TOWARDS SUSTAINABLE FISH PRODUCTION IN THE NIGER DELTA: IMPLICATIONS FOR NIGERIA'S ECONOMY

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Abstract
Nigeria is richly endowed with natural resources, including substantial water bodies that present vast economic opportunities. Among these is the Niger Delta region, whose coastal and inland waterways hold significant potential for fisheries development. Despite fish being one of the most widely consumed protein sources in Nigeria, a large portion of the nation's fish supply is imported. This occurs even though the Niger Delta has the capacity to meet domestic demand through local production. This paper aims to explore the potential of fish production in the Niger Delta as a driver of economic growth and a contributor to Nigeria's Gross Domestic Product (GDP). It also examines the major constraints facing the fisheries sector in the region—ranging from environmental degradation to infrastructural and policy-related challenges—and proposes actionable solutions for sustainable development of the industry.
Keywords: Fish, Production, Nigeria, Niger-Delta, Economy

Introduction

Fisheries entail all the activities involved in producing fish and other aquatic resources for the basic purpose of providing human food, although other aims are possible (such as sport or recreational fishing) or obtaining ornamental fish or fish products such as fish oil (Fletcher et al., 2002). Commercial fisheries include wild fisheries and fish farms, both in freshwater (about 10% of all catch) and the oceans (about 90%). Over 10% of the world population is economically dependent on fisheries as a source of employment, of which most are women (OECD, 2020).

While the global population is projected to increase by 25% by 2050, Nigeria's population is projected to be 401.3 million (99.82% increase) by 2050 (Population Reference Bureau, 2021). This rapid increase in Nigeria and the world population in general, has led to high competition for natural resources, especially food resources. To attain global food security, the fisheries and aquaculture sector has been identified as an important sector (FAO, 2020). The Fisheries and aquaculture sector provides food for hundreds of millions of people around the world daily. While over half a billion is employed by the fisheries sector globally, over 1.477.651 people were reported to have been engaged in the fisheries sector of Nigeria in 2014 (FAO, 2021, WorldFish, 2022). Fishery production is significant to the Nigerian economy given its importance in providing a cheap source of food/nutrition security, income, employment and serves as a source of foreign exchange particularly those of the riverine communities (NBS, 2017).

It is not a hidden fact that fish is a major source of animal proteins in the diet of most Nigerians, especially those living in rural areas. According to the Nigerian Minister of Agriculture and Rural Development, Nigeria's total fish production is estimated at 1.123 million metric tons (Vanguard, 2021), to which marine catches contributed 36 per cent, inland waters catch contributed 33 per cent and aquaculture 31 per cent (FAO, 2021). Akinsorotan et al., (2019) report that the yearly fish demand of Nigeria is about 2.1 million metric tons with Nigeria only able to meet up just about 38.1% of its fish needs and depends on imports to cover the shortfall of about 61.9% of its population need yearly.

Nigeria is the world's fourth-largest importer of fish and fishery products in terms of volume (5.4% of global imports) after China, Japan, and the US, but only 23rd in value terms or 0.8% (Trade map, 2018). Angola, Democratic Republic of Congo, Cameroon, Ghana, Côte d'Ivoire, Egypt and Nigeria are fish and fishery products trade deficit countries with Nigeria alone importing an average of US$ 1,245,394 worth of imports with a trade deficit >US$750 million (AU-IBAR, 2018).

The Niger Delta region of Nigeria is located in the Atlantic Coast of Southern Nigeria, where the River Niger divides into numerous tributaries. It is the oil-bearing region of the country. It is the second-largest delta in the world, with a coastline spanning about 450 km terminating at the Imo River entrance (Adewumi et al., 2018). The Niger Delta region, which spans over 20,000 km2, is described as the largest wetland in Africa and among the three largest in the world. Izah (2018) noted that about 2370 km2 of the Niger Delta area consist of rivers, creeks and estuaries, while stagnant swamp covers about 8600 km2. The states of the Niger-Delta include Abia, Balyesa, Akwa Ibom, Cross River, Delta, Edo, Imo, Rivers and Ondo states. The Niger Delta region also has the largest mangrove swamps in Africa (Izah, 2018). Many of the people in the Niger Delta make their livelihoods from fishing and farming because the Niger Delta has diverse regions with rich mangroves and waterways rich in fish (Adebayo, 2019). With high levels of involvement in fishing activities and increasing revenues from oil exploration, the Niger Delta region is expected to have high levels of fish production and low poverty levels, but the reverse is the case (Orebiyi and Ekang, 2018).

Hence, the objective of this paper is to examine the challenges to fish production in the Niger Delta region of Nigeria, highlight its potential in boosting Nigeria's GDP, and propose possible solutions to the constraints facing fish production in the area.

Objective of the Study

This paper is aimed at highlighting the potentials of fish production in boosting the GDP of Nigeria, it would as well interrogate the limitations to fish production in the Niger Delta area of Nigeria and also proffer possible solutions to the problems of fish production in the Niger Delta.

Method

This work was carried out using a historical research approach, which involves a systematic and objective location, evaluation and synthesis of evidence in order to establish facts and draw conclusions. It involved a qualitative/descriptive analysis of data collected from secondary sources both published and unpublished works. The study used discrete analysis of the materials to achieve the desired goal of the research.

The potentials of fish production in boosting the GDP of Nigeria

Fish production has significant potential to boost Nigeria's GDP due to several key factors:

1. **Economic Diversification-** Increasing fish production can reduce reliance on oil exports, helping to stabilize the economy and help diversify Nigeria's economy, enhancing food security.
2. **Job Creation-** The fisheries sector can create jobs in fishing, processing, and distribution, supporting rural livelihoods and reducing poverty. The aquaculture sector can create numerous jobs across various levels, from farming to retail, contributing to lower unemployment rates.
3. **Food Security-** Enhancing fish production can improve food security and nutrition, contributing to a healthier population and workforce.
4. **Export Opportunities-** Nigeria has the potential to export fish and fish products, and become a major exporter of fish and seafood products, increasing foreign exchange earnings.
5. **Investment and Technology-** Investment in aquaculture and modern fishing techniques can enhance productivity and sustainability, attracting both local and foreign investors. Increased fish production can attract both domestic and foreign investments, leading to the establishment of processing plants and value chain improvements.
6. **Support for Related Industries-** Increased fish production can stimulate growth in related sectors such as feed production, transportation, and retail.
7. **Health Benefits-** Promoting fish consumption can enhance public health, potentially reducing healthcare costs and increasing workforce productivity.
8. **Rural Development-** Fish farming can stimulate rural economies, improving livelihoods and reducing poverty in underserved communities.

By leveraging these factors, Nigeria can harness its fish production potential to drive economic growth and improve overall GDP. By strategically investing in aquaculture and addressing challenges like infrastructure and access to financing, Nigeria can leverage fish production as a vital component of its economic growth.

The challenges with fish production in the Niger Delta

One of the key limitations to fish production in the Niger Delta area of Nigeria is the degradation and pollution of water bodies. Frequent oil spills from exploration and transportation contaminate water, harming aquatic life and degrading habitats. Effluents from factories often discharge toxins into rivers and estuaries, reducing water quality and affecting fish health. Pesticides and fertilizers used in agriculture can lead to nutrient loading and algal blooms, which deplete oxygen levels and disrupt ecosystems. Loss of mangroves and wetlands reduces nursery habitats for fish, impacting biodiversity and fish populations. Changes in water temperature and salinity due to climate impacts further stress fish populations and alter migration patterns. These issues not only diminish fish stocks but also affect the livelihoods of local communities dependent on fishing, highlighting the need for sustainable management and pollution control measures (Agbeja, 2010).

According to Awosika, (2001), another limitation to fish production in the Niger Delta area of Nigeria is limited institutional capacity for policy analysis and decision-making and it manifests by way of insufficient expertise. There is lack of skilled personnel trained in fisheries management and policy analysis. This hampers effective planning and implementation of sustainable practices. There are also weak governance structures. Fragmented governance and overlapping responsibilities among agencies lead to inefficiencies and confusion in policy execution. Again data deficiency contributes to limited institutional capacity for policy analysis and decision-making. Inadequate data collection and analysis hinder informed decision-making, resulting in policies that do not address the actual needs of the fisheries sector. Insufficient financial resources restrict the capacity of institutions to conduct thorough research, implement programs, and engage in stakeholder consultations. Poor collaboration among government, local communities, and NGOs results in policies that may not reflect the realities of those dependent on fisheries. The absence of clear regulations and enforcement mechanisms creates an environment where illegal fishing and unsustainable practices thrive. Addressing these constraints requires investment in capacity building, enhanced data management systems, and stronger institutional frameworks to support sustainable fisheries development in the Niger Delta (Ogba, et al, 2007).

Furthermore, lack of adequate infrastructure significantly hampers coastal fisheries. Inadequate roads and transportation systems limit access to fishing communities, making it difficult for fishers to transport their catch to markets efficiently. The absence of proper refrigeration and storage facilities leads to high post-harvest losses, affecting the quality and quantity of fish available for sale. Lack of processing plants restricts value addition, forcing fishers to sell their catch at lower prices and missing opportunities for export. According to Okeke (2003), poor infrastructure for research and extension limits the dissemination of modern fishing techniques and sustainable practices, hindering the overall growth of the sector. Limited infrastructure for market development reduces fishers' ability to connect with consumers, impacting their income and economic stability. Poor infrastructure can exacerbate environmental issues, such as pollution and habitat degradation, further threatening fish stocks and livelihoods. Addressing these infrastructure gaps is crucial for enhancing the productivity and sustainability of coastal fisheries in the region.

Lack of relevant data and information also significantly hinders effective fisheries policy formation in the Niger Delta region of Nigeria. Without comprehensive data on fish stocks, biodiversity, and ecosystem health, it becomes challenging to assess the sustainability of fisheries. This lack of information can lead to overfishing and depletion of resources. Insufficient data limits the ability to engage local communities and stakeholders effectively. Policies may not reflect local needs or knowledge, resulting in low compliance and participation. The absence of robust data collection systems hampers ongoing monitoring and evaluation of fisheries management practices, making it difficult to adapt policies based on current conditions. Policymakers often rely on outdated or incomplete information, which can lead to ineffective regulations that fail to address the unique challenges faced in the region, (Omoweh, 2005). Inadequate data affects economic planning and investment in the fisheries sector, ultimately jeopardizing the livelihoods of local fishers and communities that depend on these resources. Lack of data on environmental changes and their impacts on fish populations complicates the development of adaptive management strategies, increasing vulnerability to climate change and pollution. Tackling these constraints requires investment in data collection, research, and stakeholder engagement to inform fisheries policy and ensure sustainable management of coastal resources in the Niger Delta.

Again weak policy formation and regulation mechanisms significantly hinder the sustainable harnessing of coastal fisheries in the Niger Delta region of Nigeria. The absence of comprehensive policies addressing the complexities of fisheries management limits effective governance. Existing policies often lack clarity and enforcement mechanisms. Weak regulatory bodies are susceptible to corruption, leading to the misallocation of resources and poor implementation of fisheries laws. Ineffective regulation allows for unsustainable fishing practices, resulting in the depletion of fish stocks and degradation of marine ecosystems. According to Okeke (2003), competing interests among stakeholders, including local fishermen, industrial fishers, and government entities, often result in policies that favor short-term gains over long-term sustainability. Insufficient scientific research and data collection impede informed decision-making, making it difficult to establish effective management practices. Limited involvement of local communities in policy formulation results in a disconnect between regulations and the realities faced by fishers. Pollution, habitat destruction, and climate change exacerbate the challenges faced by fisheries, yet regulatory frameworks often fail to address these issues adequately. Improving policy formation and regulatory mechanisms requires a multi-stakeholder approach, integrating scientific research, community input, and stronger enforcement to promote sustainable fisheries management in the Niger Delta.

Addressing the Challenges of Fish Production in the Niger Delta

The Niger Delta region of Nigeria, rich in biodiversity and resources, faces significant challenges due to oil spills, which have severely impacted fish production and the livelihoods of local communities. Addressing these challenges requires a multifaceted approach, focusing on capacity building and technical acquisition.

Key Areas for Capacity Building

1. **Training and Education-** Conduct workshops to educate fishers and community members about oil spill impacts and best practices for mitigation. Government Agencies should enhance the skills of personnel in environmental monitoring and response strategies.
2. **Technical Skills Development-** Train local teams in oil spill response methods, including containment, recovery, and remediation techniques. And also introduce advanced monitoring technologies (e.g., satellite imagery, drones) for early detection of spills.
3. **Sustainable Practices-** Offer training in sustainable fishing practices and aquaculture to reduce dependency on traditional fishing affected by oil spills. There should be ecosystem management to promote understanding of local ecosystems and the importance of biodiversity in maintaining fish populations, (Omoweh, 2005).

Addressing the challenges to fish production in Nigeria also requires an approach that is focused on technical acquisition.

Key Areas for Technical Acquisition

1. **Investment in Technology-** Oil Spill Response Equipments should be deployed. Equip local agencies and communities with the necessary tools for effective spill response, such as booms and skimmers. There should be data management systems to implement systems for tracking spill incidents and their environmental impact to inform policy and response strategies.
2. **Partnerships and Collaboration-** NGOs and Academia collaboration is essential. There should be collaboration with non-governmental organizations and universities for research, knowledge sharing, and capacity-building programs. There should be international support as well. Assistance ought to be sought from international bodies for technology transfer and funding for training initiatives.
3. **Policy Development-** There should be advocacy for stronger environmental regulations that enforce accountability on oil companies for spills and restoration efforts. There should be community Involvement as well, local communities should be engaged in policy-making to ensure their needs and knowledge are incorporated into management strategies.

Indeed, building capacity for oil spill management and acquiring relevant technical skills are essential steps in mitigating the impacts of oil spills on fish production in the Niger Delta. By empowering local communities and enhancing institutional frameworks, sustainable fishery practices can be promoted, ultimately leading to improved livelihoods and environmental health in the region, (Ogba, et al, 2007).

Addressing the problems of fish production in the Niger Delta can also be achieved by formulating a prescriptive maritime policy to address oil spills, waste disposal, and piracy in the Niger Delta is crucial for enhancing fish production and overall environmental sustainability. Here are key components to consider:

1. **Oil Spill Management-** Establish strict regulations for oil companies, mandating the adoption of best practices in oil extraction and transportation to prevent spills. According to Awosika, (2001), companies should be required to develop and maintain comprehensive emergency response strategies for oil spills, including regular drills and community involvement. Enforce the principle that the responsible party must bear the costs of cleanup and restoration, incentivizing better practices.
2. **Waste Disposal Regulations-** Standards for Waste Disposal should be established. Implement stringent guidelines for the disposal of industrial waste, particularly from oil companies, to prevent contamination of water bodies. Set up a robust monitoring system with mandatory reporting of waste disposal activities and penalties for non-compliance. Engage local communities in monitoring efforts to enhance accountability and transparency.
3. **Combating Piracy-** Enhanced Security Measures should be deployed. Collaborate with local, national, and international security agencies to improve maritime security in the Niger Delta. Strengthen laws against piracy, including harsh penalties for perpetrators and support for affected communities. Develop community-based initiatives to provide alternative livelihoods and reduce the incentives for engaging in piracy.
4. **Promoting Sustainable Fishing Practices-** Establish a comprehensive fisheries management plan that includes quotas, seasonal restrictions, and protected areas to sustain fish populations. Provide training and resources for local fishermen to adopt sustainable fishing practices and reduce environmental impact, (Agbeja, 2010).
5. **Integrated Approach-** Foster collaboration between government agencies, local communities, NGOs, and the private sector to ensure a holistic approach to maritime policy. Invest in research to gather data on the impacts of oil spills and waste on fish production and develop targeted interventions.
6. **Legislative Framework-** Existing Laws should be strengthened. Review and amend existing maritime and environmental laws to close loopholes and ensure effective enforcement. Engage with international maritime law frameworks to enhance compliance and leverage global best practices.

Indeed, a comprehensive maritime policy addressing oil spills, waste disposal, and piracy is essential for revitalizing fish production in the Niger Delta. By enforcing stringent regulations and fostering community engagement, Nigeria can protect its marine environment and promote sustainable livelihoods.

Conclusion

The challenges to fish production in the Niger Delta region of Nigeria are multifaceted and deeply intertwined with environmental, economic, and social factors, as discussed above. Addressing these challenges requires a comprehensive approach that includes improved regulatory frameworks, the adoption of sustainable fishing practices, and increased investment in environmental restoration. Additionally, enhancing community involvement and promoting alternative livelihoods can strengthen the resilience and sustainability of fish production in the region.

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