [using frequency and percentage distribution] while qualitative data was processed in logical systematic way to draw the inferential points form obtained information.

To assess the effectiveness of NPOA-IUU that has been undertaken using a SMART approach.

| S | M | A | R | T |
|---|---|---|---|---|
| Specific | Measurable | Achievable | Relevant | Time bound |

## Result and Discussion

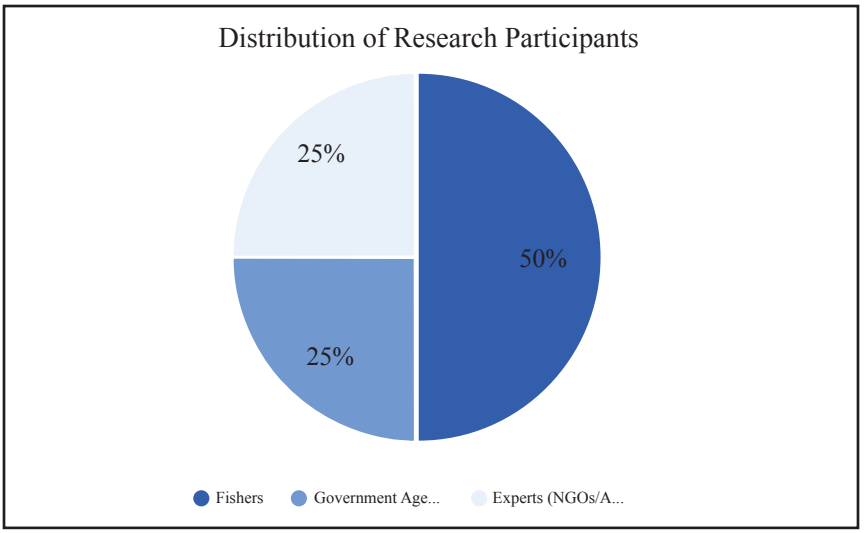


Figure 1: Distribution of Research Participant

The Figure 1 shows the distribution of participants in the research study. Fishermen make up the largest group (50%), followed by government agencies and experts (both at 25%). This suggests a focus on the perspectives of fishermen and experts in the research.

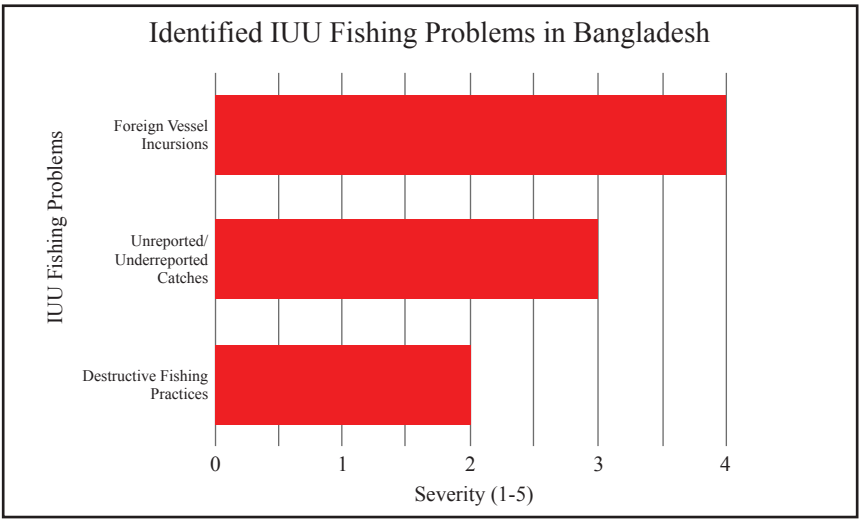


Figure 2: IUU Fishing from Different Sections

The Figure 2 titled "Identified IUU Fishing Problems in Bangladesh" shows the severity of different types of IUU fishing problems in the country.

• Foreign Vessel Incursions: This is the most severe problem, with a severity rating of 4 out of 5.

• Unreported/Underreported Catches: This problem is also quite severe, with a rating of 3.

• Destructive Fishing Practices: This problem is less severe compared to the other two, with a rating of 2.

The Figure 2 highlights that foreign vessel incursions and unreported/underreported catches are major concerns in Bangladesh's fisheries sector. These issues can lead to depletion of fish stocks, economic losses, and damage to the marine ecosystem. Addressing these problems requires effective enforcement measures, increased surveillance, and international cooperation.

## Factors Affecting IUU Fishing in Bangladesh

Fishing is a fascinating combination of opportunity and challenge. First, that it has a fairly low barrier to entry with many choices. Another resource that can be exploited very profitably, particularly in areas where there are large quantities of fish. Yet, the industry is surrounded with uncertainties.

Long term sustainability of the industry is also a serious issue. Decreases of the fish stocks as from over fishery or destructions to their natural habitat are considerable dangers. This no longer applies, as the increased competition both domestically and from abroad diverts these funds elsewhere. The problem is the environmental cost that this sector can have a serious effect.

Nonetheless, Fishing continues to be a viable source of income for many; sustainable operations, technology improvements and the right policies in place are necessary to protect these systems for generations to come. Table 1 reflects the factors that promote IUU fishing in Bangladesh.

| Factor | Fishing |
|---|---|
| Profitability | Currently High Risk (declining fish stocks, competition) |
| Work Schedule | Irregular, Long Hours, Weather Dependent |
| Physical Demands | High Physical Exertion, Potentially Dangerous |
| Environmental Impact | Can Contribute to Overfishing And Habitat Destruction |
| Barrier to Entry | Lower (requires boat/gear, knowledge) |
| Scalability | Limited by Catch & Resources |

Table 1: Factors Promoting IUU fishing in Bangladesh

## Uncertainty of Professional Fishing Shipment

This Table 2 compares the potential drawbacks of fishing as a profession with the potential benefits of a migrating profession in Bangladesh.

| Factors Discouraging Marine Fishing Profession | Percentage |
|---|---|
| Fish stock depletions | 35% |
| Increased Regulation and Costs | 25% |
| Competition from Large-Scale Fishing | 20% |
| Opportunities for an Alternative Source of Income | 5% |
| Safety Concern | 15% |

Table 2: Factors Discouraging Marine Fishing Profession

The factors that discouraging fishing profession in Bangladesh are presented in the Figure 3.

**Pink: Fish Stock Depletion, (35%)**

It's the stock of fish and we all know that how due to over-fishing it gets disappear. There are fewer fish to catch, thus less food for locals and a smaller crop of commercial seafood.

**Blue: Increased Regulation and Costs, (25%)**

The blue slice can then represent stricter regulations and increased deployment costs associated with sea fishing, to name one form of disincentive. These can range from licensing standards and quotas to the price of fuel enhancements. These have the potential to generate costs and limit local fishers from operating and generating household incomes.

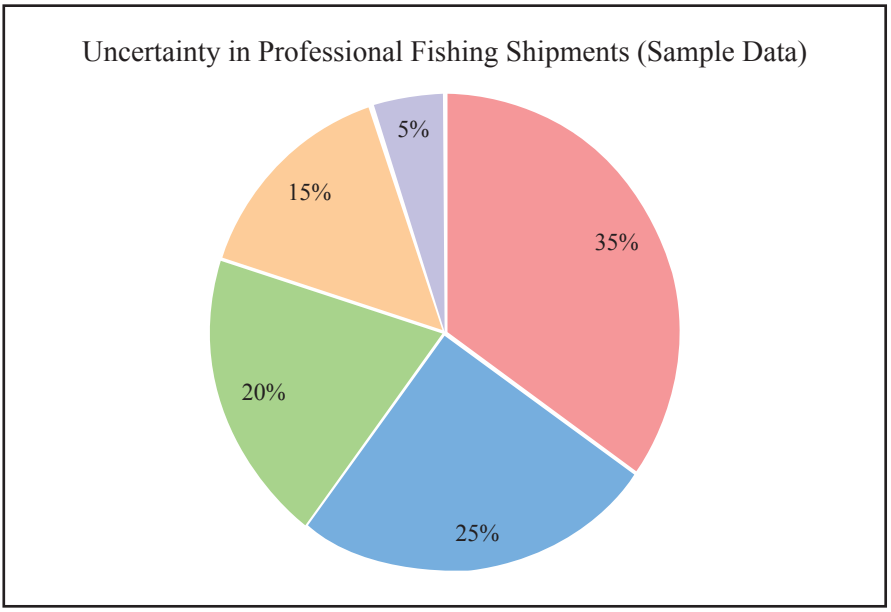


Figure 3: Factors Discouraging Marine Fishing Profession

**Green: Competition from Large-Scale Fishing, (20%)**

The green slice represents the large-scale fishing boats competing for our catch. These industrial operations take fish stocks out of the water faster than local fishing communities can, which in turn leaves less for smaller traditional ones.

**Orange: The Safety Concerns, (15%)**

This orange slice shows the security factor related to sea fishing. This dangerous profession can expose the workers to dangers like, Piracy, harsh weather conditions that could lead to accidents at sea. Now both these points of "Insecurity for safety" may be considered as a setback to pursue career in this field.

**Purple: Opportunities for an Alternative Source of Income, (05%)**

The purple represents other livelihood opportunities coming up in the Panchayat. Fishers may also be drawn to other sectors because they potentially provide better wages, working conditions and stability than the fishing industry.

Representation of overall scenario of IUU fishing activites in Bangladesh in Table 3.

| Aspect | Findings |
|---|---|
| Problem Statement | Inadequacies in the existing NPOA include insufficient enforcement and monitoring capabilities; authorities' lack of awareness; complicity with the Fishing community poor data collection and track keeping; lack of transparent and accountable system. |
| Who Engages in IUU Fishing? | Mostly India, Burma, and Thailand were identified as areas with a high risk of contaminated vessel fishing activities. |
| How is IUU Fishing Conducted? | Using the most high-tech technology (radar, fish finders) by foreign fishing vessels; large and powerful low-noise trawlers for the efficient catch; targeted fishing by fish school tracking; using high capacity steel body trawler; using gill nets; massive by catch and overfishing; fishing without following the existing rules and regulations for species catch; ignoring the time limit for trawling in the sea, bottom trawling, fishing in ban period, etc. |
| Challenges for Local Fishers | Overfishing leads to decreasing fish catch; affecting employment and food security; migration of fish into their shallow-breeding waters; availability in the capacity to catch local fishers; fishing during the ban period reduces profit and brings uncontrolled loss of biodiversity; middle man influence crisis, low market price due to lack of quality control of fishes etc. |
| Reasons for Inability to Control IUU Fishing | The patrolling is tough as many foreign trawlers are engaged in IUU activities; the IUU vessels are equipped with modern technology and communication capabilities that enable them to evade arrest; lack of surveillance and monitoring infrastructure; incapacity of relevant local authorities to intercept the ships; not enough night patrols by the responsible authorities; institutional corruption and bribery in fisheries governance; failure to prioritize action against IUU fishing due to a lack of political will; cross-border enforcement faces challenges related to geopolitics, etc. |
| Suggestions for Addressing IUU Fishing | Added up to neighbouring country ban periods, ramping up its monitoring and enforcement with more resources; modernizing surveillance technology (radar, drones, satellite imagery); enhanced long-distance communication to share information quickly; launching a reward program and hotline to elicit fishers reporting IUU fishing incidents; coordination with regional fishery authorities; training and upgrade of tools for fishery management and the preservation; IUU fishing risks per public awareness campaigns; connecting, national and international partners of technical and financial assistance; strengthen laws, regulations and penalties to combat over exploitation of fisheries due to IUU fishing; community-based projects that improve Fishing, conservation-stream-release activisms and sustainable practices; real-time monitoring fishing vessels; use of Satellite-Based Technology for Remote Sensing and Surveillance; creation of marine protected areas to protect habitats and spawning grounds; partnering with research institutions for data-informed decision-making; implementing certification programs to encourage compliance with laws and market subsidies; enhancing cross-border |

| Aspect | Findings |
|---|---|
| Suggestions for Addressing IUU Fishing | collaboration and information sharing arrangements in place; treating root causes such as poverty, lack of good governance; practicing catch and ownership; community-based fisheries management for empowerment and sustainable resource use; mandating seafood supply chain traceability and documentation for both legal origins and sustainable practices; assist small scale fishers in accessing credit; technology and the market; adaptation to climate change by constructing resilient fisheries management strategies; encouraging responsible consumerism via e-labelling and a marketing campaign; leveraging the likes for block chain to make data sharing with security and complete transparency. |
| Technology Integration | Overview of advanced technologies including satellite monitoring, electronic monitoring systems, and drones to improve enforcement in IUU fishing activities. |
| Collaborative Research Initiatives | Developing partnerships and engaging with research institutions and academia to undertake in-depth studies on IUU fishing drivers, environmental impacts, or potential solutions. This would support evidence-based decision-making and the design of intervention programs. |
| Community-Based Monitoring | We should give the sea going fisher communities the power to check and report IUU fishing. This way, better monitoring systems could be created considering the high number of fishers involved in the industry. |
| Traceability Systems | Seafood must be traceable from where it was caught to the market point. Block chain technology could help trace a product's origin and know whether any illicit activities took place across the value chain. |
| Stakeholder Engagement Platforms | Provide a platform for multi-stakeholder discussions. The government, NGOs, communities, and the industry should build dialogues that enhance information sharing, struggle coordination, and consensus development to address IUU fishing. |
| Incentive Mechanisms | Introduce incentive and disincentive framework should include in marine fisheries. For instance, fish that has been legally caught should be certified and allowed access to markets at a reasonable price. Fishers should be trained in sustainable fishing methods. They should also actively get engaged in conserving oceans and seas. This will only be possible if more cooperation between authorities responsible for enforcing fisheries and those in charge of maritime safety, customs departments, and police for better control is incorporated. |
| Capacity Building for Fishers | Training, workshop, awareness building program could play a role to control IUU activities. |
| Cross-Sectoral Coordination | India, Burma, and Thailand were identified as areas with a high risk of contaminated vessel. So cooperation, coordination and common data management platform among BoB littoral are important at this moment. |

Table 3: Summary of IUU Fishing Scenario in Bangladesh & Probable Solutions

## NPOA-IUU Pragmatic Evaluation using SMART Approach

| Criteria | Description | Analysis of NPOA-IUU |
|---|---|---|
| Specific | Clearly defined goals and objectives | NPOA-IUU is meant to detail objectives for inhibiting, preventing, and eliminating IUU fishing to eliminate this practice long-term. Nonetheless, the plan may be light on high-level targets for reductions in IUU fishing by a certain percentage or time. |
| Measurable | Quantifiable indicators to track progress | The NPOA-IUU outlines specific measures such as increased surveillance and reinforced regulations. This could include countable indicators such as the number of IUU fishing vessels apprehended or the tonnage of illegal gear seized. |
| Achievable | Realistic goals considering resource constraints | The NPOA-IUU recognizes challenges such as constrained resources. However, it may come ahead if it scrutinizes the resources and goals that can be met better. |
| Relevant | Addresses the core issues of IUU fishing | The NPOA-IUU tackles key issues, including foreign fishing vessels and illicit practices. The first could be bolstered with additional action to tackle IUU fishing at the local level directly. |
| Time-bound | Defined timelines for achieving goals | For example; the NPOA-IUU does not have clear timelines for accomplishing its goals considering the reality. Accountability could be better served if there were deadlines to commit governments to when implementation stages or milestones will be completed. |

Table 4: NPOA-IUU Evaluation using SMART Criteria

**The Pragmatism.** When examining the NPOA to combat IUU fishing in Bangladesh, it is more pragmatic to see the various facets based on some scientific evidence base, socioeconomic considerations, and performance measures, ultimately bringing tangible results toward policy implementations. Let us explore the discussion:

**There is Basic Scientific Data.** This is another one of the few pillars upon which any national fishing plan should be built that has been fulfilled, such as catch data for fish stocks and ecosystem dynamics, climate patterns, and so much information about how to catch fish best. Reviewing data about the fishing industry in Bangladesh, the study found that although it is one of those countries progressing rapidly regarding collecting and employing their own proper actual information base, in many cases, there could still be areas remote or impossible to reach where such a well-established examination would have been implausible without all necessary details.

**Continue Evaluating Fish Stocks.** Sustainable management of fish stocks in the BoB by Bangladesh has been another key part of the action accompaniment plan. Fish stocks must be scientifically evaluated to ensure they are well managed based on population estimates (size), distribution, and the reproductive cycle of the exploited species. These problems were addressed by Bangladesh, which initiated stock assessments and obtained catch data through tagging programs coupled with satellite monitoring to show how efficiently fisheries management can perform better in setting sustainable, acceptable catches. Where the country is lacking behind yet to have a better management implication capacity of the sea resources.

**Ecosystem Health.** NPOA assessment time could be used in a broader lens for the spectrum of ecosystems. However, the fishing process can harm non-target species or ecosystems. Scientific studies on marine biodiversity focussing more on habitat mapping and ecosystem modelling gain importance under these dynamics. Bangladesh already has efforts to conserve vital fisheries support areas such as mangrove and coral reefs.

**Impact.** Profitability, as well as socioeconomic impact, goes a long way to determine whether an NPOA can succeed. Bangladesh has yet to determine the significance of what this plan means for fishers and economically significant communities. Scientific data can treat fishers' catch rates, income levels, and market dynamics. Social and economic studies also help identify the unintended results of the NPOA, as well as retrained policy efforts.

**Practical Evaluation.** Ultimately, the policy is also being evaluated as to whether it achieves one of its core goals; implementation. This is especially concerning, as although robust scientific evidence and clever plans exist, being able to implement policies on the ground (at an estate level) continues to be crucial for aspirations of conservation gains. It is determined by the degree of governance structures and how this is achieved through regulatory frameworks (laws/standards/norms/ practices) substantiated with enforcement capacity. When monitoring and evaluation spots the areas without implementation, it can then guide corrective measures. A rational review of the NPOA for IUU fishing must rely on sound scientific evaluations, socioeconomic research, and policy implementation assessments. Key finding of the study highlighted inconsistencies in the mapping of targets and progress towards sustainable fisheries management by undertaking a gap analysis that serves as an indicator for government, industry, NGOs, etc., where we are in a moderate stage and there is scope to do better. A country such as Bangladesh relies heavily on its fisheries, and securing them amid

profound change is paramount. However, intact cooperation between private sector labs, universities, and local communities has to be created.

## Conclusion

This study highlights the factors affecting IUU activities mostly like stock depletion, less profit, competition, lack safety and security, climate change etc. Pressing need for effective measures to tackle IUU fishing in the BoB, particularly within Bangladesh's Exclusive Economic Zone (EEZ) is urgent. With significant consequences for the economy and the environment, IUU fishing poses threats to marine biodiversity, depletes valuable fish stocks, and undermines efforts towards sustainable fisheries management. Despite efforts to counteract these challenges, including the implementation of the NPOA-IUU, the study finds that existing initiatives are moderately effective but face limitations in enforcement, surveillance, and resource allocation. Addressing these gaps is crucial, requiring enhanced monitoring technology, stricter enforcement of regulations, and active engagement from government bodies and local communities.

For long-term success, a multi-faceted approach is essential, one that combines robust policy frameworks, international cooperation, and technological advancements such as satellite tracking and traceability systems. Increased collaboration with neighboring countries and more robust stakeholder engagement can further amplify the effectiveness of current policies. Strengthening cross-sectoral coordination and supporting local fishers in sustainable practices will help safeguard marine resources, ensure food security, and create a more resilient blue economy.

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