ECONOMIC IMPLICATIONS OF DECLINING FISHERIES IN PAKISTAN

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ABSTRACT

The entry of fishing vessels to the coastal waters of Pakistan stands out extra vividly in relation to the ascending number of declining catches of fish in the country. Unlike other reports, which depend only on media, this study which is qualitative employs local stakeholder insights to bring up this issue in its full context in the Pakistani coastal artisanal fisheries sector. Developing it further brings out the complexity of the study and deconstructs the simplistic narratives, showing the multifaceted difficulties the area is going through. The analysis finds that the interaction of poverty and the degradation of resources is complex in its complexity and dynamic nature of the poverty–credit market relationship. This issue could not only resolve the existing inefficiencies in credit and product markets but also pave the way for more effective interactions between the banks and the public. Besides, fishery degradation is not only a single factor of poverty that necessitates comprehensive actions to improve the overall capability of the communities and to treat the root causes.

Keywords: Marine fishery, Exclusive Economic Zone, blue economy, export, Pakistan.

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INTRODUCTION

The global decline in marine fisheries is a well-documented phenomenon, attributed to a combination of factors such as overfishing driven by advancing fishing technology, increased capacity, and environmental degradation. Reports from South and Southeast Asia indicate significant depletion of coastal fishing stocks due to overfishing (Khan & Khan, 2011), with some reaching as low as 5 to 30 percent of their unexploited levels.

Similarly, data from Pakistan reflect a concerning trend in fishery degradation. With a significant increase in fishing vessels over a decade, but a lesser catch rate, it implies a structural issue. This downfall is illustrated by news items suggesting continuous failure to catch seafood over the past 10 years to the extent that there are some fish species which are not found anywhere in the region (Ms & K, 2015).

Press reports usually mention that artisanal fisheries suffer stock depletion because of their overfishing methods, but by attempting to comprehend this challenge researchers must go beyond these simplistic views by investigating the complex realities (Martosubroto, 2005) of Pakistan's marine fisheries sector. Using qualitative methods and local knowledge within this research, diverse obstacles and sophisticated viewpoints about the problem are found out so that people can understand the issue more comprehensively. The need for integrated management for cases of fisheries degradation is highlighted by pointing out that it involves complex causes to be recognized with locally equipped policy responses (Showstack, 2000).

Fishing is crucial to food and income security of coastal residents in Pakistan because of the diverse marine species. The country has more than 1,000 kilometers of coastline and a well-defined Exclusive Economic Zone (EEZ) which brings both environmental and economic benefits making it a favorable place for fisheries with a vast number of fish species. There are more than 760 unique fish species that constitute Pakistan's coastal waters (Ahmad, 2016). 73 of them have an exceptional potential for economic use while others are capable of being boosted with the aim of increasing export earnings if preserved and improved. The offshore areas of Pakistan are rich with the various species of fish (Alder et al., 2008). In Pakistan, the fishing sector contributes to approximately 150,000 jobs and has as one of the leading sectors in the economy. However, overfishing, absence of modern fishing tools and illegal fishing are among those many challenges that must be overcome by the marine fisheries sector of Pakistan (Shabbir & Khan, 2022). To overcome these challenges, the government is adopting legislation that facilitates the application of sustainable fishing methods, helping the small-scale fishers and introducing modern fishing technologies.

Pakistan's share in global fish exports is a mere 0.25 percent. Thus, there is still great space for development in Pakistan's fish exports and its utilization of this valuable economic resource (Aftab et al., 2017). Numerous bays along Pakistan's coastline, close to the

mouth of the Indus delta, provide as ideal nesting grounds for a variety of marine animals. Smaller fishing jetties may be found all along the coast, with Karachi, Pasni, and Gwadar being the most well-known. The primary fishing areas, however, lie 12 miles offshore (Khan et al., 2005).

Literature Review: The literature review underscores three interconnected themes such as the significance of incorporating local stakeholder knowledge, the importance of empowering communities reliant on fisheries through participatory governance, and the detrimental effects of state-induced commercialization of fishing activities on these communities' livelihoods.

Studies by (Beddington & Rettig, 1983) and (Aguero & Costello, 1989) highlight the inadequacy of focusing solely on biological stock conservation without addressing the socio-economic complexities faced by fisheries-dependent communities. (Ostrom, 1990) and (Bromley, 1992) advocate for active community involvement in natural resource conservation, emphasizing the effectiveness of participatory approaches in resource management.

The review also discusses the benefits of integrating local knowledge into fisheries preservation efforts, as demonstrated by (Wlatner-Toews et al., 2006) and (Neis & Lawrence, 2000). This approach enables proactive measures to anticipate and prevent stock declines, rather than reacting after the fact.

Regarding participatory governance, (Pauly & Chuenpagdee, 2007) caution that without formal property rights, communities may adopt profit-maximizing behaviors akin to large fleet owners. (Kalikoski & Allison, 2010) advocate for adaptive co-management approaches sensitive to local power dynamics, while (Béné, 2009) stresses the importance of downward accountability in participatory initiatives.

Lastly, the literature highlights the adverse impacts of state-led commercial fishing expansion on traditional fishing communities, as documented by (Sann, 1998), (Ibarra et al., 2000), and (Thorpe et al., 2000). (Young, 2001) emphasizes the conflict between short-term growth objectives and long-term resource conservation pursued by states, often resulting in resource degradation. This dichotomy is pertinent to understanding fishery degradation in Pakistan.

Pakistan's abundant maritime resources, according to (Shahzad, 2020), have not yet been completely used. It is reasonable to say that significant stakeholder groups lack a thorough understanding of the fishing resources that are viable for exploitation and that the current numbers are merely estimates that are not helpful in determining the most effective ways to manage and utilize these resources.

METHODOLOGY

This study emphasized crucial facets of Pakistan's marine fishing sector. Thus, the study must assess the growth of the nation's marine fishing culture. Important drawings were required to comprehend the development, planning, and economic expansion of marine culture. A more rational approach was required for this inquiry to determine what was required and why. This study employs a qualitative approach. To support the realistic aims, quantitative means were also included. The primary methods used in this study were descriptive and analytical, with some historical analysis and debate thrown in. Relevant literature addressed a wide range of subjects, from general background knowledge to in-depth examinations of problems relating to marine fisheries.

Inferior Fishing Practices: Unsustainable fishing practices in Pakistan are driven by the rapid adoption of new fishing methods and technologies, motivated by a combination of policy incentives and livelihood pressures (Amman et al., 2020). Traditional, environmentally friendly methods such as using silk or cotton nets with wide mesh were once prevalent, allowing for sustainable catches without harming the ecosystem. These methods included various types of nets like thukri, phat, bin, and dori, as well as hook and line fishing.

However, the introduction of environmentally harmful nylon nets with fine mesh has become common, leading to increased catches but also significant ecological damage. These nets, translucent and operational day, and night, not only trap small fry but also damage coral reefs (Khan M. W., 2006). Mechanized boats and launches equipped with winches further exacerbate the situation by enabling faster and larger-scale fishing operations.

Examples of these destructive nets include the bhulo gujja, chappal gujja, and launch gujja, which trap small fry and damage fish habitats through bottom dragging. Additionally, fine mesh nets known as "plastic nets" introduced by migrant Bangladeshi fishermen contribute to overfishing, particularly targeting species like Indian mackerel and ribbon fish for export (Nusrat, 2021).

Furthermore, deep-sea trawlers, including foreign vessels licensed by the Federal Government, employ various destructive nets and bottom dragging techniques that decimate coral reef systems and marine life. Indiscriminate catching often results in discarding a significant portion of the catch, further depleting fish stocks and disrupting marine ecosystems.

Poverty–resource Degradation: The relationship between poverty and resource degradation, often referred to as the poverty–environment nexus, is a subject of scholarly debate. While some argue that poverty contributes to environmental degradation and vice versa

(Zarrien, 1998), the research believes this nexus is more intricate, with degradation stemming from local credit and marketing institutions rather than poverty itself.

In the absence of formal institutional credit, fishermen rely heavily on informal credit systems to finance their fishing activities, including capital investments and running expenses (Hornby et al., 2013). However, these arrangements often entail exploitative conditions, wherein fishermen are obligated to pay commissions on their catches until their debts are fully repaid, without any reduction in the principal amount.

It is also noteworthy that this system is partial toward credit and product markets. Fishermen have limited access to the credit sources resulting in their unavailable loan rates, which indicates a market imperfection evident in the credit market. Moreover, they must deliver the upper hand in selling their catch to the creditors, which means the fish trading rate will go down (Qureshi, 1983). Different creditor agencies exist with exploitations varying from one creditor arrangement to another further aggravating these challenges.

Nonetheless, the challenges in Sindh go beyond those of Balochistan with the expenses growing rapidly and the increase in the number of boats buying new vessels. The above-mentioned factors have resulted in a vicious cycle in a way that fishermen tend to obtain loans that will not be fully covered by employment proceeds, so they are stuck in the financial problems. The fish marketing system in Karachi plays a vital role for both Pakistan and the world fish markets as a major market for both fresh and saltwater fishes (Nazir et al., 2016). This system works through an intricate network of auctioneers, middlemen, and fishermen.

Alternate parallel marketing systems bypassing bribing allowing registered traders (beoparis) in Gwadar trading directly with fishermen with whom they can contact pucker-ups. These systems function within the regulatory gaps and very often involve exploitative relationships, mostly for caught-at-sea fishers.

The option of dealing directly with beoparis, though preferred for immediate cash payments, and avoiding commissions, poses risks of distress pricing and perpetuates indebtedness among fishermen. In Sindh, where the cycle of indebtedness and declining catches is particularly acute, small fishermen face heightened vulnerability and struggle to cope with mounting debts amidst diminishing returns (Siddiqui et al., 2008). Additionally, a contract fishing system prevails in large creeks in Sindh, controlled by sea lords who provide permits and loans to fishermen under predetermined terms, further limiting fishermen's autonomy and bargaining power in the market.

For instance, among those most affected are marginalized Bangladeshi fishermen, facing heightened vulnerability due to their status as illegal migrants, which restricts their access to sea resources. Permission to fish in creeks often results in meager returns, exacerbated by loan obligations or dependency on processing plants and maritime agencies (Gore et al., 2019). To cope with these challenges, they resort to environmentally harmful practices like using destructive nets and engaging in off-season shrimp fishing, driven by distress prices, dwindling catches, and illegal payments.

Empirical evidence underscores a clear link between poverty and indebtedness among fishermen. Rising capital and operating costs, coupled with declining catches, have pushed many into a cycle of escalating debts and diminishing incomes. Moreover, livelihoods are jeopardized by inadequate compliance with international food safety and sustainability standards, particularly concerning fish processing activities (Abdullah et al., 2018).

As fish stocks diminish in Sindh waters, launch owners encroach into Balochistan's territorial waters, exacerbating conflicts with local fishermen. Despite grievances reported to authorities, confrontations arise, underscoring tensions over resource rights. Existing fishing policies further marginalize vulnerable fishing communities, prioritizing commercial interests over environmental and livelihood considerations (Mohsin et al., 2015).

Changes in fishing policies have also marginalized women, restricting their participation due to security concerns and the shift towards mechanized and commercialized fishing practices. As traditional roles diminish, women's contributions to the resilience of fishing communities remain significant, albeit under economic disempowerment.

Other Factors Contributing to Fishery Degradation

Destruction of Mangroves: The degradation of mangrove forests, crucial ecosystems sustaining fisheries, stems from a combination of saltwater intrusion and reduced silt and nutrient flows due to upstream dam construction along the Indus River and its tributaries (Saifullah & Rasool, 2000). This deterioration severely affects breeding grounds for fish stocks, with significant loss of mangrove area observed over the past decades, exacerbating the decline in fish population (Rahman et al., 2017)s.

Pollution: Water pollution, originating from various sources including oil spills at ports, household and industrial waste, and agricultural runoff, poses a significant threat to marine ecosystems. Karachi and its industrial estates are major contributors to untreated waste discharge into the sea, violating environmental regulations (Arif & Karim, 2015). Additionally, agricultural runoff diverted to coastal areas further worsens pollution levels, with significant proportions of wastewater from Karachi flowing into marine environments (Faruqee, 1997).

Institutional and Policy Shortcomings: Lack of regulatory control and policy lapses are also contributors to the degradation of fisheries. Regulations on licenses are inadequate to address the excessively fast expansion of the large mechanically powered fishing vessels in the EEZ, which has resulted in overcapacity and intense fishing pressure (Amman et al., 2020). Unreasonable changes in zoning laws and poor implementation of the conservation measures make it a tough job, especially for the seasonal ban on fishing that is poorly enforced, or most especially concerning the foreign trawlers. Regardless of governmental actions to commercialize marine fishing, the follow-up of concrete measures continues to face a serious shortage (Longhurst, 2010). Apart from these, conceptual shortfalls in deep sea fishing policies like ignoring traditional fish resource rights and not paying any heed to global prevalence of overfishing are obstacles for successful development and management of marine fisheries (Sann, 1998). Moreover, the federal and provincial governments having overlapping jurisdiction makes it very difficult to implement policies efficiently to bring about the desired conservation efforts (Showstack, 2000).

Conclusion and Suggestions: The results of this study are that the interaction between resource degradation and poverty constitutes a complex factor that contributes to the decline of marine fisheries in Pakistan. The vicious cycle of poverty pushes fisherman into unsustainable fishing practices and therefore, these practices continue to perpetuate their economic hardships. Tackling the problem of the origin, mainly the inadequate lending market, spreading poverty, worsening of the fishery resource exploitation and so on has a more favorable prospect.

Housed within the state, community-based micro-credit programs are likely to improve the financial burdens of fishermen and to reduce the need for the use of destructive fishing practices. Enabling fishing communities with participatory techniques can help to build sustainable resource management practices, where the local knowledge has meaningful involvement, and the community has a sense of claim to marine resources.

Marginalized communities make them vulnerable to state action because of their very existence as the state may not value their dignity and security. However, their vulnerability needs to be taken into consideration by the state during the regulation of entry to help mitigate pressure on fisheries. With credit and vulnerability issues being resolved, path will become clear for achieving market institutionalization, coping with monopsonistic market power, and ensuring fair prices for fishermen.

Though poverty-induced resource degradation is a significant factor, other issues such as pollution, freshwater depletion, mangrove degradation, and flawed fishing policies also warrant attention. In low-income countries, prioritizing local knowledge and community participation may offer a more feasible approach initially, given potential deficits in scientific capacity and governance. The author has come up with the following suggestions.

Strengthen Community-Based Micro-Credit Initiatives: Expand state-sponsored micro-credit schemes targeted at the fishing communities to de-stress them financially and the situation of fishing at a sustainable level.

Enhance Participatory Resource Management: Strengthen fisheries management using participatory processes that involve local communities, incorporate their knowledge, and cultivate resource stewardships.

Implement Sustainable Fishing Policies: Create and adhere to holistic fishing laws that equally address conservation, sustainable harvesting, and equal access to the sea while taking into consideration the root causes of overfishing and habitat destruction.

Promote Mangrove Conservation: Invest in the restoration of mangrove ecosystems and implement regulations to conserve remaining mangroves, acknowledging their functions as spawning areas and properties to withstand storms.

Strengthen Pollution Control Measures: Introduce tougher rules and penalties to lower water pollution from industries, farming sectors, and homes mainly to protect marine life and food safety standards.

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