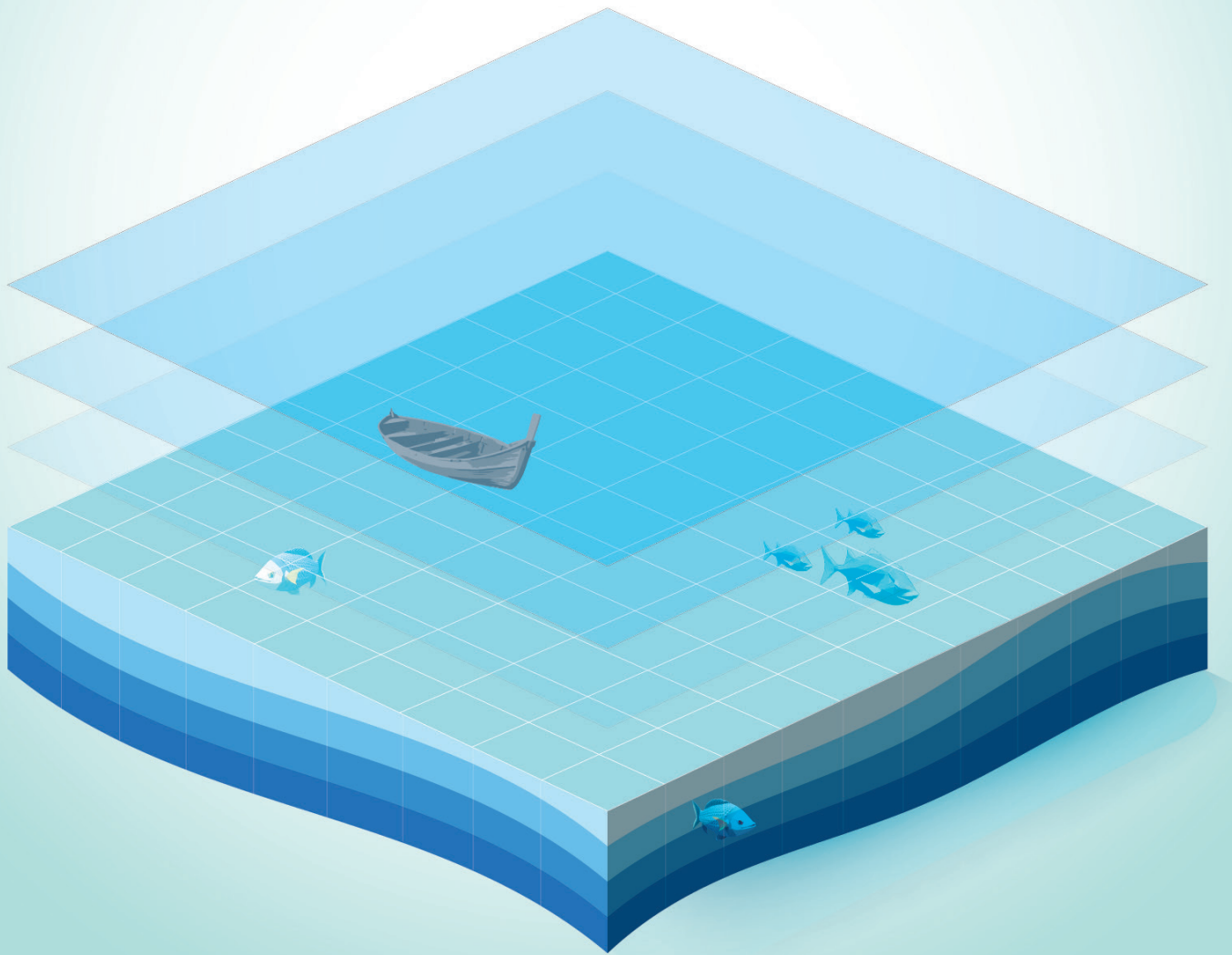


# Baseline Report on Fisheries Practices in Laamu Atoll



Prepared by *Enhancing National Development through Environmentally Resilient Islands* (ENDhERI) Project for the Ministry of Climate Change, Environment and Energy

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# CONTENTS:

LIST OF FIGURES	5
ACCRONYMS AND ABBREVIATIONS:	6
EXECUTIVE SUMMARY:	7
1. INTRODUCTION:	9
2. AIM AND OBJECTIVE:	12
3. SCOPE AND STUDY AREA:	13
4. METHODOLOGY:	14
5. INSTITUTIONAL, LEGAL FRAMEWORK, PLANS AND POLICIES OF FISHERIES:	15
6. FISHERIES PRACTICES IN LAAMU ATOLL:	18
6.1. FISHING POPULATION:	18
6.2. FISHERIES RESOURCES:	22
6.3. FISHING PRACTICES:	25
6.3.1 TYPE OF FISHERY:	25
6.3.2 TYPE OF VESSELS:	25
6.3.3 AVERAGE INCOME:	26
6.3.4 FISH PROCESSING:	27
6.3.5 FISH TRADING:	28
7. CHALLENGES IN FISHING PRACTICES:	29
8. CONCLUSION AND RECOMMENDATIONS:	30
9. REFERENCES:	31



# LIST OF FIGURES:

<i>Figure 1: Fisheries Catch per species in Maldives 2015-2017:</i>	9
<i>Figure 2: Contribution of Fisheries to GDP 2003-2017</i>	9
<i>Figure 3: The trend in percentage contribution of Agriculture to GDP 2003-2009 (Statistical Year Book 2020):</i>	10
<i>Figure 4: Map of Laamu Atoll:</i>	13
<i>Figure 5: Pathway and Processes in formulation of report:</i>	14
<i>Figure 6: Number of Fishermen in Laamu Atoll from 2014-2017 (MBS):</i>	18
<i>Figure 7: Number of Fishermen in Laamu Atoll from 2014-2017 (Primary):</i>	19
<i>Figure 8: Distribution of fishing population in Laamu Atoll:</i>	19
<i>Figure 9: Tuna Fishermen in Laamu Atoll:</i>	20
<i>Figure 10: Women earners from fisheries:</i>	20
<i>Figure 11: Male and Female in fisheries in individual islands in Laamu:</i>	21
<i>Figure 12: Percentage distribution of Male and Female on Fisheries :</i>	21
<i>Figure 13: Direct and Indirect dependency to fisheries in Laamu:</i>	22
<i>Figure 14: Fishing grounds in Laamu Atoll:</i>	24
<i>Figure 15: Type of fishing in Laamu Atoll:</i>	25
<i>Figure 16: Registered vessels in laamu:</i>	26
<i>Figure 17: Average monthly income from fisheries:</i>	26
<i>Figure 18: Fish processing scale:</i>	27
<i>Figure 19: Number of islands producing fish products:</i>	27
<i>Figure 20: Gender contribution to fish trade in Laamu Atoll:</i>	28
<i>Figure 21: Type of Fish Traded in Laamu:</i>	28

## ACRONYMS

ADB	Asian Development Bank
ADMP	Agriculture Development Master Plan
AMP	Agriculture Master Plan
CEC	cation exchange capacity
EIA	Environment Impact Assessment
ENDhERI	Enhancing National Development through Environmentally Resilient Islands
EPA	Environmental Protection Agency
EPPA	Environmental Protection and Preservation Act (4/93)
FMP	Fisheries Management Plan
GDP	Gross Domestic product
GEF	Global Environment Facility
GOM	Government of Maldives
ICZM	Integrated Coastal Zone Management
IUCN	International Union for Conservation of Nature
MBS	Maldives Bureau of Statistics
MECCT	Ministry of Environment Climate Change and Technology
MFDA	Maldives Food and Drug Authority
MNPI	Ministry of National Planning and Infrastructure
MoFMRA	Ministry of Fisheries Marine Resources and Agriculture
MP	Management Plan
MBS	Maldives Bureau of Statistics
NC	Natural Capital
PMU	Project Management Unit
UNEP	United Nations Environment Program
WB	World Bank
WDC	Women's Development Committee
WHC	Water holding capacity



## EXECUTIVE SUMMARY:

The fisheries sector stands as the second largest industry in the Maldives, contributing to both GDP and foreign exchange earnings. Its economic and social importance is profound, as fishing serves as a primary economic activity in nearly all inhabited islands and constitutes the primary source of employment for many within local communities. The fisheries sector employs over 20% of the Maldives' labour force, and fish and fisheries products make up over 98% of the country's physical exports in terms of quantity and value. In addition, statistics indicate that fish accounts for nearly 71% of the animal protein consumed by Maldivians, representing a substantial portion globally (2019).

The Maldives is a nation characterized by 1% land and 99% ocean. Notably, its tuna fishery stands out as one of the most sustainable worldwide. The fishing methods employed, such as handline and pole and line techniques, ensure minimal bycatch and interaction with sensitive marine habitats compared to any other commercial fishing technique. In 2012, the Maldives' Pole and Line Skipjack Fishery achieved recognition from the Marine Stewardship Council, marking a significant milestone for Indian Ocean tuna fisheries. Development of fisheries sector has been incentivized as a national adaptation strategy and is in line with policies of current government and national developmental goals. The government's Strategic Action sPlan (SAP) Policy 1 "Blue Economy" aims to increase and sustain ice production capacity to at least 40% from 2019 baseline by 2023 (SAP 2019-2023)

Laamu Atoll, situated in the southern central region, with a diverse economy and a substantial population. With a recorded populace of 18,281 individuals, Laamu Atoll encompasses 11 inhabited islands, including the largest one, Laamu Gan, which spans 8km in length. Additionally, the atoll consists of 61 uninhabited islands, three operational resort islands, one airport island, and six industrial islands dedicated to fisheries, agriculture, and aquaculture. According to data from the National Bureau of Statistics (MBS), fisheries constitute the primary economic activity in Laamu Atoll, closely followed by agriculture. The atoll engages in both commercial and subsistence (non-commercial) fisheries, providing employment, income, and sustenance to its local residents. Tuna, bait, reef fishery, sea cucumber collection, octopus, invertebrate, lobster, and billfish catching constitute the main types of fisheries in the region.

The Government of the Republic of Maldives, in collaboration with the Ministry of Environment, is implementing the Enhancing National Development through Environmentally Resilient Islands (ENDhERI) project. This initiative, funded by the Global Environment Facility (GEF) and supported by the United Nations Environment Program (UNEP), aims to facilitate the adoption of new environmental policies and the transition toward Green Growth atoll development. This development strategy aims to sustain marine Natural Capital (NC) and enhance the resilience and recovery of reef ecosystems. The project will draw from integrated coastal zone management within a Managed Marine Area/Biosphere Reserve framework, along with innovative sustainability practices in sectors such as agriculture, fisheries, tourism, and construction. The goal is to transform the ecological impact in Laamu Atoll, leading to national-level sector transformation, spatial planning, and improved governance based on NC accounting.

The primary purpose of the baseline assessment, conducted by the ENDhERI project, is to establish an understanding of the current state of fisheries practices in Laamu Atoll. Due to resource limitations, the assessment relies solely on published literature and anecdotal information from the local councils, Women's Development Committee, School Management and other Government Institutions. The results of this assessment will serve as a reference point for assessing the status of fisheries, aiding in the identification of areas requiring support within the sustainable fisheries components of the project.



# 1 INTRODUCTION:

In terms of economic and social welfare value, the Maldives' fishing sector is critical to the economy. The fishing industry is the Maldives' second largest industry, accounting for a considerable portion of GDP and foreign exchange revenues. Local communities invested in big and small-scale fisheries, small and large-scale commercial firms investing in fish processing and export, subsistence fisheries and aquaculture, and the maricultural sector are all part of the industry.

Development of fisheries sector has been incentivized as a national adaptation strategy and is in line with policies of current government and national developmental goals. The government's Strategic Action sPlan (SAP) Policy 1 "Blue Economy" aims to increase and sustain ice production capacity to at least 40% from 2019 baseline by 2023 (SAP 2019-2023) The National Fisheries and Agricultural Policy 2019-2029, indicates skipjack tuna is the highest catch followed by yellowfin. According to Fisheries Master Plan 2010-2025, about three percent of the total labour force is employed in the agriculture sector. The sector plays a key role in providing formal and informal employment opportunities, and contributes significantly to livelihoods and poverty alleviation, providing work for women, a safety net for the rural population, ensuring food security for the outer atolls, and addressing many other dimensions of human development not usually recognised in the national income accounts (AMP 2010-2025).

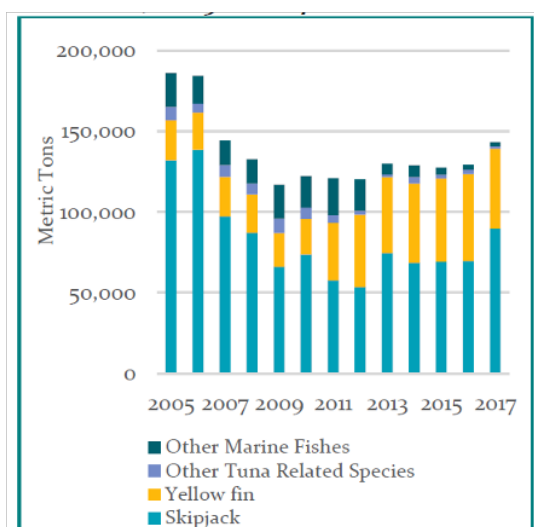


Figure 1: Fisheries Catch per species in Maldives 2015-2017 (Source: National Fisheries Agriculture policy 2019- 2027)

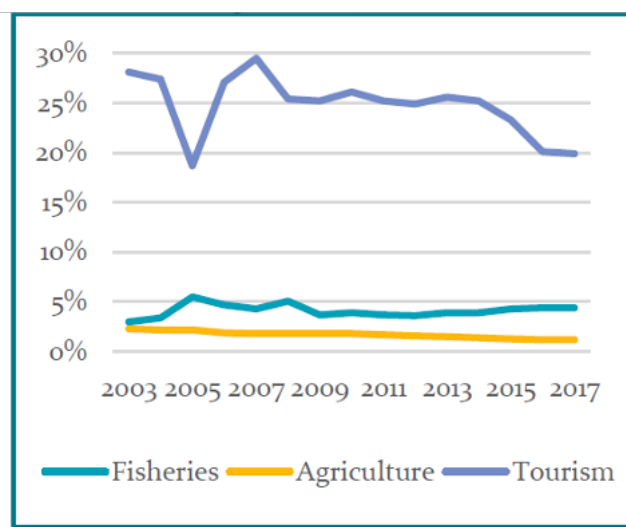


Figure 2: Contribution of Fisheries to GDP 2003-2017 (Source: National Fisheries Agriculture policy 2019- 2027)

Fisheries are a cornerstone of the Maldivian economy and culture. The country's reliance on fisheries is substantial, with a focus on sustainable practices and a particular emphasis on tuna fishing. The fisheries sector's contribution to GDP is recorded and reported as approximately 6% (MBS).

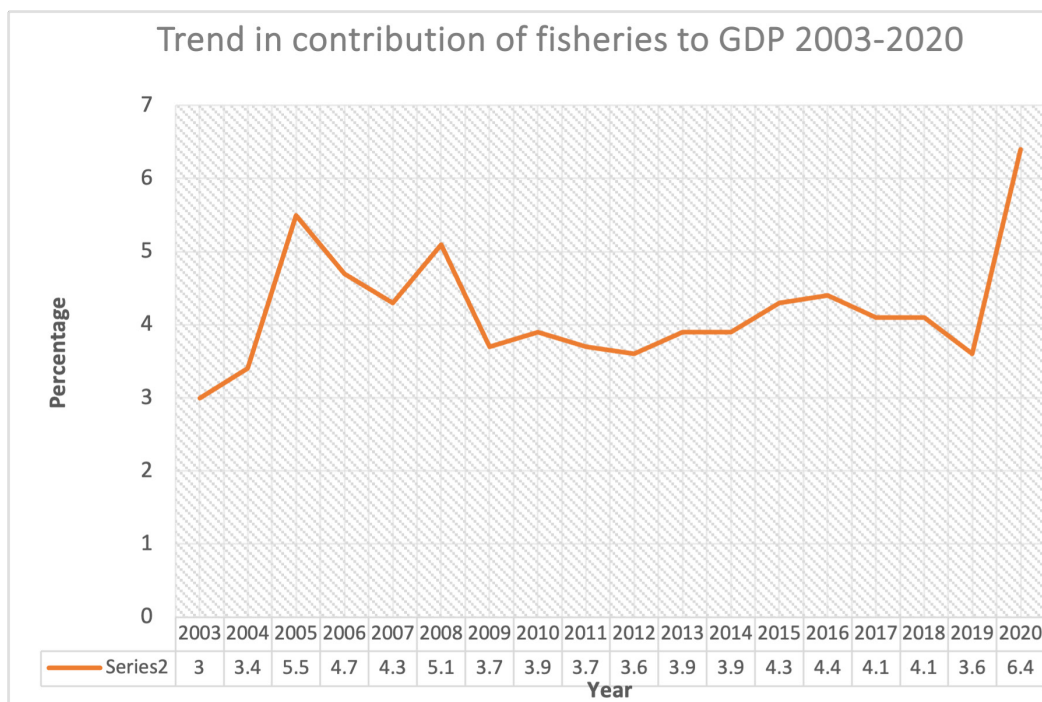


Figure 3: The trend in percentage contribution of Fisheries to GDP 2003-2009 (Statistical Year Book 2020)

This Baseline Assessment on fisheries practices in Laamu Atoll is conducted by Enhancing National Development through Environmentally Resilient Islands (ENDhERI) project, implemented by Ministry of Environment Climate Change and Technology (MECCT), financed by Global Environment Facility (GEF) and assisted by United Nations Environment Program (UNEP). The main objective of the project is to enhancing reef protection, resilience and ecosystem recovery by reducing development impacts in a selected project site the Maldives, enabled for replication nationally through public awareness and integrating the values of marine biodiversity and other natural capital in national accounting.

ENDhERI project aims to assist the government of the Maldives in its implementation of new environmental policies and transition towards national adoption of Green Growth atoll development that will sustain marine Natural Capital (NC) and strengthen the resilience and recovery of reef ecosystems. This will be informed by learning from atoll-wide integrated coastal zone management within a Managed Marine Area / Biosphere Reserve framework, and the application of innovative sustainability practices and standards in agriculture, fisheries, tourism and construction sectors as the basis for transforming the human eco-

logical footprint in Laamu Atoll, and taking this up to national level through sector transformation, spatial planning and improved governance based on NC accounting. The intermediate objective of this transformation is to minimize the flows of pollutants from land-based activities into the adjacent marine environment, and reduce marine-based drivers of reef degradation including baitfish and reef fisheries. Overall, the project seeks to enhance reef ecosystem integrity and resilience through sustainable management, reducing development impacts and integrating NC accounting into national planning.

The fisheries components of the ENDhERI project includes:

<b>Output 1.1.1</b>	<b>Green Growth Strategy, Marine Managed Area/Biosphere Reserve and Sustainable Development Plans for Laamu Atoll and selected islands implementation advanced through capacity development, participatory planning and operational support</b>
1.1.1.5	Conduct field schools for community-led planning to sustain biodiversity and natural capital through ICZM, soft engineering and eco-design approaches for coastal infrastructure, horticulture, fisheries, etc.
<b>Output 1.2.2</b>	<b>Adoption of sustainable tuna baitfish and demersal reef fisheries in conformity with the draft Maldives Fisheries Master Plan</b>
1.2.2.1	Support MoFMRA cooperative establishment plan. Provide capacity development support for their operations to enhance benefits to local fishermen (eg through sales to the Mandhoo Fisheries Complex) and provide a basis for the promotion and adoption of sustainable practices (eg codes of conduct); proactively support the engagement of women in fisheries cooperatives including fish processing and marketing
1.2.2.2	Facilitate the adoption of local codes of conduct for more sustainable fishing practices, especially for grouper, demersal reef fish and tuna baitfish, through engagement targeting 100 fishing households, with demonstration of sustainable practices supported by small grants
1.2.2.3	Based on research in Laamu and nationally, support species level resource use mapping and pilot participatory management mechanisms to safeguard and monitor spawning and aggregation sites for grouper species
1.2.2.4	Work with local businesses to strengthen coordination between local fisheries, sustainable aquaculture development, tourism and diving, and island communities

This report contains details on fisheries resources, current status of fisheries, existing agricultural practices in Laamu Atoll including current challenges and recommendations for future actions. The report is based on quantitative data gathered from councils, existing published literature and accounts from stakeholder consultation with relevant authorities. The main aim of this baseline report is to understand the current status of fisheries practices in Laamu atoll to facilitate the prioritization of activities of the project that is related to agriculture sector.

## 2 AIM AND OBJECTIVE:

The purpose of this baseline assessment, being administered by the ENDhERI project is to understand baseline condition of the fisheries practices in Laamu Atoll. The results of the baseline assessment will establish the reference point for status of fisheries practices in Laamu Atoll, in turn will be used to identify the areas of need to support the local community under the fisheries components of the project. In the future, the baseline assessment will serve as the basis of comparison whether the project has satisfied its main objective of building capacity of local community towards sustainable agriculture practices and alternative agricultural production.

The main objectives of the assessment are:

- To identify the fisheries resources and current status of fisheries in Laamu Atoll
- To identify existing fisheries practices and its sustainability in Laamu.
- To identify the challenges and support implementation of sustainable fisheries practices.
- To promote sustainable use of fisheries resources in Laamu Atoll.

# 3

## SCOPE AND STUDY AREA:

The study area for this assessment is Laamu Atoll, specifically the 11 inhabited islands in the Atoll. The scope of the assessment is to identify the baseline fisheries practices in Laamu Atoll.



Figure 4: Map of Laamu Atoll (DNP 2009)

# 4 METHODOLOGY:

The baseline assessment report on fisheries in Laamu Atoll is prepared by ENDhERI project. Due to resource limitations, the assessment relies solely on published literature and anecdotal information from the local councils, Women’s Development Committee, School Management and other Government Institutions.

**Literature Review:** To provide context for the assessment, an examination of published literature was undertaken. This literature encompasses journal articles, published reports, official government documents, statistical data from the National Bureau of Statistics (MBS), and excerpts from studies conducted within Laamu Atoll.

**Quantitative Data:** The assessment of general fisheries practices in Laamu Atoll involved the acquisition of quantitative data through a tailored questionnaire survey administered to local councils. Moreover, publicly available statistical data were employed. Specifically, questionnaires were disseminated to the 11 councils within Laamu Atoll, collecting information regarding various aspects such as the nature of fisheries practices, fishing techniques, vessel categories, the population of fishermen in the atoll, prevalent fishing gear, and estimated income derived from fisheries.

**Stakeholder Consultations:** The information gathered on local fisheries practices, gaps and area of needs, that were discussed during project sensitization meetings are also considered during the formulation of this assessment report. The following stakeholders participated in the meetings; Island Council and Women’s Development Committee, School Management and Government Institutions.

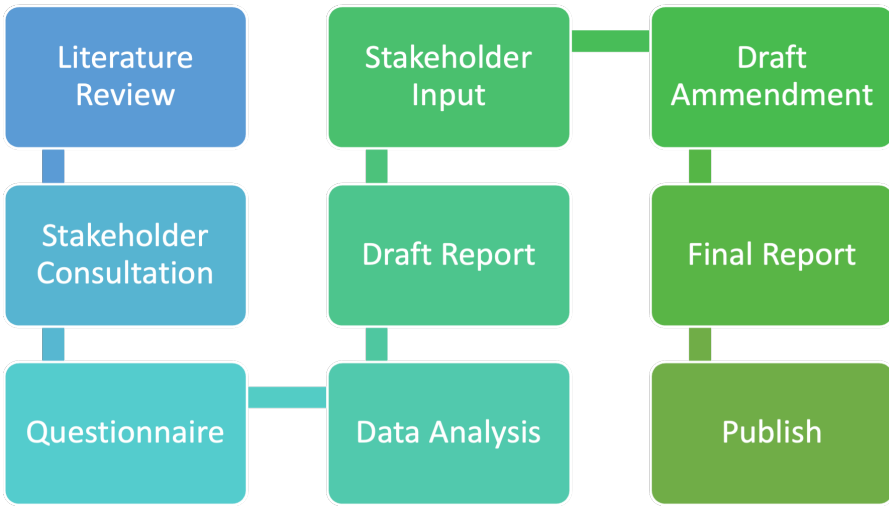


Figure 5: Pathway and Processes in formulation of report

# 5 INSTITUTIONAL, LEGAL FRAMEWORK, PLANS AND POLICIES OF FISHERIES:

The Ministry of Fisheries, Marine Resources and Agriculture is the main government institution mandated to ensure the development and sustainable management of fisheries resources and their ecosystems in the Maldives. The Ministry works to strengthen the fisheries sector to increase its sustainability and manage all marine living resources in the maritime zones of the Maldives. As the main policy maker and regulatory authority of the fisheries sector in the country, Ministry of Fisheries, Marine Resources and Agriculture has number of policies and legal instruments in place to regulate fishing activities within the country.

The main legal instruments relevant to fisheries sector are as follows:

Name of the policy/ legal instrument	Objectives of Legal Instruments & main provisions
Strategic Action Plan 2019-2023	<p>This Strategic Action Plan 2019 - 2023 is a multi-sectoral policy document. It outlines the developmental targets and priorities of the Government of Maldives for the five-year period 2019 2023.</p> <p>The SAP promotes to ensure all types of fishery are developed sustainably, incorporating modern fishery management principles and approaches and ensure the integrity and well-being of the marine ecosystems. Strategies proposed in the SAP include: Improve fisheries policy, legislative and management frameworks to align with international standards, best practices and obligations; Improve data collection and management on biological, ecological, and socio-economic aspects of fisheries to support evidence based policymaking; Enhance monitoring, control and surveillance of fisheries to comply with national and international instruments and market requirements; Expand reef health assessment, rehabilitation and restoration; Increase research on Endangered, Threatened and Protected (ETP) species and species of special interest; Ensure environmental health and biosecurity in aquaculture development; etc. To mainstream climate smart and sustainable agricultural practices, the SAP proposes: Reduce economic and ecological wastage from agricultural practices by introducing climate-smart modern agricultural technologies; Introduce agroforestry practices to agricultural systems; etc.</p>

The SAP also promotes employment in fishery and marine resource sector. Strategies proposed in the SAP include: Promote and encourage youth participation in the fishery sector; Promote the inclusion of disadvantaged groups in fishing communities (i.e.: women, youth, and PWDs) at all stages of the value-chain in the fishery sector; Facilitate the implementation of mentoring and entrepreneurship programs that can effectively turn subsistence fishing and fishery production into profitable and sustainable ventures; Improve occupational health and safety standards for fishermen; Establish a Social Protection Platform for fishermen; etc

National Fisheries and Agriculture Policy 2019 – 2029

The first national policy framework for the fisheries and agricultural sectors developed to lead both sectors to deliver their promises of a better future for the Maldivian people.

Fisheries Act of the Maldives (No. 14/2019)

The regulatory framework for fisheries management in the Maldives is primarily governed by the Fisheries Act of Maldives, which came into effect in 2019. This Act provides for the sustainable management of fisheries and marine resources and their ecosystems in the maritime zones of the Maldives, provides for the control of fishing by all persons within the maritime zones of the Maldives as well as fishing by Maldivians outside the maritime zones of the Maldives, and lays down the principles and bases for the development and management of the fisheries and aquaculture industry.

The Act consists of 88 sections divided into 12 Chapters: Preamble (1); Implementation of Law (2); Fisheries Planning and Management (3); Fishing and Related Activities in the Maritime Zones of the Maldives (4); Fishing Beyond the Maritime Zones of the Maldives (5); Deterring Illegal Fishing (6); Licensing Rules (7); Aquaculture (8); Monitoring, Control and Surveillance System (9); Offences and Penalties (10); Jurisdiction and Assumptions (11); Miscellaneous (12). "Related activities" in this Act is defined to include, among other things, transshipment of fish or fisheries products to a vessel or from a vessel to another place and refueling or supplying fuel to fishing vessels or providing any activity or service in support of fishing operations.

Fisheries regulations pursuant to the Fisheries Act of the Maldives

A total of 10 regulations have been published so far pursuant to the Fisheries Act of the Maldives, all serving different purposes. These regulations are:

1. **General fisheries regulation of the Maldives:** provides general principles regarding fisheries and fisheries related activities that need to be followed by all, to ensure the sustainable utilization and management of marine resources of the Maldives
2. **Regulation on issuing permits for the establishment of fisheries projects:** establishes a mechanism to ensure that fisheries projects are designed to yield profit to the fishing industry of the Maldives and that the rights of the parties that invest, plan and operate fisheries projects are protected by law.
3. **Regulation on the general process of issuing licenses and permits for fishing, fishing related activities and aquaculture activities:** establishes clearly the procedures for issuing, renewing and cancelling of permits or licenses to operate fishing, fishing related activities and aquaculture activities in the Maldives.
4. **Regulation on issuing tuna purchase license to foreign vessels within the maritime zones of the Maldives:** Prescribes the procedures to be followed in issuing licenses to foreign fish purchasing vessels to purchase species of tuna harvested in the maritime zone of the Maldives and prescribes robust rules to regulate all activities of foreign vessels licensed to purchase tuna from Maldivian Fishers.
5. **Regulation on the establishment of floor prices for fish purchase:** promotes economic stability by ensuring that the market price of fish does not fall below a level that would threaten the financial existence of fishers.



Guideline for Registration Agricultural Input Importers	<p>6. <b>Aquaculture regulation:</b> guides sustainable aquaculture development in the Maldives and ensures that all stages of aquaculture is carried out in a manner that minimizes impacts on the ecosystem of the Maldives.</p> <p>7. <b>Regulation on administration of penalties for fisheries related offences:</b> implements a just, accountable, transparent and expeditious punitive mechanism to take timely and appropriate action against fisheries related offences.</p> <p>8. <b>Regulation on the conduction of marine research in the Maldives:</b> enables the Ministry to effectively monitor all marine and fisheries research conducted within the maritime zones of Maldives and ensures that the conduction of marine research is in accordance with the United Nations Convention on the Law of the Seas (UNCLOS), the Constitution of the Republic of Maldives and other Laws and Regulations of Maldives.</p> <p>9. <b>Regulation on prevention of Illegal unreported and unregulated fishing within the maritime zone of the Maldives:</b> Prescribes rules to prevent Illegal, Unreported and Unregulated (IUU) fishing in the maritime zone of the Maldives by foreign fishing vessels and establishes procedures for the detention of and dealing with the cases of detained foreign fishing vessels engaged IUU fishing in the maritime zone of the Maldives.</p> <p>10. <b>Regulation on port state measures to prevent, deter and eliminate IUU fishing:</b> establishes a clear procedure for the fishing vessels or vessels undertaking fishing related activities that use the ports of the Maldives and administers measures at the ports of the Maldives.</p>
Fisheries Management Plans	<p>FMPs are designed as evidence-based action plans, developed in collaboration with the fishing sector and other stakeholders. Their purpose is to implement a Monitoring, Control and Surveillance (MCS) mechanism, strengthen data collection and data reporting mechanisms for each commercial fishery in the Maldives, and prioritise evidence-based policymaking through the collection of biological and socio-economic data on each fishery. Existing FMPs are:</p> <ol style="list-style-type: none"> <li>a. Tuna Fishery MP</li> <li>b. Reef Fishery MP</li> <li>c. Sea cucumber Fishery MP</li> <li>d. Grouper Fishery MP</li> <li>e. Billfish Fishery MP</li> <li>f. Lobster Fishery MP</li> <li>g. Marine Aquarium Fishery MP</li> <li>h. Diamondback Squid Fishery MP</li> </ol>
FMP implementing regulations	<p>These regulations that serves as implementing regulations for the respective fishery management plans. The current implementing regulations are:</p> <ul style="list-style-type: none"> <li>- Regulation on Tuna Fishery Management in Maldives (Regulation No: 2022/R-2)</li> <li>- Regulation on Maldives Billfish Fishery Management (Regulation No: 2021/R-62)</li> <li>- Regulation on Grouper Fishery Management (Regulation No: 2022/R-2)</li> </ul>

# 6

## FISHERIES PRACTICES IN LAAMU ATOLL:

Laamu atoll is home to a diverse collection of coral reefs, mangroves, and a diverse marine ecosystem. The atoll has a total surface area of 884.63 km<sup>2</sup> and 56 reefs with an area of 203.70 km<sup>2</sup>. The atoll consists of a total of 99 islands (77 vegetated and 22 unvegetated) of which 11 islands are now inhabited. The inhabited islands are; Maavah, Kunahandhoo, Hithadhoo, Maamendhoo, Fonadhoo, Gan, Mundoo, Maabaidhoo, Dhanbidhoo and Isdhoo and Kalaidhoo. The administrative capital of Laamu atoll is Fonadhoo island inter connected by link-road with Kahdhoo, Maandhoo and Gan islands.

In Laamu atoll there are no data on the reef fishery while the main tuna fishery islands are Hithadhoo, Maabaidhoo, Maamendhoo, and Gan, and the total catch for the atoll accounts for over 14,600 Mt valued at around USD 17million (MVR 265million) in 2014(Fish catch data from MBS). Maandhoo island has a fish processing facility that sources tuna from local fishermen, as well as providing extra premium benefit to the fishermen’s associations through US Fair Trade ethical certification for sustainably sourced products.

### 6.1 Fishing Population

The primary baseline data for the purpose of this assignment was collected from the ten inhabited islands of Laamu Atoll. The published data from Maldives Bureau of Statistics indicated that there were 1046 fishermen in Laamu Atoll by 2017 (MBS 2021).

NUMBER OF FISHERMEN IN LAAMU ATOLL, 2014-2017 (MBS 2021)				
Year	2014	2015	2016	2017
No. of Fishermen	710	653	582	1046

Figure 6: Number of Fishermen in Laamu Atoll from 2014-2017 (MBS 2021)

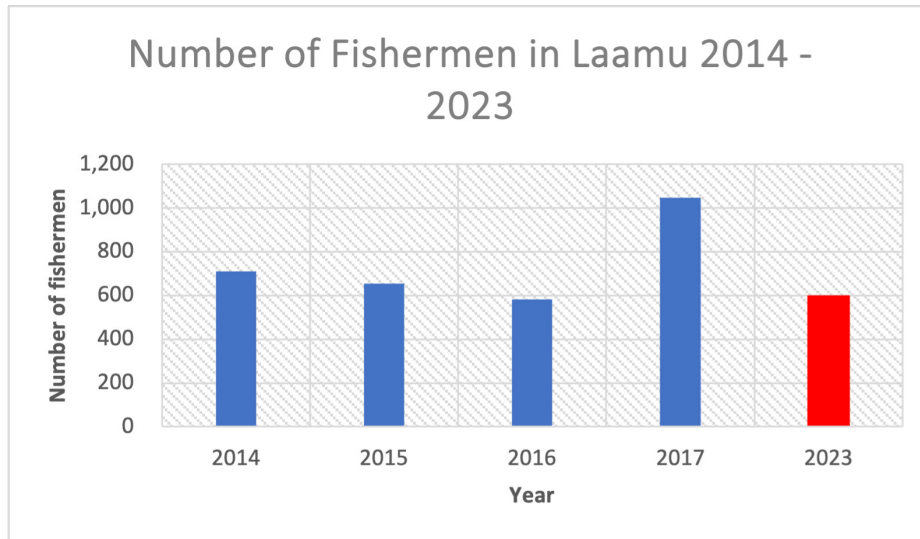


Figure 7: Number of Fishermen in Laamu Atoll from 2014-2017 (MBS 2021) and primary data collected for the report (2023)

The primary data collected for the purpose of this baseline report indicates there are 657 fishermen currently involved in fishing in Laamu Atoll. This figure is roughly 50% lower than the count recorded in 2017. This decrease could potentially be attributed to incomplete data from Gan island, one of the largest islands in Laamu Atoll.

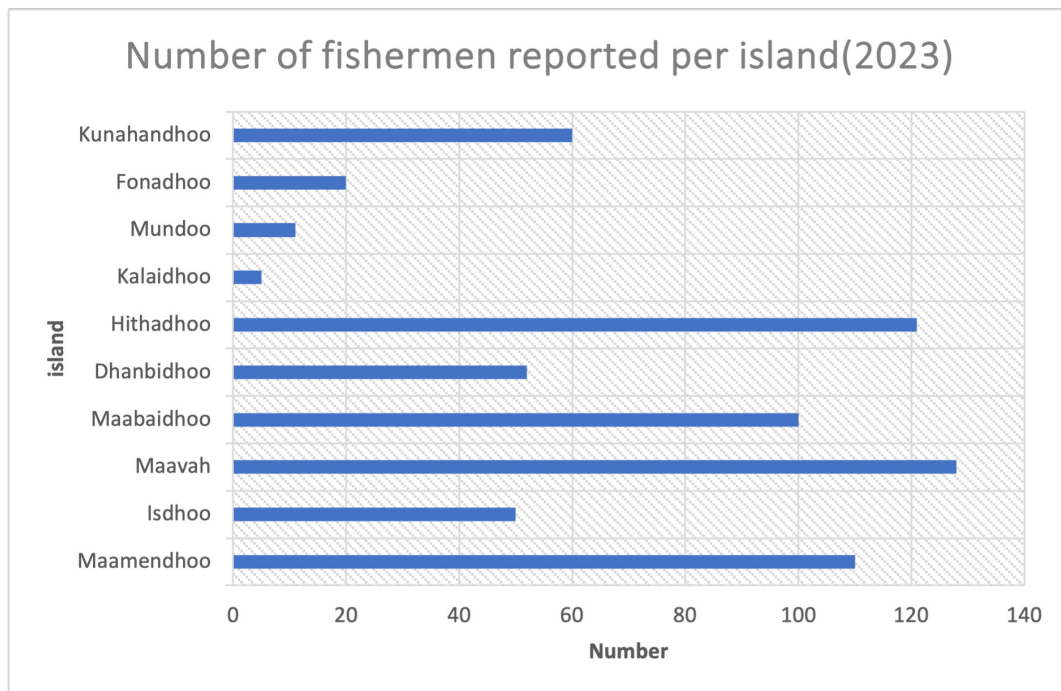


Figure 8: Number of fishermen reported per island (2023)

The data clearly indicated that tuna fishing is a prominent activity, followed by reef fishing. The data also highlights variations in the distribution of fishermen engaged in different types of fishing over different time periods. Maavah island has the highest recorded count of fishermen (128), trailed by Hithadhoo (121) and Maamendhoo (110). Maavah island makes up around 20% of the overall fishing population in the atoll, with Hithadhoo and Maamendhoo following closely at 18% and 17% respectively.

The Maldives is particularly known for its tuna fishing. Tuna is a valuable resource for the Maldivian economy, and the country exports tuna products to various parts of the world, including sashimi-grade tuna for the Japanese market. The Maldives has a sustainable tuna fishery management system in place. The largest number of tuna fishermen are reported from Hithadhoo island (96) followed by Maamendhoo (80) and Maavah (60).

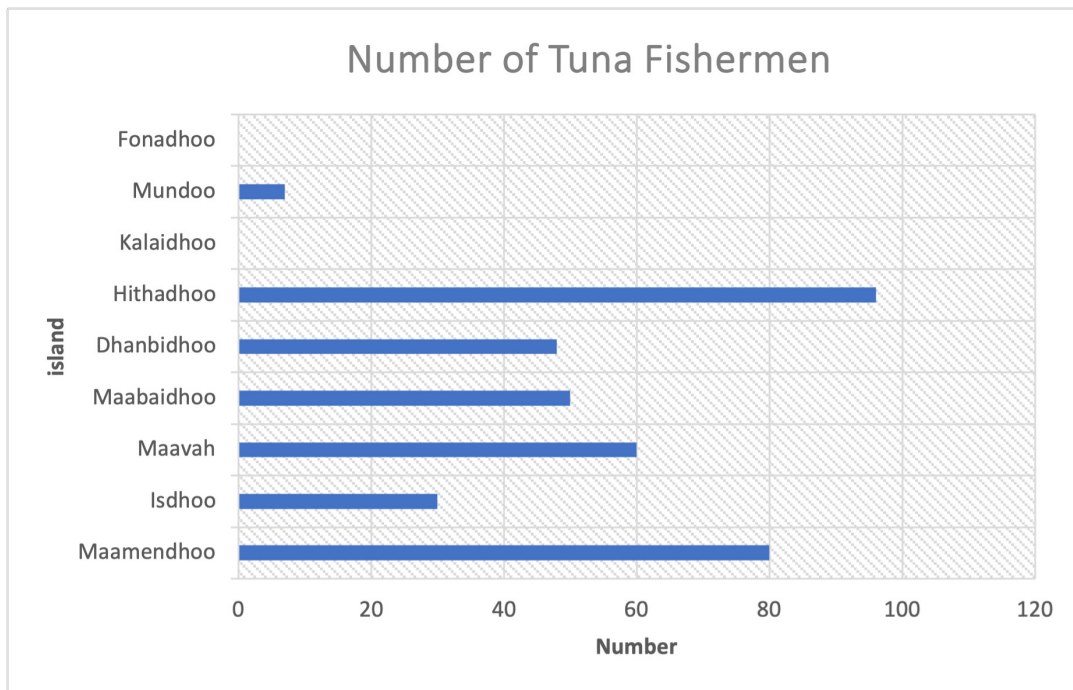


Figure 9: Tuna Fishermen in Laamu Atoll

The data indicates variations in the number of women involved in earning from fisheries across different instances. The highest number of women earning from fisheries is in Dhanbidhoo island, followed by Maavah, Maamendhoo and Maabaidhoo.



Figure 10: Women earners from fisheries

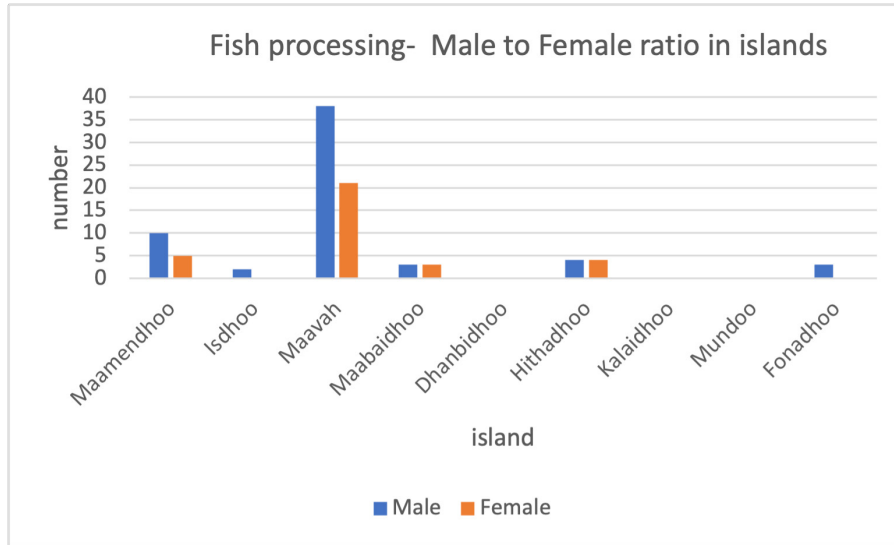


Figure 11: Male and Female in fisheries in individual islands in Laamu

The data provides insights into the gender distribution of fish processors on the island. In most cases, there are both male and female fish processors, with varying numbers. Overall, the data suggests a mix of both male and female individuals participating in fish processing activities, with varying degrees of involvement.

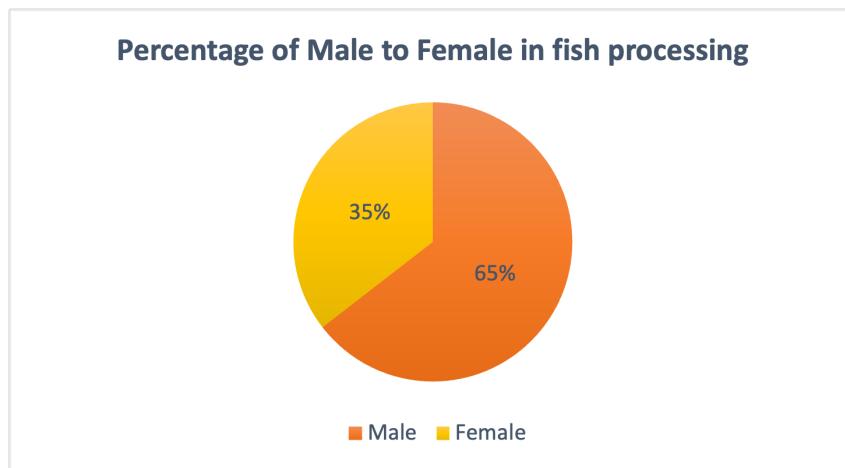


Figure 12: Percentage distribution of Male and Female on Fisheries in Laamu

As for fish processing in laamu atoll, 65% is dominated by Male while 35% is Female fish processors.

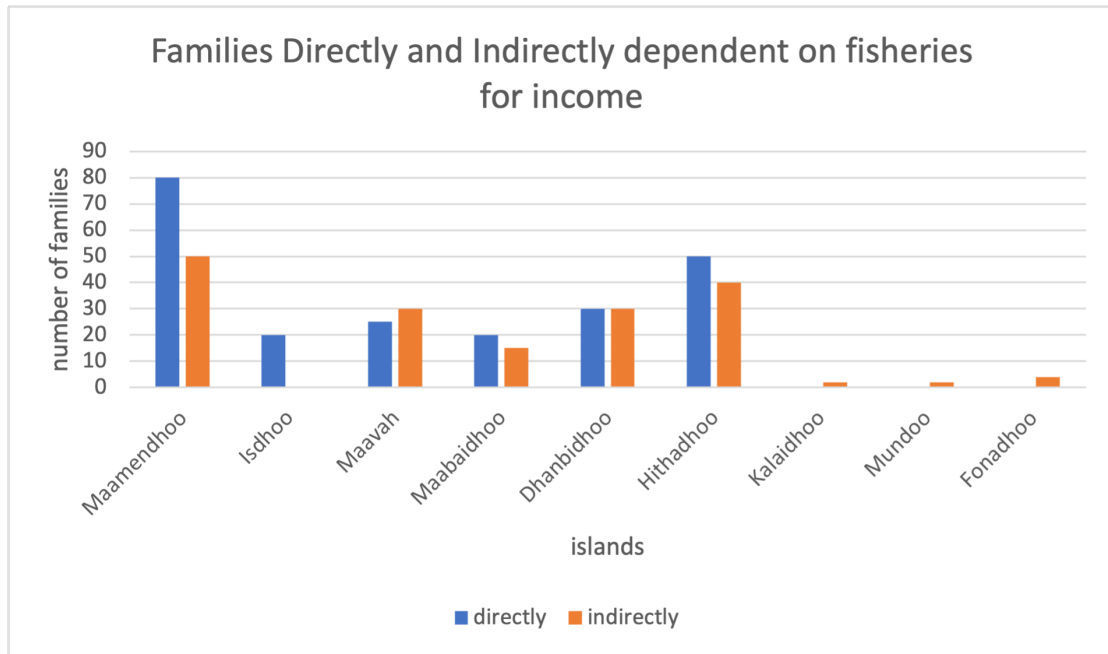


Figure 13: Direct and Indirect dependency to fisheries in Laamu

The data indicates variations in the number of families with direct and indirect dependence on fisheries across different instances. The term "directly dependent" refers to families whose primary income source comes from fishing activities, while "indirectly dependent" could mean families whose income is influenced by or related to fisheries activities, even if it's not their main source of income. It provides insights into the economic significance of fisheries for the community and highlights the diversity of their income sources. Maamendhoo has the highest number of families directly dependent on fisheries for income, followed by Hithadhoo and Dhanbidhoo.

## 6.2 Fisheries Resources:

This summary is based on the 2021 Resource Use Report conducted in Laamu Atoll by the Blue Marine Foundation. The report offers a comprehensive overview of the utilization of resources in the region, with a particular focus on fisheries. The survey, carried out in collaboration with BLUE and partners, spanned from December 2020 to June 2021 and encompassed all 11 inhabited islands within Laamu Atoll.

The primary objective of the study was to gain insights into the key resource users, the specific resources they utilized, the purposes for which these resources were employed, their sourcing locations, and the methods employed in these activities. Data was collected through semi-structured interview questionnaires targeting various groups, including local island councils, fishermen, Non-Governmental Organizations, and businesses. This

approach provided a comprehensive understanding of the diverse extractive activities conducted by different stakeholders. A notable focus of the survey was to map out the spatial distribution of resource utilization across Laamu Atoll.

The findings highlighted that Laamu Atoll engages in both commercial and non-commercial fisheries, serving as a vital source of employment, income, and sustenance for its residents (Blue Marine Foundation, 2021). The predominant fisheries types include tuna, reef fishery, sea cucumber collection, octopus, invertebrate, lobster, and billfish.

The report underscored the critical importance of the reef areas (within 2.5km from land) in supporting multiple fisheries, including reef fish, billfish, sea cucumber, and lobster fisheries. Most fishers operated smaller vessels like dinghies with low engine horsepower, which inherently limited their spatial fishing range. The inner areas (beyond 2.5km from land) demonstrated lower significance for fisheries. The Isdhoo-Dhanbidhoo area played a pivotal role in supporting sea cucumber farms, invertebrate collection, and octopus fisheries. The lobster fishery primarily operated in the southern and eastern regions of the Atoll, particularly around Gan, Fonadhoo, and Isdhoo. However, the tuna fishery deviated from this pattern, with more distant areas (up to 40 km away) proving vital. This was justifiable given the pelagic and migratory nature of tuna, capable of covering vast distances (Druon et al. 2016). Commercial fishers targeting bait for this fishery were notably concentrated in the Northern areas, known locally as Verehi Falhu, a crucial hub for Laamu's fisheries.

The report also highlighted some practices in reef-based fisheries that were believed to impact fish habitats and stocks. The depletion of nearby beaches' sand, leading to increased sedimentation of seagrass meadows, was noted as a concern by sea cucumber fishers, impacting sea cucumber abundance in key fishing areas.

To address these challenges, the report proposed several management measures aimed at mitigating the impact of unsustainable fishing practices and promoting sustainable management of fisheries resources in Laamu Atoll. Recommendations included the management of non-commercial fisheries, reef fisheries, marine protected areas, bait fishing grounds, and enhanced protection and management of seagrass beds.

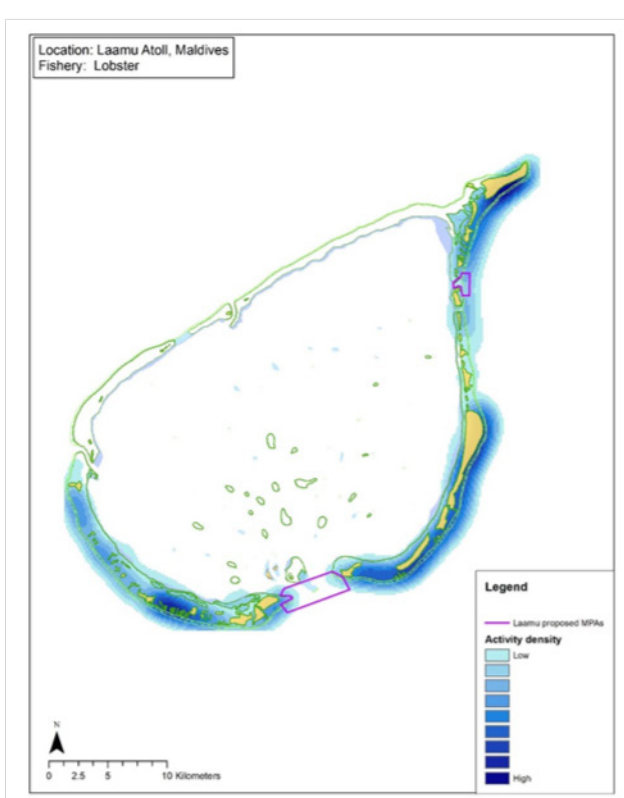
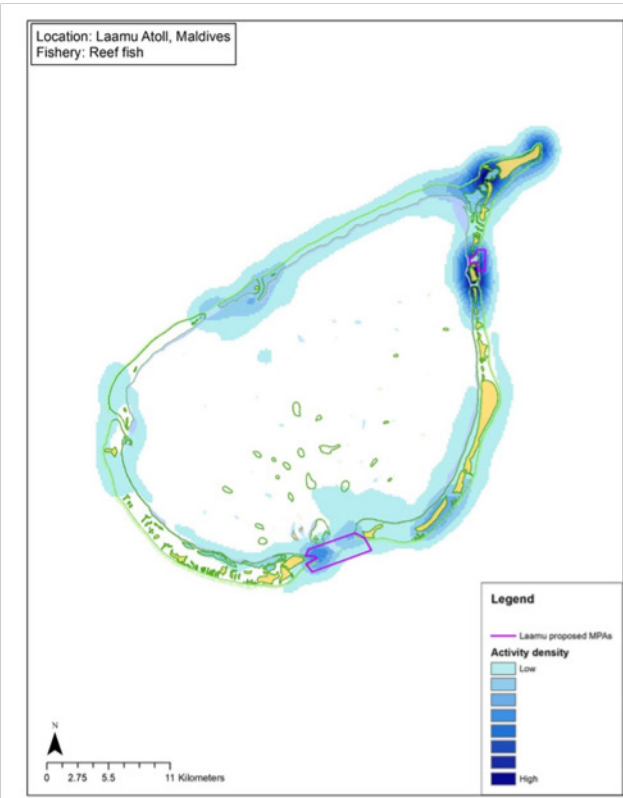
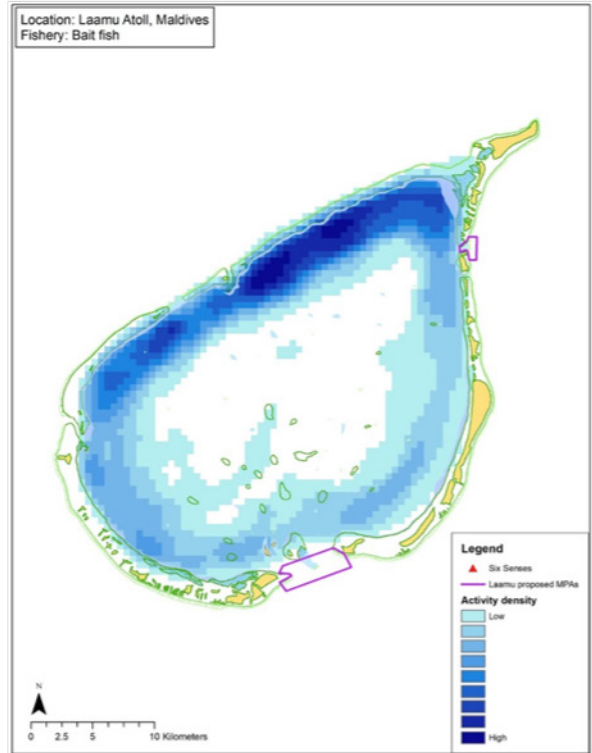
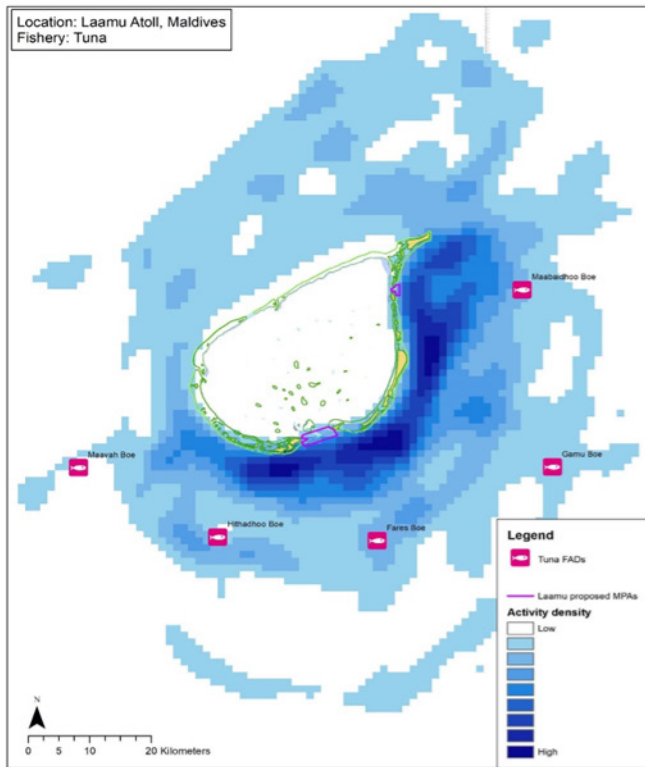


Figure 14: Fishing grounds in Laamu Atoll (Source: Blue Marine Foundation (2021) Resource use survey report: Laamu Atoll.)



## 6.3 Fishing Practices:

### 6.3.1. TYPE OF FISHERY

The data reflects a community engaged in a variety of fishing activities, with a particular focus on tuna and bait fishing, as well as reef fish-related activities. The inclusion of other species like grouper, lobster, sea cucumber, and sailfish indicate a diverse range of fishing practices. Additionally, the mention of recreational fishing suggests that some individuals in the community also engage in fishing for leisure rather than solely for commercial purposes. The data indicated tuna fishery is the most common type of fishing in Laamu Atoll followed by reef fishing.

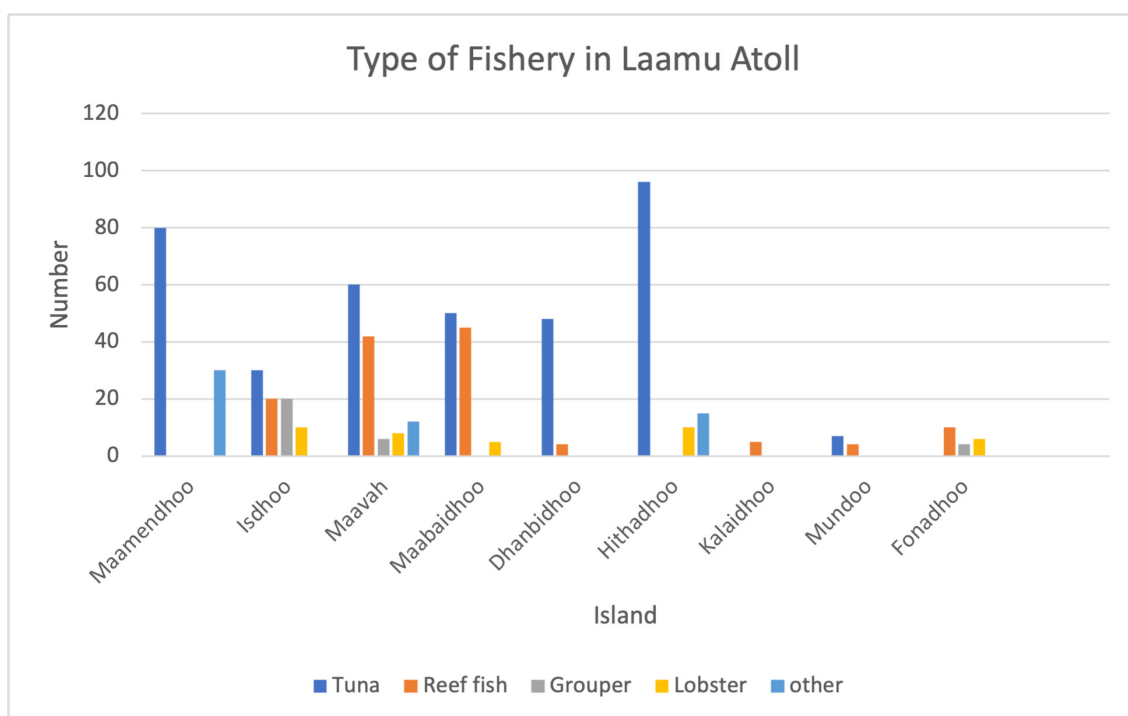


Figure 15: Type of fishing in Laamu Atoll

### 6.3.2. TYPE OF VESSELS:

The data provides insights into the distribution of vessels owned or registered by community members for various fishing activities. It's evident that there is a range of vessel ownership for different types of fishing, including tuna, reef, lobster and sea cucumber collection, as well as recreational and commercial fishing. In Laamu Atoll there more than 30 tuna fishing vessels, 25 vessels for reef fishery and 18 vessels for sea cucumber and lobster fishery.

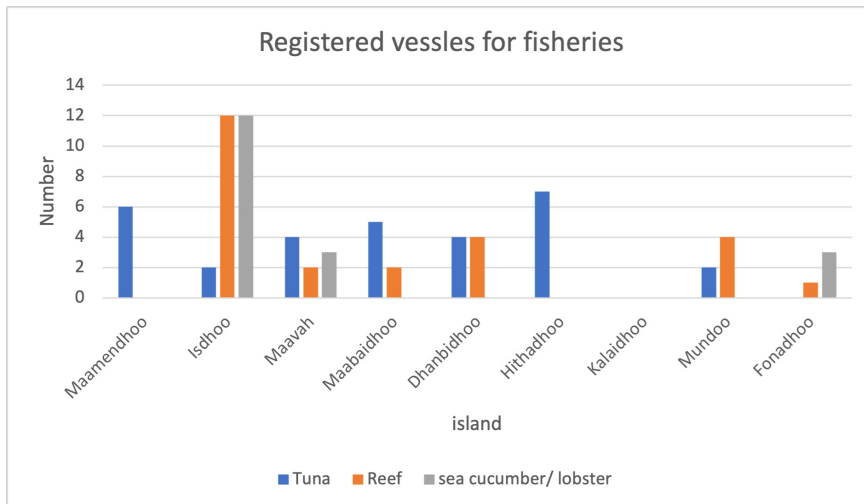


Figure 16: Registered vessels in laamu

### 6.3.3. AVERAGE INCOME

The data suggests the varying estimated income levels from fisheries for families that directly depend on fishing as an income source. An average size of the families varies from 6-10 individuals including children. The majority of families seem to have an estimated income "Less than 10,000," indicating that their income from fishing is relatively low. Some families fall within the "10,000 to 20,000" income range, suggesting slightly higher earnings from fishing.

Overall, the data highlights the economic diversity within the community's fishing-dependent families, with some families earning a higher income from fisheries while others have more modest earnings. The following graph shows average monthly income generated from each type of fishery, lobster fishery being at the top of the list followed by Tuna and bait fishery.

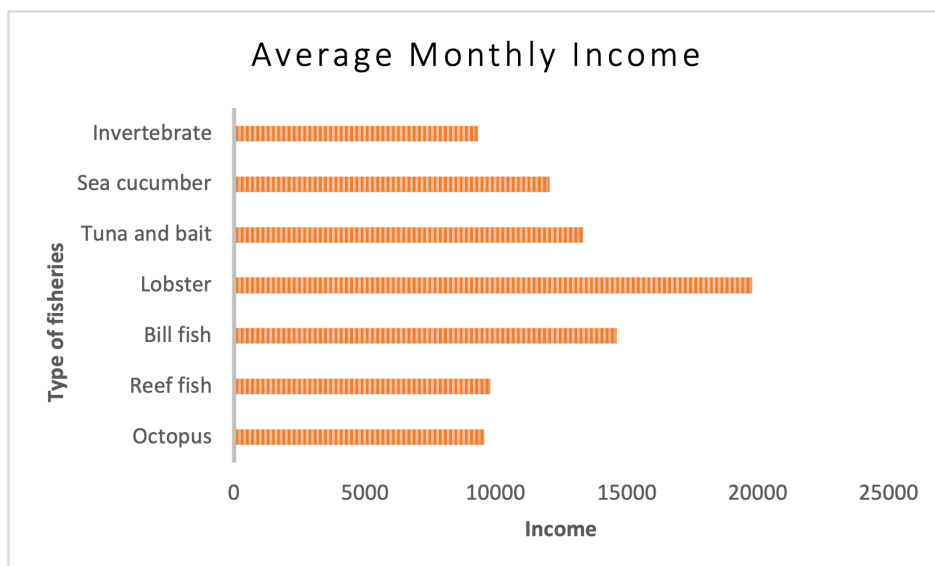


Figure 17: Average monthly income from fisheries

### 6.3.4. FISH PROCESSING

The data provides insights into the different methods of fish processing employed by the community members, the types of processed fish products, and where these products are sold or utilized. It's clear that there is a variety of processing methods, products, and selling destinations, indicating a diverse range of fishery-related activities within the community. The data highlights the complexity and versatility of fish processing and distribution practices.

The data indicated that out of 9 islands 8 islands practices fish processing. While 7 islands reported small scale fish processing and for household used, one island reported both small scale and large-scale fish processing.

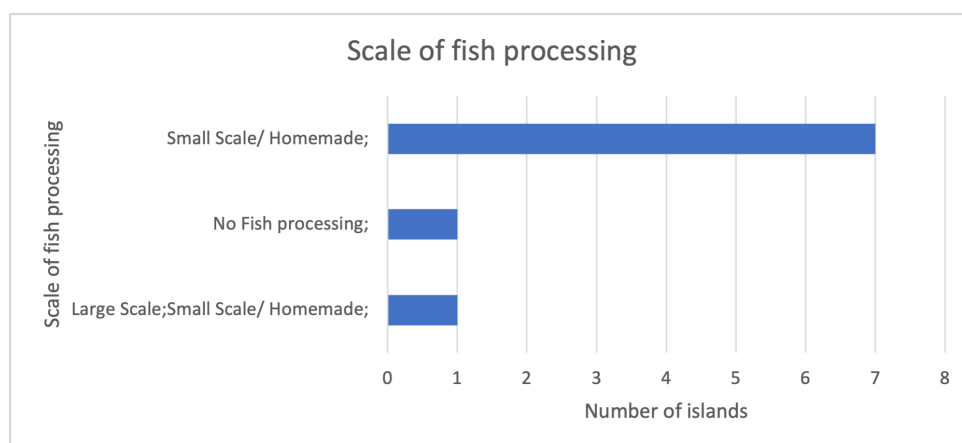


Figure 18: Fish processing scale

The data indicated more than 60% of the islands produce dried fish and rihaakuru (fish paste), while 55% of the islands produce frozen fish and 44% produce smoked fish products. Two islands reported production of salted fish for the market.

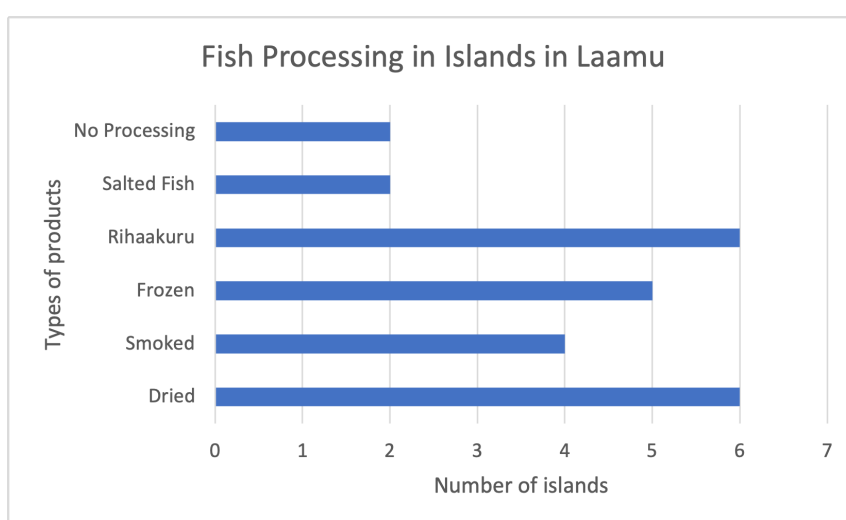


Figure 19: Number of islands producing fish products

### 6.3.5. FISH TRADING

#### Fish Trade and Gender:

The data highlights variations in the number of male and female fish traders reported by the councils. It is a combination of fishing vessels trading and small scale processors trading in local markets. This data provides insights into the gender dynamics within the fish trading sector on the island and the participation of both men and women in this economic activity.

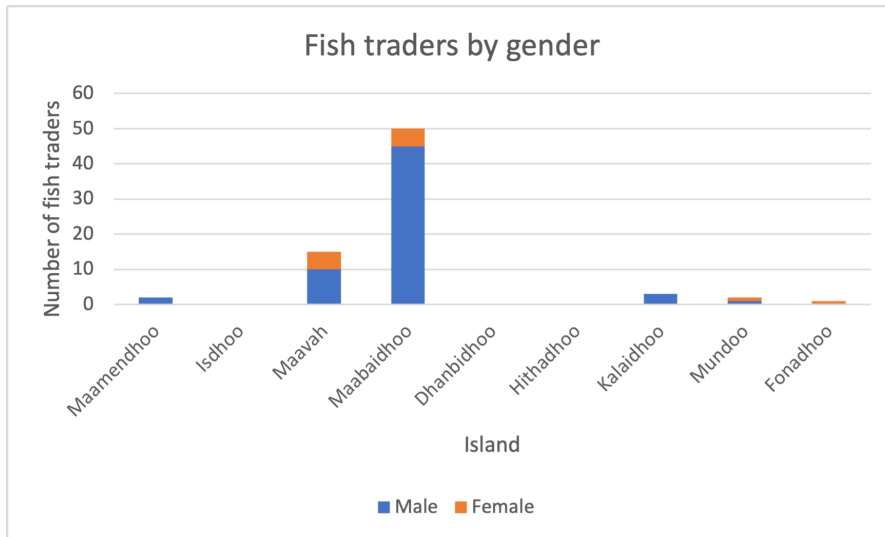


Figure 20: Gender contribution to fish trade in Laamu Atoll

#### Fish Traded by Type:

The data indicates a variety of fish types being traded, including Tuna, Reef Fish, Grouper, and Lobster/ Sea cucumber. The data show that Reef Fish to be the most common types of fish traded, followed by and Tuna/ Bait fish. This information provides insights into the fish trading practices and preferences on the island and the variety of fish species that are part of the trading activities.

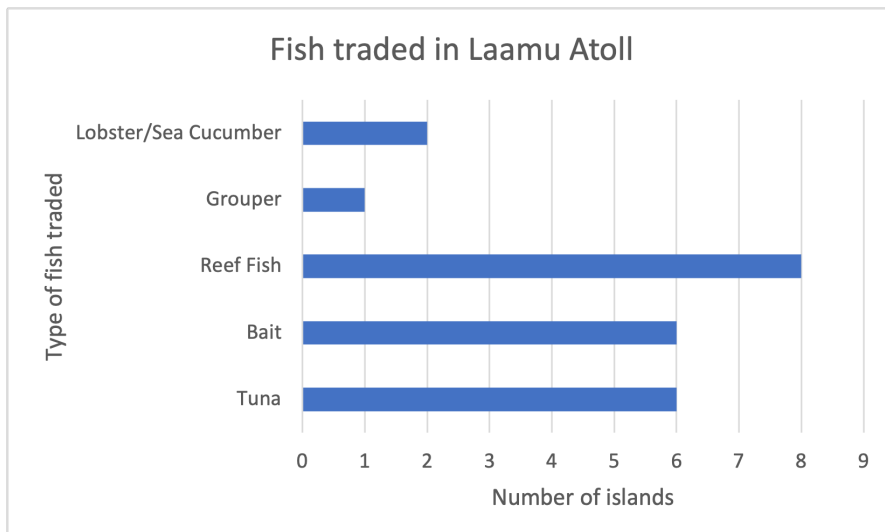


Figure 21: Type of Fish Traded in Laamu

# 7 CHALLENGES IN FISHING PRACTICES:

The data collected from the local councils indicates that nearly all fishing communities in Laamu Atoll are facing comparable challenges. These challenges encompass the lack of adequate local markets for fish products, insufficient recognition of the true market value of fish and seafood, and difficulties in obtaining ice for preservation. While some islands highlighted the sluggish or absent enhancements to fishing vessels, others grappled with the absence of vessels altogether.

Beyond the socioeconomic challenges prevalent in the Atoll, a multitude of environmental issues is also being confronted, including some reef-based fishing practices that they believed to impact fish habitats and stocks. . Moreover, a significant number of non-commercial extractions for sustenance purposes and the growing reliance on a single location for extensive reef fishing pose the risk of depleting reef fish resources if adequate sustainable management strategies are not implemented.

The removal of sea grass beds and alterations to coastal areas significantly impact shallow water fisheries like sea cucumber harvesting. The loss of breeding sites and habitats constitutes substantial hurdles that the atoll is gradually contending with.

# 8

## CONCLUSIONS AND RECOMMENDATIONS:

To tackle the socio-economic concerns, it is imperative to explore the avenue of livelihood diversification within the Laamu communities. Moreover, it is crucial to effectively convey the challenges faced by these communities to relevant authorities, aiming to secure suitable funding opportunities that can enhance the well-being of local fishermen. Furthermore, there is a pressing need to establish a diverse range of markets where fishermen can vend their products, receiving fair prices for their catches.

Addressing the issue of unsustainable practices necessitates the implementation of well-structured management plans tailored to the distinct types of fisheries, in accordance with the management plans outlined in the official gazette by the Ministry of Fisheries, Marine Resources and Agriculture (MoFMRA). Proper mechanisms should be established to ensure the adherence to these plans.

The strategic management and preservation of fish aggregation hotspots and breeding sites are essential. This approach ensures the maintenance of appropriate fish stocks and safeguards the resources for the benefit of future generations.

## 9 REFERENCES:

MECCT (2022), Environmental and Social Management Framework, Eliminating POPs through sound management of chemicals, Ministry of Environment Climate Change and Technology.

MBS. (2020), Statistical Year Book 2020, Maldives Bureau of Statistics

UNEP. (2019), Enhancing National Development through Environmentally Resilient Islands (ENDhERI) project document, United Nation Environment Program

MoFMRA. (2019), National Fisheries and Agricultural Policy 2019-2029, Ministry of Fisheries, Marine Resources and Agriculture.

MEE. (2017), State of Environment 2016, Ministry of Environment and Energy

MFDA. (2017), National Food Safety Policy 2017-2026, Maldives Food and Drug Authority

FAO. (2012), Maldives Country Programming Framework 2013 –2017, Food and Agricultural Organization of United Nation

MoFA. (2010), Fisheries Development Master Plan (2010-2025), Ministry of Fisheries and Agriculture.

Gazi Mahabubul Alam, Aishath Farhath, Abdul Jalil Othman and Abul Quasem Al-Amin, 2013. Fisheries Sector and Development of Maldives: Can Vocational and Technical Education Help?. Asian Journal of Animal and Veterinary Advances, 8: 82-90.

Blue Marine Foundation (2021) Resource use survey report: Laamu Atoll.