Comprehensive Fisheries Development Guideline for the North Western Province, Sri Lanka

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Executive Summary

The North Western Province (NWP) of Sri Lanka, encompassing the districts of Kurunegala and Puttalam, possesses significant marine and inland fisheries resources that are vital for the livelihoods of its coastal and rural communities. The sector contributes substantially to the national economy, providing employment and a crucial source of animal protein [1]. However, it faces numerous challenges, including environmental degradation, disease outbreaks in aquaculture, and socio-economic pressures on fishing communities.

This guideline outlines a strategic framework for the sustainable development of the fisheries sector in the NWP. It aligns with national policies such as the National Plan for Small-Scale Fisheries (NPOA-SSF) and the National Aquaculture Development Authority (NAQDA) plans, emphasizing ecosystem-based management, technological advancement, and community empowerment [2] [3]. By addressing existing challenges and leveraging untapped potential, the NWP can enhance fish production, improve livelihoods, and ensure the long-term sustainability of its aquatic resources.

1. Overview of the Fisheries Sector in North Western Province

The NWP's fisheries sector is characterized by its diverse resource base, including extensive marine waters, brackish lagoons, and inland freshwater bodies. The province's coastline, particularly in the Puttalam district, is a hub for marine fishing, while its numerous reservoirs and tanks support a vibrant inland fishery.

1.1 Resource Base and Key Assets

Marine Fisheries: The coastal waters of the NWP are rich in diverse fish species, supporting both small-scale and commercial fishing operations. Key marine species include various tuna varieties (Skipjack, Yellowfin) and shore seine varieties [1]. The Puttalam district, with its long coastline, is a significant contributor to marine fish production [1].

Inland Fisheries: The province benefits from a network of perennial and seasonal reservoirs, which are crucial for inland fish production. While Anuradhapura and Polonnaruwa districts (often grouped regionally) historically dominate inland fisheries, Kurunegala and Puttalam districts also have substantial inland water bodies [1]. Tilapia is the most prevalent species in inland and aquaculture fish catches, followed by various carp species [1].

Brackish Water and Aquaculture: The Puttalam Lagoon, the second-largest lagoon in Sri Lanka, and the Mundal Lagoon are vital brackish water ecosystems supporting small-scale fisheries and extensive

aquaculture activities [4]. The Puttalam district is historically the heart of Sri Lanka's shrimp farming industry, with significant concentrations of farms in Mundalama and Arachchikattuwa Divisional Secretariat Divisions (DSDs) [5]. The primary cultured species is the Black Tiger Shrimp (*Penaeus monodon*) [5].

1.2 Infrastructure and Support Systems

The NWP has essential infrastructure to support its fisheries, including fishing harbors, landing sites, and a growing number of cold storage and processing facilities. The National Aquaculture Development Authority (NAQDA) maintains development centers and hatcheries to support aquaculture initiatives [3]. However, the distribution and modernization of this infrastructure vary across the province.

2. Current Challenges and Constraints

Despite its potential, the fisheries sector in the NWP faces several critical challenges that impede its sustainable growth and the well-being of fishing communities.

2.1 Environmental Degradation and Resource Depletion

Lagoon Ecosystems: The Puttalam Lagoon, while productive, has suffered from environmental degradation due to unsustainable practices, including mangrove destruction, illegal land use, and the discharge of untreated effluents from shrimp farms [5] [6]. This has led to habitat loss and declining water quality, impacting fish stocks and biodiversity.

Overfishing: In certain marine and inland areas, overfishing, particularly by illegal, unreported, and unregulated (IUU) fishing practices, threatens the sustainability of fish stocks. This is exacerbated by a lack of effective monitoring and enforcement mechanisms.

2.2 Aquaculture-Specific Issues

Disease Outbreaks: The shrimp farming industry in Puttalam has a history of devastating disease outbreaks, notably White Spot Syndrome Virus (WSSV) and Yellow Head Disease (YHD), which have caused significant production losses and economic hardship for farmers [5]. Poor biosecurity practices, particularly among smallholder farmers, contribute to the spread of these diseases.

Unsustainable Practices: Rapid and often unregulated expansion of shrimp farms in the past led to environmental issues, including salinization of freshwater sources and conflicts with other land users [5]. The cost of production, including feed and energy, has also significantly increased, impacting profitability [5].

2.3 Socio-Economic Vulnerabilities

Livelihood Security: Many small-scale fishers and aquaculture farmers face economic instability due to fluctuating market prices, high operational costs, and vulnerability to natural disasters and climate change impacts [2]. Limited access to credit, modern technology, and value-added markets further exacerbates their situation.

Community Participation: While fishing communities are central to the sector, their involvement in decision-making processes and resource management is often limited, leading to a disconnect between

policy and ground-level realities.

3. Strategic Development Framework

To foster a resilient, productive, and sustainable fisheries sector in the NWP, a multi-pronged strategic approach is necessary. This framework integrates national policies with local needs, focusing on ecosystem health, economic viability, and social equity.

3.1 Ecosystem-Based Fisheries Management (EBFM)

EBFM is crucial for the long-term health of marine and inland ecosystems. The Puttalam Lagoon Fisheries Management Area (PLFMA) initiative, which adopts an ecosystem approach, should be strengthened and replicated in other critical habitats [7].

Component	Proposed Actions	Expected Outcomes
Habitat Restoration	Implement large-scale mangrove reforestation and coastal wetland restoration programs, particularly around lagoons.	Enhanced fish breeding grounds, improved water quality, increased coastal resilience.
Pollution Control	Enforce strict regulations on industrial and agricultural waste discharge into coastal and inland waters. Promote sustainable aquaculture practices to minimize effluent impact.	Reduced water pollution, healthier aquatic ecosystems, safer seafood.
Sustainable Fishing Practices	Strengthen monitoring, control, and surveillance (MCS) against IUU fishing. Promote the use of selective fishing gear and enforce seasonal closures for vulnerable species.	Recovery of fish stocks, increased long-term yields, reduced bycatch.

3.2 Modernization and Diversification of Aquaculture

Aquaculture holds significant potential for increasing fish production and diversifying livelihoods. The NAQDA’s plan to double aquaculture production provides a roadmap for expansion [3].

Area	Proposed Actions	Expected Outcomes
Biosecurity & Disease Management	Establish provincial-level disease diagnostic labs and rapid response teams. Implement mandatory biosecurity protocols for all aquaculture farms, with training and financial support for smallholders.	Reduced disease outbreaks, increased shrimp survival rates, enhanced industry stability.
Species Diversification	Promote the culture of new high-value species such as sea bass, groupers, and sea cucumber in suitable marine and brackish water environments.	Reduced reliance on single species, increased market opportunities, higher farmer incomes.
Technological Adoption	Introduce modern, environmentally friendly aquaculture technologies (e.g., recirculating aquaculture systems - RAS, biofloc technology) to minimize water usage and environmental impact.	Increased production efficiency, reduced ecological footprint, improved product quality.
Inland Aquaculture	Expand culture-based fisheries in perennial and seasonal reservoirs, focusing on native and suitable exotic species. Provide fingerlings and technical assistance to local communities.	Increased inland fish production, enhanced food security, new income streams for rural communities.

3.3 Socio-Economic Upliftment and Community Empowerment

Sustainable fisheries development must be people-centric, ensuring that benefits accrue to fishing communities and that their traditional knowledge is integrated into management plans.

Focus Area	Proposed Actions	Expected Outcomes
Capacity Building	Develop and implement comprehensive training programs for fishers and farmers on sustainable fishing techniques, modern aquaculture practices, post-harvest handling, and financial literacy.	Improved skills, increased productivity, better quality products.
Value Chain Development	Facilitate access to credit, cold chain facilities, and direct market linkages for small-scale fishers and aquaculture farmers. Promote value-added processing (e.g., dried fish, fish meal, fish oil).	Higher incomes, reduced post-harvest losses, enhanced market competitiveness.
Co-management & Governance	Establish and strengthen co-management committees involving local fishers, government agencies, and NGOs for participatory decision-making in resource management.	Empowered communities, equitable resource access, reduced conflicts.
Social Safety Nets	Implement insurance schemes and alternative livelihood programs to buffer communities against climate shocks and market fluctuations.	Enhanced resilience, reduced vulnerability, diversified income sources.

3.4 Policy and Institutional Strengthening

Effective implementation requires robust policy frameworks and well-coordinated institutional support.

Policy Harmonization: Ensure provincial fisheries policies are harmonized with national strategies, including the NPOA-SSF and NAQDA's aquaculture development plans. This includes integrating climate change adaptation and mitigation measures into all policies.

Research and Development: Strengthen the capacity of local research institutions (e.g., NARA) to conduct applied research on fish stock assessment, disease control, and sustainable aquaculture technologies relevant to the NWP.

Inter-Agency Coordination: Improve coordination among the Department of Fisheries and Aquatic Resources, NAQDA, environmental agencies, and local government bodies to ensure integrated planning and enforcement.

Conclusion

The North Western Province stands at a critical juncture in its fisheries development journey. By embracing an ecosystem-based approach, modernizing aquaculture with sustainable practices, and empowering its fishing communities, the province can transform its fisheries sector into a model of sustainable growth. This guideline provides a comprehensive roadmap to achieve these objectives, ensuring food security, economic prosperity, and environmental stewardship for the people of Wayamba.

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