

Enhancing Sri Lanka's Tuna Industry: Strategies for Sustainable and Competitive Growth

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Abstract – The project focuses on developing the current Sri Lankan Fishing industry. The Sri Lankan tuna industry holds significant potential for economic growth and global market integration. This study explores the current challenges facing the industry and examines successful strategies employed by leading tuna industry evolutionary nations, including Indonesia, Japan, and the Solomon Islands. Using a multiple case study approach was used to assess best practices in government policies, sustainability, technological advancements, and market positioning. Emphasizing economic growth while integrating sustainability ensures the long-term development of Sri Lanka's tuna industry and its competitive positioning in the global market. This study identifies policy and technological strategies for repositioning Sri Lanka's tuna industry within global sustainable markets.

From the total production of the tropical tuna species, Sri Lanka produced 2,166,621 mt from 2000 to 2023. It is 8.9% of the total tropical reproduction in the Indian Ocean region. (Ayeshya & Jayasinghe, 2024) According to the studies, yellowfin tuna prefers warmer waters over 24°C. They are especially targeted when fishing in temperatures between 22.0 and 27.0°C, and their current speed is less than 0.4 ms⁻¹, peaking at 0.25 ms⁻¹. Which is ideal for the Sri Lankan EEZ. Also, their spatial distribution can vary according to the oceanic circumstances. Most importantly the area's fishable aggregation of yellowfin tuna is available all year. (Maddumage, Rajapaksha, & Gunatilake, 2021) Japan is the technical and economic leader of the industry. Because of that, they lend their hands to other countries to develop the industry. In 2021 the Government of Japan and the United Nations Industrial Development Organization (UNIDO) found a funding agreement regarding a sustainable development project of the tuna value chain in Iran. (United Nations Industrial Development Organization [UNIDO], 2021.) As a region Europe got the highest consumption market share of fish and seafood. Tuna is one of the five favorite consumer species in Europe. Tuna import value from Ecuador increased by 24% in 2022. (Fortune Business Insights, [2019]) When developing this industry several problems occur such as the practices, which will affect the sustainability of this valuable ecosystem. Most of the time the communities and the authorities trying to develop this industry are aware of these kinds of problems. On behalf of that the

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main stakeholders that Sri Lanka must communicate properly are the IOTC and Marine Stewardship Council (MSC).

A multiple case study design was chosen because it enables a comparative exploration of how different countries have developed and sustained their tuna industries under diverse socio-economic, political, and environmental conditions. Each selected case [Indonesia, Japan, and the Solomon Islands] offers a unique framework, allowing for theoretical replication, where contrasting results can be anticipated and compared. This approach helps identify recurring themes, patterns, and policy frameworks that are transferable to the Sri Lankan context. Rather than focusing on a single example, the multiple case design strengthens the validity and reliability of the research by testing whether findings hold across varying contexts. It also provides a broader analytical perspective, revealing how governance, sustainability initiatives, market mechanisms, and technological advancements interact differently across countries. Through these comparisons, the research can extract practical insights and adaptable strategies, helping Sri Lanka develop a more resilient, sustainable, and competitive tuna industry. (See Figure 1)

The analysis focused on four main areas crucial for developing Sri Lanka's tuna industry: government policies and infrastructure, technological advancement, market demand, and sustainable initiatives. Findings highlight the importance of strong governance, policy frameworks, and institutional collaboration to establish a structured industry base. Sri Lanka must establish a national Tuna Commission like Indonesia's to coordinate policy, attract investment, and manage resources under the Ministry of Fisheries and Aquatic Resources. This body should collaborate with NARA, Ocean Affairs authorities, and related ministries to promote sustainable management through licensing frameworks like the Fish Aggregating Device (FAD) and Vessel Day Scheme, supported by subsidies for modernization. Technological development is crucial, focusing on improved cooling systems, advanced fishing gear, and post-harvest techniques such as brine freezing to ensure product quality. Partnerships with organizations like FFA, IOTC, UNIDO, and JICA can provide technical expertise and innovation. Targeting major markets in the USA, EU, and Japan, alongside niche sectors such as smoked and sashimi-grade tuna, will enhance global competitiveness. Establishing onshore value additional facilities like SolTuna and implementing sustainability standards through collaboration with MSC, IOTC, and WWF can ensure long-term industry growth and resilience. (See Figure 2)

The research emphasizes that Sri Lanka's tuna industry can achieve long-term growth by adopting sustainable practices and modernizing its infrastructure. Introducing sustainability certifications such as the Marine Stewardship Council (MSC) standards and using responsible fishing methods can enhance global credibility and reduce environmental impacts. Lessons from Indonesia and Japan highlight the importance of establishing a centralized governing body, such as a national Tuna Commission, to manage policies, investments, and resource optimization effectively. Developing facilities maximize economic returns and create employment. Infrastructure improvements, including upgraded ports, processing facilities, and transportation systems, are essential to meet global market standards. Collaborations with international organizations can provide the technical and financial support needed to implement these changes. With rising demand for high-quality yellowfin tuna in markets such as the EU, USA, and Japan, Sri Lanka can strengthen its position by diversifying products, forming global partnerships, and promoting sustainable growth through strategic investments and policy reforms.

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Figure 1
Multiple Case study Logic Design

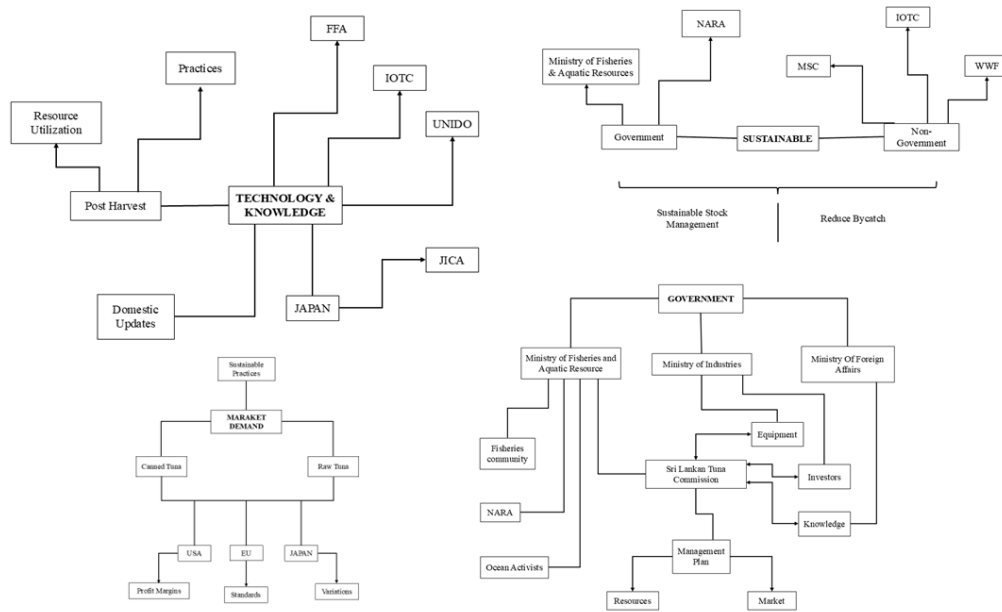
Case	Replication Logic	Information Methods
Indonesia	As the leading producer in the global tuna industry because of its vast maritime territory, favorable fishing conditions, and extensive fleet operations. The nation's emphasis on best fishing practices, coupled with strong governmental and community support for sustainable initiatives, has significantly enhanced its tuna value chain (<i>IMARC Group, 2024</i>).	Action Plan Indonesian Tuna Fisheries, done by the Indonesian Ministry of Marine Affairs and Fisheries & WWF in 2011. Market and Industry Dynamics in the Global Tuna Supply Chain, done by a consultant group for Japan to present the FFA in 2011.
Japan	Japan, on the other hand, holds the largest market share in tuna consumption, driven by its large seafood culture and continuous efforts to advance industrial development (<i>IMARC Group, 2024</i>). The country's strong technical capacity within the fishing sector has also contributed positively to its economic performance and its collaborations with other nations to collectively improve the industry (<i>Hamilton, Lewis, McCoy, Havice, & Campling, 2011</i>).	Market and Industry Dynamics in the Global Tuna Supply Chain, done by a consultant group for Japan to present the FFA in 2011.
Solomon Islands	Supported by Japan, implemented a model project developed from the ground up to strengthen its tuna industry. As a member of the Forum Fisheries Agency (FFA), the nation has successfully advanced its fisheries and industrial sectors, serving as a practical model that aligns with Sri Lanka's industry potential and development capacity (<i>Solomon Islands Government, 2015</i>).	Solomon Islands Tuna Management and Development Plan' done by the team of consultants for the Ministry of Fisheries and Marine Resources in 2015. Basic Design Study Report on The Project for Rehabilitation of The Domestic Tuna Fishery' done by response to a request from the Government of Solomon Islands, the Government of Japan.

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Figure 2

Plan circuits for Technology, Sustainability, Market Demand & Government Policies



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