

REPUBLIC OF MOZAMBIQUE
MINISTRY OF THE SEA, INLAND WATERS AND FISHERIES (MIMAIP)

**Elaboration of the Strategy for
Monitoring, Control and Surveillance (MCS) system in Mozambique**

STUDY 3: FINAL REPORT

Study for a long-term sustainable financing of the MCS industrial, semi industrial and small-scale components



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List of acronyms

Acronym	Definition
ADNAP	National Fisheries Administration (MIMAIP) / Administração Nacional das Pescas
AIS	Automatic Identification System
AU	African Union
AU-IBAR	AU Inter-African Bureau for Animal Resources
CAP	Fisheries Management Commission / Comissão da Administração Pesqueira
CCP	Fisheries Communities Councils
CEPAM	Centre of Marine and Coastal Environment Research
CEPAQ	Centre for Aquaculture Research / Centro de Pesquisa em Aquacultura
CFP	Common Fisheries Policy
CP	Contracting party
CTF	Conservation Trust Fund
DAF	National Directorate for Administration and Finances / Departamento de Administração e Finanças
DAMAI	Provincial Department of Sea and Inland Affairs/ Departamento de Assuntos do Mar e Águas Interiores (in charge of MCS within the provincial DPMAIP)
DB	Databases
DEPI	National Directorate for Studies, Planning and Infrastructure / Direcção de Estudos, Planificação e Infra-estruturas
DIPOL	National Directorate for Maritime and Fisheries Policies / Direcção Nacional de Políticas Marítima e Pesqueira
DNOP	National Directorate for Directorate for the Operations / Direcção Nacional de Operações
DPMAIP	Provincial Directorate of the Ministry of the Sea, Inland Waters and Fisheries / Dirección Provincial del Ministerio do Mar, Águas Interiores e das Pescas
EA	Eastern Africa
EC	European Commission
EEZ	Exclusive Economic Zone
ERS	Electronic Recording and Reporting System
ESA-IO	Eastern Southern Africa-Indian Ocean
EU	European Union
EUR	Euro
FAO	Food and Agriculture Organisation
FFEM	French Facility for Global Environment
FFP	Fisheries Development Fund / Fundo de Fomento Pesqueiro
FMC	Fisheries Monitoring Centre
FMP	Fisheries Management Plan
FPA	Fisheries Partnership Agreement
GEF	Global Environment Facility
GPRS	Global Packet Radio Service protocol
GT	Gross Tonnage
HR	Human Resources
IDEPA	National Institute for Fisheries and Aquaculture / Instituto Nacional de Pesca e Aquacultura
IDPPE	Previously National Institute for the Development of Small-Scale Fisheries
IF	Industrial fisheries
IIP	Fisheries Research Institute / Instituto Nacional de Investigação Pesqueira
ILO	International Labour Organisation
IMO	International Maritime Organization
INAHINA	National Institute for Hydrography and Navigation / Instituto Nacional de Hidrografia e Navegação
INAQUA	Previously National Institute for the Development of Aquaculture

INIP	National Institute for Fish Inspection / Instituto Nacional de Inspeção do Pescado
IO	Indian Ocean
IOC	Indian Ocean Commission
IOTC	Indian Ocean Tuna Commission
ISIF	Industrial and semi-industrial fisheries
IUU	Illegal, unreported and unregulated fishing
LOA	Length Overall
M&E	Monitoring and Evaluation
MCS	Monitoring, Control and Surveillance
MCSCC	SADC MCS Coordinating Centre
MIMAIP	Ministry of Sea, Inland waters and Fisheries
MoU	Memorandum of Understanding
MPA	Marine Protected Area
Mts, MZN	Metical
NEPAD	African Union Development Agency
NGO	Non-Governmental Organisation
PAD	Project Appraisal Document (World Bank)
PDP	Plano Director das Pescas
PESPA	Strategic Plan for Artisanal Fisheries Sector / Plano Estratégico do Subsector da Pesca Artesanal
PRSP	Plan Régional de surveillance des pêches (IOC) / Regional Fisheries Surveillance Plan (IOC)
PSMA	Port State Measures Agreement
REPMAR	Regulamento Geral da Pesca Marítima
RFID	Radio Frequency Identification Device
RFMO	Regional Fisheries Management Organisation
SA	Southern Africa
SADC	Southern African Development Community
SDAE	District Service for Economic Affairs / Serviço Distrital de Assuntos Económicos
SSF	Small-scale fisheries
SIF	Semi-Industrial Fisheries
SNAPA	Sampling system for artisanal fisheries / Sistema Nacional de Amostragem da Pesca Artesanal
SSF	Small-scale Fisheries
SWIO	South West Indian Ocean
TAC	Total Allowable Catch
UE	União Europeia
US	United States of America
USD	US Dollar
VHF	Very High Frequency
VMS	Vessel Monitoring System

1 INTRODUCTION

1.1 Background

The South West Indian Ocean Fisheries Governance and Shared Growth project (SWIOFish) development objective is to “improve the management effectiveness of selected priority fisheries at regional, national and community level”. Mozambique is one of three countries, with Comoros and Tanzania, in the first project (SWIOFish1), followed by Madagascar (SWIOFish2) and the Seychelles (SWIOFish3) that complement the initial regional SWIOFish component. The project for Mozambique includes a strong MCS component focused on national and local capacity enhancement for data-collection and compliance, and co-management at community level; and on regional cooperation including plans to host the headquarters for the Southern African Development Community (SADC) Monitoring Control and Surveillance Coordination Centre (MCSCC).

The project to elaborate a Strategy for Monitoring, Control and Surveillance (MCS) system in Mozambique is organised into four studies:

- STUDY 1: Elaboration of a MCS strategy for small-scale fisheries (SSF) based on risk analysis, optimal use of control tools in order to better enforce national and local fisheries regulations;
- STUDY 2: Elaboration of a MCS Strategy for semi-industrial and industrial fisheries (ISIF) based on risk analysis, optimal use of control tools and cost-effective management in order to better enforce international and national fisheries regulations;
- STUDY 3: Study for a long-term sustainable financing regarding the MSC industrial, semi-industrial and small-scale components;
- STUDY 4: Update the National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated fishing (NPOA-IUU);

The overall objective of **STUDY 3** is to identify long-term financing options to support the MCS strategies for the SSF and ISIF. The specific objective is to improve the effectiveness of the Fisheries Management Plans (FMPs) for selected priority fisheries, at local, national and regional levels.

1.2 Scope

The diversity of Mozambique’s fisheries exploitation has been described in this project’s Study 1 for Industrial and Semi-Industrial Fisheries (ISIF) and Study 2 for Small-Scale Fisheries (SSF). The two reports describe in detail existing means of Monitoring, Control and Surveillance (MCS) for priority fisheries in selected sites and Provinces, and for these, the most pressing needs to develop an effective MSC system. Elements of the first two reports are repeated as necessary to make this report self-sufficient, but the four studies of this project are closely related and complement each other.

To complement the diagnostic of current MCS operations, Study 3 aims to identify means to finance a reinforced system in the future through specific means adapted to evolving challenges of Mozambique’s fisheries at the SWIO region, national, Provincial, District and local levels.

The Terms of Reference (ToRs) focus Study 3 on the National Directorate for the Operations (DNOP) and its current remit, which is Surveillance. However, the essential complementarity with the National Fisheries Administration (ADNAP), in charge of Monitoring and Control and with other Ministry of the Sea, Inland waters and fisheries (MIMAIP) agencies, central, provincial and district services is also discussed.

1.3 Study 3 methodology

Two experts, Sophie des Clers (economics and finance planning) and Bertrand Cazalet (legal aspects) were in Maputo for 10-days of meetings and interviews at the end of November 2018 (See Agenda in Annex 1). The mission was framed by a briefing and a de-briefing meeting with DNOP/MIMAIP who programmed the experts’ meetings. The names of people met are given in Annex 2.

Based on the Terms of Reference for Study 3 (Annex 3) and Oceanic Développement Technical Proposal (Form Tech-1 and Form Tech-4), the methodology is organized as five steps:

1. **A Diagnosis** of the current system, based on:

- a. A review of key reports, legal instruments and this project's MCS system studies 1&2 (MCS strategy for ISIF-SSF) recommendations and estimated costs;
 - b. Additional documents and statistics on the current and planned relevant sources of funding and expenses;
 - c. Exchanges and meetings during field mission (21-30 November).
2. An analysis of **Best practice** for comparable MCS system components, in the SWIO region and further afield regarding i) the general approach and principles of sustainable MCS systems financing and ii) relevant examples.
 3. A review of Present and Future MCS System Legal provisions;
 4. **Propositions/scenarios** (financial and legal), including relevant changes in budgeting and additional legal provisions.
 5. **Study 3 Workshop** to present, discuss and validate scenarios for i) immediate improvements and ii) the sustainable financing within 5 year of the MCS system proposed in the Strategy.

This will be done considering the financial needs of the MCS development strategies identified in Studies 1 & 2, including long-term dedicated funding for capacity building and training of MCS systems government and community stakeholders.

A review of current and possible future sources of funding for MCS investments and operations will concentrate on the needs of priority fisheries, at regional, national, provincial and local levels and discuss solutions identified by other countries facing comparable challenges.

The identification of sustainable financial initiatives will consider the costs and benefits of a mix of:

- Budget support for initial investments and larger land-based infrastructure and sea-going assets, and
- Widened and transparent application of the 'user pay principle' to support clearly defined resource use rights (such as time and area defined fishing permits in support of gear and vessel licences) relying on resource use fees.

Financing sustainability will also rely on a regulatory framework strengthened for its fair and transparent application, including a system of recovered fines to support a substantial increase in licensing rates and the recovery of fishing permits and licence fees.

1.4 Timetable

Study 3 is organized in two parts, with first a set of meetings and interviews held in Maputo between 22nd and 30th November 2018 to complement the information collection, review and analyses undertaken in Studies 1 and 2, with regards to recent, current and proposed MCS system strengthening budgetary and regulatory requirements.

The findings and analyses of Study 3 will be presented during a final project Workshop programmed to be held between 4th and 7th June 2019 in Beira.

1.5 Report outline

This report is organised in 6 sections. Chapters 2 and 3 present a review international best practice in terms of MCS and of Mozambique's present and forthcoming legal provisions. Chapter 4 gives a critical overview of the fisheries and aquaculture sectors according to official statistics between 2013 and 2017. Chapter 5 presents existing and proposed estimates of the MSC-specific budget, and chapter 6 reviews sustainable financing options.

2 DEFINITIONS, INTERNATIONAL OBLIGATIONS AND BEST PRACTICE

2.1 Introduction

The United Nations (UN) system of 17 Sustainable Development Goals (SDGs) came into effect in January 2016. Each SDG has specific targets, but in each country and region, they all come together and the outcomes and processes they aim to improve are interlinked (Figure 1).



Figure 1: The United Nations Sustainable Development Goals¹

Sustainable Development Goal #14 (SDG14) aims to “Conserve and sustainably use the oceans, seas and marine resources for sustainable development”. For fisheries specifically, Goal #14.4 sets a very specific outcome: SDG 14.4: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics. The indicator used to track progress is # 14.4.1: the proportion of fish stocks within biologically sustainable levels.

In Mozambique as for most countries in the region, the over-exploitation of resources and IUU fishing activities would not just affect SDG14, but for fisheries-dependent communities in particular, they would also have negative impacts on the SDGs for poverty reduction (SDG1), food security (SDG2), nutrition (SDG3) and indirectly on sustainable economic growth (SDG8) and access to education (SDG4).

2.2 MCS definition

The definition of MCS has been agreed through an FAO expert consultation since 1981². For each component, the FAO definition is complemented by a list of essential tasks defined in Océanic Développement’s diagnostic reports for ISIF (Study 1) and SSF (Study 2):

(i) **Monitoring** is the continuous requirement for the measurement of fishing effort characteristics and resource yields. Monitoring covers at least the following main tasks:

- Collection of catch and landing data (ex: logbook data);
- Implementation of an automatic vessel monitoring system (VMS);

¹ <http://www.undp.org/content/undp/en/home/sustainable-development-goals/>

² See Flewwelling, P.; Cullinan, C.; Balton, D.; Sautter, R.P.; Reynolds, J.E., 2002. Recent trends in monitoring, control and surveillance systems for capture fisheries. FAO Fisheries Technical Paper. No. 415. Rome, FAO. 2002. 200p. From <http://www.fao.org/tempref/docrep/fao/005/y4411e/y4411e00.pdf> and Cochrane, K. (ed.), 2002. A fisheries manager’s guidebook. Management measures and their application. Fisheries Technical Paper 424, <http://www.fao.org/docrep/005/y3427e/y3427e00.htm#Contents> : Chapter 8. Fishery MCS, P.E. Bergh and S. Davies, 29pp.

- Management of entry and exit of areas or port declarations.

The data need to be carefully collected, checked and validated, and analysed by the designated competent authorities at national, regional and local levels.

(ii) Control is the regulatory conditions under which the exploitation of the resource may be conducted. It involves the adoption of national and local measures (administrative or legislative), including fishing licence terms and conditions and their implementation, and the management plan framing the exploitation of the aquatic resources concerned. Fisheries management plans (FMPs) are control tools.

(iii) Surveillance is the degree and types of observations required to maintain compliance with the regulatory controls imposed on fishing activities. Surveillance includes the supervision and monitoring of fishing activities and related activities to ensure compliance with monitoring and control measures.

MCS activities, together with Scientific Research and Fisheries Management Plans (FMPs), are essential parts of the Fisheries Management system linked by a flow of detailed information (Figure 2).

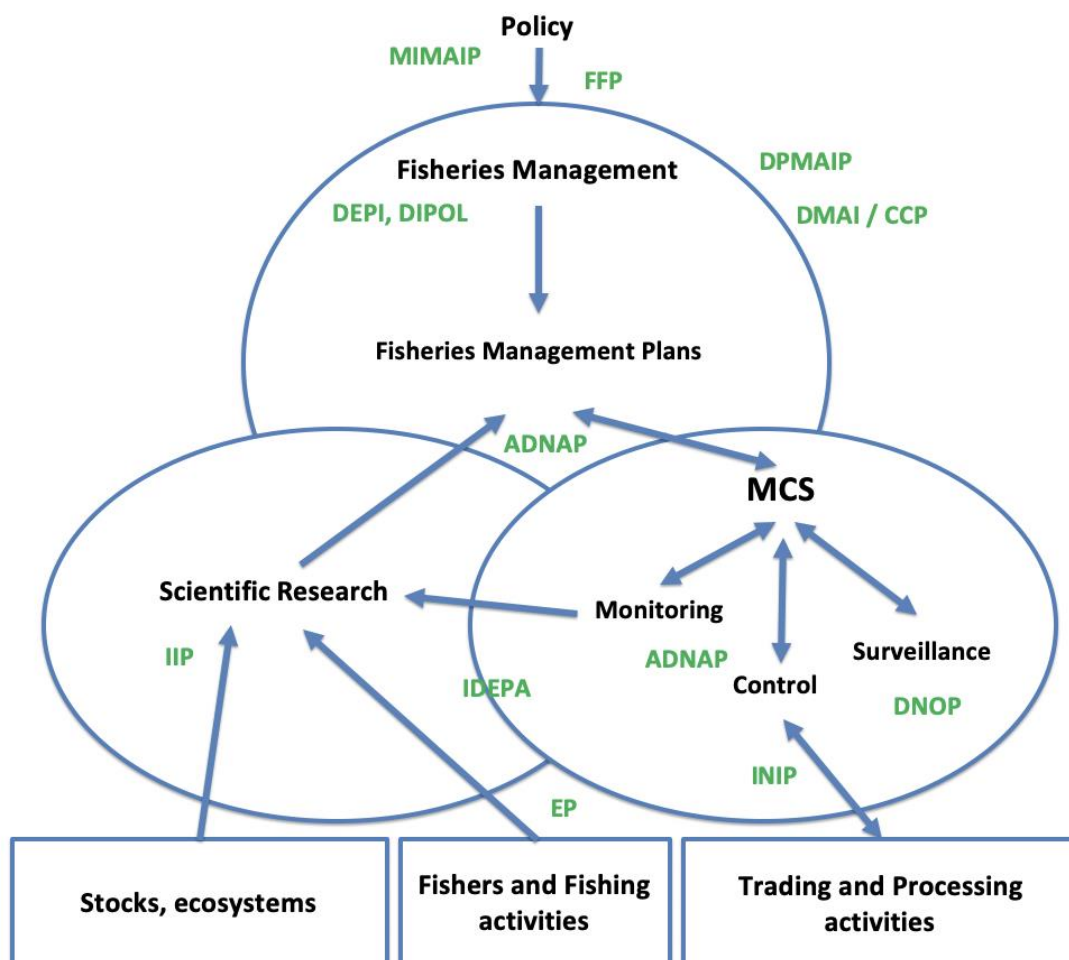


Figure 2: Links between MCS and fisheries management institutions (adapted from FAO 2002 Chapter 8²)

M, C and S components may be supervised or delivered by different administrative services, as is the case for Mozambique, with ADNAP delivering fishing licences according the FMPs devised from scientific advice provided by the Fisheries Research Institute (IIP), and DNOP in charge of surveillance. However, all MCS activities must be closely coordinated. Surveillance activities may be the most visible, they would be totally ineffective if monitoring and control measures were not fully operational.

2.3 International agreements and voluntary guidelines

A number of International and regional MCS obligations directly apply in Mozambique. They may relate to the following:

- Fishing activities of Mozambique-registered fishing vessels that take place in international waters or that target highly migratory, straddling or shared stocks, including the enforcement of RFMO (Indian Ocean Tuna Commission - IOTC) Conservation Management Measures (CMM) or FMPs for regionally shared resources (SWIOFC regional);
- Fisheries agreements with neighbouring states such as possible bilateral agreement with Madagascar to fight against IUU tuna fisheries mentioned in the press in 2018;
- Fisheries agreement with Portugal recognized by decree n.º 1/2015 of 5th of January 2015 foreseeing actions in particular to promote (art. 2.1.c) collaboration in the field of monitoring, control and surveillance of fisheries and aquaculture, processing and marketing of fish, including certification and quality of fishery and aquaculture products and the development of statistical information (no specific information on the financial content of this agreement - <http://extwprlegs1.fao.org/docs/pdf/bi-139905.pdf>);
- Activities of foreign fishing vessels and associated supply and reefer vessels that operate in Mozambique's waters;
- Marine biodiversity protection (IOTC CMM for sharks, Nairobi Convention etc.);
- Regional MCS cooperation, coordination and training through SADC, the IOC and IOTC.

Essential steps to develop the current international cooperation framework and obligations can be summarised by the publication of key documents as follows:

1982 - The United Nations Convention on the Law of the Sea³ defined rights and responsibilities of nations with respect to their use of the world's oceans and established guidelines for businesses and managers of marine natural resources.

1993 - The Food and Agriculture organisation (FAO) Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (the 'Compliance Agreement') aimed to prevent the "re-flagging" of vessels fishing on the high seas under the flags of States unable or unwilling to enforce international fisheries conservation and management measures. The Compliance Agreement is at the core of Europe's yellow and red carding under the EU IUU Regulation (section 2.3.5).

1995 - The UN Fish Stocks Agreement aimed to ensure the long-term conservation and sustainable use of straddling and highly migratory fish stocks within the framework of UNCLOS. In particular, it detailed the duties of flag States including those related to registration and records of vessels, authorisations, MCS compliance and enforcement. Cooperation in international, regional and sub-regional enforcement was also addressed, along with boarding and inspection procedures and Port State Measures (PSM).

1995 - The FAO Code of Conduct for Responsible Fisheries⁴ set out the principles and international standards of behaviour for responsible fishing practices and aquaculture development. It has served as a reference for national and international efforts, including for policies and institutional frameworks and instruments, to ensure sustainable exploitation of aquatic living resources in harmony with the environment. It also promotes, inter alia, responsible trade of fish and fishery products. It includes provisions on the duties of all States, flag States, port States and market States, and the role of RFMOs. Progress reports are compiled and discussed at the Committee on Fisheries (COFI⁵). In the years to follow, several instruments were developed under the "Code"⁶ providing templates for voluntary guidelines such as for the Ecosystem Approach to Fisheries (EAF) and the Voluntary Guidelines for Small-Scale Fisheries (VGSSF). The Code also introduced International Plans of Action (IPOAs), such as the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds), the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks) and the

³ http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm and http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf

⁴ Special edition: <http://www.fao.org/docrep/013/i1900e/i1900e.pdf>

⁵ <http://www.fao.org/about/meetings/cofi/documents-cofi33/en/> and for 2014 see <http://www.fao.org/3/a-mk051e.pdf> and for 2016 <http://www.fao.org/3/a-mq873e.pdf>

⁶ See <http://www.fao.org/fishery/code/ipoa/en>

International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU) summarised below.

2001- The IPOA-IUU was published as a toolbox to combat IUU fishing, for use by flag States, coastal States, market States, port States and RFMOs. The IPOA-IUU calls upon all countries to develop and implement a consistent National Plan of Action and to review it periodically. Implementation of flag State responsibilities, as well as coastal State, port State, and market-related measures, are core elements of the IPOA-IUU⁷. Importantly for this study, the IPOA provides clear definitions of what IUU fishing covers, including for “unreported” catches, a problem currently addressed by Mozambique for small-scale fisheries (SSF):

Illegal fishing (art. 3.1.1 - 3.1.3) - Fishing activities that are:

- Conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations;
- conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organization but operate in contravention of the conservation and management measures adopted by that organization and by which the States are bound, or relevant provisions of the applicable international law; or
- In violation of national laws or international obligations, including those undertaken by cooperating States as members of a regional fisheries management organization.

Unreported fishing (art. 3.2.1 - 3.2.2) - Fishing activities that:

- Have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or
- undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization;

Unregulated fishing (art. 3.3.1 - 3.3.2) - Fishing activities:

- In the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or
- in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.

2007 - The FAO Committee on Fisheries (COFI) supported the setting up of an Expert Consultation to develop the concept of the global record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels, which was piloted in 2011 with the participation of 11 countries, including Mozambique⁸.

2009 - The FAO Agreement on Port State Measures to Prevent, Deter and Eliminate, Illegal, Unreported and Unregulated Fishing (PSMA) adopted in 2009, and the **2014** Voluntary Guidelines for Flag State Performance (VGFSP) are detailed below. Their legal translation into Mozambican law is indicated in Table 1.

A recent compilation of actions needed at country-level to comply with these international requirements⁹ is summarised in

Table 2, which indicates the provisions that are already (or in the process of being) incorporated in the national legislation, including a revised version of the IUU National Plan of Actions (NPOA-IUU), which will be part of this project’s deliverables.

Details of the legal provisions in force and of those included in the forthcoming legislation (REPMAR) for international agreements are indicated below, those that are purely national are given in section 4.7.

⁷ <http://www.fao.org/3/a-y1224e.pdf>

⁸ See <http://www.fao.org/global-record/background/about/en/>

⁹ EJF, Oceana, Pew, WWF, 2016. The EU IUU Regulation carding process- Issue Brief, http://www.iuuwatch.eu/wp-content/uploads/2015/06/3rdCountryCardingGuidelinesReport_FINAL.LOW_.pdf

Table 1: Binding and voluntary International instruments

Year	International instruments	Mozambique legislation
Adopted 1992 into force 2001	UN Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea (UNCLOS) of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement - UN FSA) ¹⁰	Accession 10 Dec. 2008
Adopted 1993 in force 2003	UN Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (The Compliance Agreement ¹¹)	Accepted 9 Jan. 2009
1995	1995 FAO Code of Conduct for Responsible Fisheries was adopted in Resolution 4/95 by the FAO Conference on 31 October 1995 ¹²	Mentioned by Ministerial Diploma (Ministry of fisheries) No. 58/2009 of December 15, National Action Plan to Prevent, Prevent and Eliminate Illegal Unreported and Unregulated Fishing
2001	Voluntary International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU) ¹³	Mentioned by Ministerial Diploma (Ministry of fisheries) No. 58/2009 of December 15, National Action Plan to Prevent, Prevent and Eliminate Illegal Unreported and Unregulated Fishing
2007	Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels (Global Record ⁸).	2011 Mozambique takes part in the Pilot project
2009	Agreement on Port State Measures (PSMA) ¹⁴ , 1 st binding international agreement specifically targeting IUU fishing	Signed 4 NOV 2010 Ratified 19 AUG 2014
2014	Voluntary Guidelines for Flag State Performance (VGFSP)	No mention in existing texts
2017	FAO Voluntary Guidelines for Catch Documentation Schemes (VGCDs)	No mention in existing texts
Various dates	Resolutions and recommendations of IOTC, SWIOFC and other relevant regional fisheries bodies	IOTC; SIOFA

Table 2: Country actions required to comply with international mandatory or to implement voluntary provisions (updated from EJF, Oceana, Pew, WWF, 2016)

Instruments	Provisions	Transposed
International Law	Arts. 94, 117 UNCLOS (High Seas) Art. 217 UNCLOS (protection and preservation of marine environment) Art. 19 UN FSA Art. III(8) FAO Compliance Agreement	Art. 6.4 of Fishing Act n° 22/2013 creates conditions for the application of international conventions (UNCLOS, CBD, and MARPOL 73/78) FSA adopted on 10 December 2008 – No specific mention of Art.19 FAO CA adopted on 9 January 2009 - No specific mention of Art. III(8)
Voluntary instruments	Paragraphs 11, 16-19, 21, 24-27 IPOA-IUU Art. 6, 31-33 VGFSP	Ministerial Diploma No. 58/2009 of December 15 No mention in existing texts

¹⁰ http://www.un.org/Depts/los/convention_agreements/convention_overview_fish_stocks.htm

¹¹ http://www.fao.org/fileadmin/user_upload/legal/docs/012s-e.pdf

¹² <http://www.fao.org/fishery/code/en>

¹³ <http://www.fao.org/3/a-y1224e.pdf>

¹⁴ http://www.fao.org/fileadmin/user_upload/legal/docs/037s-e.pdf

2.3.1 Port State Measures Agreement (PSMA)

The PSMA aims to prevent vessels engaged in IUU fishing from using ports and landing their catches. In doing so, it discourages IUU vessels to continue to operate and blocks fishery products derived from IUU fishing from reaching national and international markets. As well as the duties of Port States, the Agreement also covers the role of Flag States (where the fishing vessels are registered) and the role of RFMOs in the implementation of Port State measures.

Mozambique signed the PSMA in 2010, which was ratified in 2014, therefore the “Agreement” provisions are presently binding.

An efficient implementation of the PSMA relies on using and connecting complementary instruments and tools, in particular:

- The Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels (Global Record)
- The Voluntary Guidelines for Catch Documentation Schemes, and
- Tools developed by the IOTC, SWIOFC and by regional MCS projects such as the PRSP and Smartfish.

The FAO “Global Record” project is in progress. It relies on all states to update, validate and share their fishing register annually. Vessels need to be given a Unique Vessel Identifier (UVI) that remains unchanged throughout their lifetime, regardless of changes of name, ownership or flag. The number and basic vessel characteristics are entered onto the FAO Global Register website to provide a worldwide “positive” vessel list, which would complement the RFMOs and other IUU vessels lists. Clear and simple procedures make it possible to verify that a vessel wanting to dock, land or tranship products in port has not been involved in IUU activities. These are illustrated in Figure 3.

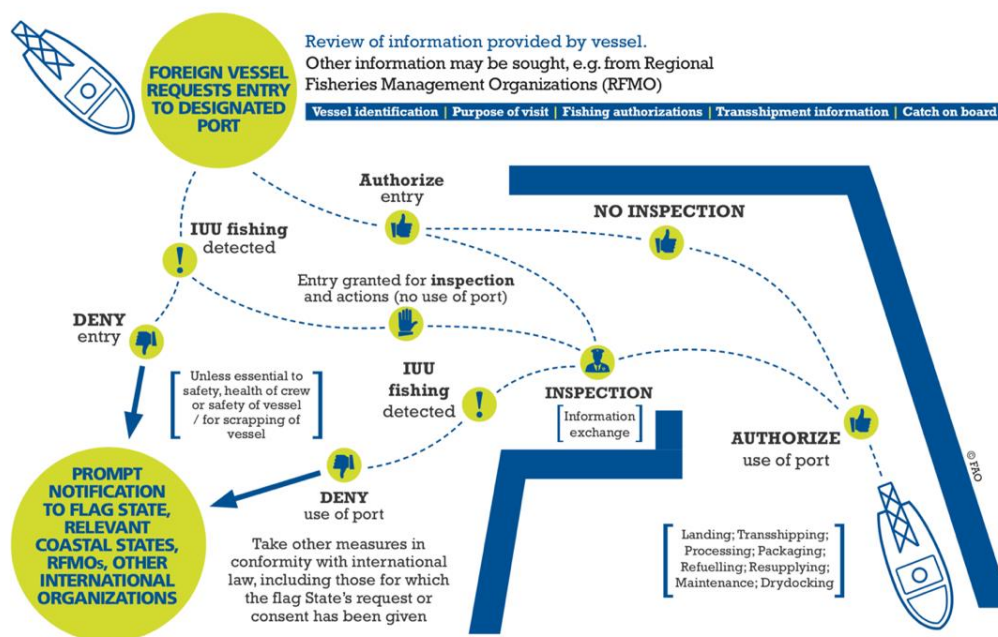


Figure 3: Actions and information flow required of coastal states by the PSMA (from FAO 2016¹⁵)

From the vessel request to enter a registered or other port, the information provided with the request is checked and, on the basis of its identification and declaration of purpose, authorisations and prior notification of products types and quantities, the fishing vessel or fish transport vessel may be

- authorized to use the port for landing, transshipping, processing her catch, and
- authorized to enter and be inspected, or
- denied entry.

¹⁵ FAO, 2016. Illegal, unreported and unregulated fishing. Summary 3pp. <http://www.fao.org/3/a-i6069e.pdf>

With a system of shared information, the competent authority in charge can investigate any suspicion that a vessel is not compliant and deny port entry, thereby reducing the incentive of IUU vessels to continue to operate and blocking fishery products derived from IUU fishing from reaching national and international markets.

2.3.2 Flag State Performance (FSP) Guidelines (2014)

The **Voluntary FSP Guidelines (2014)** provide guidance for flag States to strengthen and monitor compliance with their international duties and obligations regarding the flagging and control of fishing vessels. It covers the relevant responsibilities of flag States on the basis of elements contained in international law, including binding and non-binding international fisheries instruments.

The 2014 FAO Voluntary Guidelines for flag state performance provide a set of expectations that correspond to current best practice. Mozambique does not support a fishing or other vessels flag of convenience registry¹⁶, which generally present a high risk of IUU.

The objective of the FSP Guidelines is to prevent, deter and eliminate IUU fishing or fishing-related activities in support of IUU fishing. They are summarised in Table 3.

Table 3: FAO (2014) Voluntary Guidelines for flag state performance¹⁷

In its exercise of effective flag State responsibility, the flag State should:

- a) act in accordance with international law with respect to flag State duties;
- b) respect national sovereignty and coastal State rights;
- c) prevent, deter and eliminate IUU fishing or fishing related activities in support of such fishing;
- d) effectively exercise its jurisdiction and control over vessels flying its flag;
- e) take measures to ensure that persons subject to its jurisdiction, including owners and operators of vessels flying its flag, do not support or engage in IUU fishing or fishing-related activities in support of such fishing;
- f) ensure the conservation and sustainable use of living marine resources;
- g) take effective action against non-compliance by vessels flying its flag;
- h) discharge its duty to cooperate in accordance with international law;
- i) exchange information and coordinate activities among relevant national agencies;
- j) exchange information with other States and give mutual legal assistance in investigation and judicial proceedings, as required by their respective international obligations; and
- k) recognize the special interests of developing States, in particular the least developed among them and small island developing States, and cooperate to enhance their abilities as flag States including through capacity development.

Mozambique has a number of ISIF vessels registered in China (PRC) and Taiwan. For these and all vessels in the ISIF fleet in general, in the light of this project's diagnostics presented in Study 1 (ISIF) and Study 2 (SSF), the FSP Guidelines regarding fishing authorisations and MCS activities are particularly relevant. They are given below¹⁷.

2.3.2.1 Authorisations

The Flag State has in place a regime for authorizing fishing and fishing related activities (e.g. licensing), which ensures that no vessel is allowed to operate unless so authorized in a manner consistent with international law and with the sustainability of the relevant stocks, including:

1. appropriate scope for authorization of fishing and fishing related activities, including conditions for the protection of marine ecosystems;
2. prior assessment of a vessel's history of compliance and ability to comply with applicable measures; and
3. minimum information requirements in the authorization that allow identification of accountable persons, areas and species, including:
 - a. the name of the vessel, and, where appropriate, the natural or legal person authorized to engage in fishing and fishing related activities;
 - b. the areas, scope and duration of the authorization to engage in fishing and fishing related activities;

¹⁶ See <https://www.itfseafarers.org/foc-registries.cfm>

¹⁷ Full text of FSP Guidelines from <http://www.fao.org/3/a-mk052e.pdf>

- c. the species, fishing gear authorized, and where appropriate, other applicable management measures; and
- d. relevant conditions under which an authorization is issued that may, where required, include those in paragraph 47 of the 2001 FAO “IPOA-IUU”.

The flag State effectively implements a regime for authorizing fishing and fishing related activities (e.g. licensing), including issuing an authorization only where it is satisfied that:

1. the vessel has the ability to comply with the terms and conditions of the authorization;
2. it can effectively exercise its jurisdiction and control over the vessel to ensure compliance with applicable conservation and management measures; and
3. it can effectively exercise its enforcement jurisdiction and authority over the holder of the authorization.

2.3.2.2 Monitoring, control, surveillance and enforcement

The flag State implements a control regime over vessels flying its flag that includes, as a minimum:

1. legal authority to take control of the vessels (e.g. denial of sailing, recall to port);
2. establishment and maintenance of an up-to-date record of vessels;
3. monitoring tools, such as vessel monitoring systems, logbooks/documentation, and observers;
4. mandatory requirements regarding fisheries-related data that must be recorded and reported in a timely manner by the vessels (e.g. catches, effort, bycatches and discards, landings and transshipments); and
5. an inspection regime, including at sea and at port.

The flag State has in place an enforcement regime, which includes, as a minimum:

1. capacity to detect and take enforcement action with respect to violations;
2. authority and capacity to conduct timely investigations of violations, including the establishment of the identity of the violators and the nature of the violations;
3. an appropriate system for the acquisition, collection, preservation and maintenance of the integrity of evidence;
4. a system of sanctions proportionate to the seriousness of the violation and adequate in severity to be effective in securing compliance and to discourage violations, and deprive offenders of benefits accruing from their illegal activities;
5. cooperation and mutual legal assistance, including as appropriate information sharing and reporting arrangements with other States, international organizations including RFMOs relating to enforcement, as well as the timeliness of action following requests for assistance; and
6. prohibition of high seas fishing and fishing related activities by a vessel flying its flag where such vessel has been involved in the commission of a serious violation of relevant subregional or regional conservation and management measures applicable to the high seas, until such time that all outstanding sanctions imposed by the flag State in respect of the violation have been complied with in accordance with its laws.

The flag State undertakes comprehensive and effective monitoring, control and surveillance (MCS) of fishing and fishing related activities, including, to the extent possible, measures and actions described in paragraph 24 of the IPOA-IUU.

The flag State contributes to joint MCS and enforcement efforts, where applicable.

The flag State takes action in respect of vessels flying its flag and identified as participating in IUU fishing or fishing related activities in support of such fishing.

The flag State implements effective and timely sanctions, that include the following:

1. sanctions are applied in proportion to the seriousness of the violation and are adequate in severity to be effective in securing compliance and to discourage violations wherever they occur and deprive offenders of benefits accruing from their illegal activities;
2. the flag State promotes knowledge and understanding of MCS issues within national judicial and administrative systems;
3. the flag State has in place judicial and/or administrative processes capable of meeting these Guidelines, to the extent possible, in a timely and effective manner;

4. the flag State is capable of ensuring that sanctions are complied with including, where appropriate, preventing the vessel from engaging in IUU fishing or fishing related activities in support of such fishing until sanctions are complied with; and
5. the flag State responds in a timely manner to requests from other States or, if applicable, RFMO/As to take measures in respect of vessels flying its flag.

The IMO stressed that Port State activities need to be coordinated inter-sectoral at national, regional and international levels, and to inform the joint FAO/IMO Ad Hoc Working Group on Illegal, Unreported and Unregulated (IUU) Fishing and Related Matters between FAO, IMO and the International Labour Organization (ILO), which acts as an important forum to ensure coordination among relevant agencies.

2.3.3 Catch Documentation Scheme (CDS) 2017 Voluntary Guidelines

The CDS agreed in 2017 is another essential component of a fully effective MCS system, which connects the seafood product bought by final consumers back to the fishing vessel. The system aims to ensure, throughout the supply chain, that the product originates from catches consistent with applicable national, regional and international conservation and management measures, established in accordance with relevant international obligations.

The FAO Voluntary Guidelines for Catch Documentation Schemes (VGCDS¹⁸) gives a comprehensive explanation to assist States, RFMOs, regional economic integration organizations (such as SADC, IOC, COMESA) and other intergovernmental organisations when developing and implementing new CDS, or harmonising or reviewing existing CDS.

The CDS is a trade-related measure to prevent, deter and eliminate IUU fishing. It functions most effectively in synergy with other international instruments including the Agreement on Port State Measures (PSMA¹⁹ - section 2.3.1) and the Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels²⁰ already mentioned. Figure 4 illustrates the elements used by the Competent Authority of the exporting country that are needed to issue a catch certificate .

The VGCDS also note that any CDS is based on the country's ability to:

1. develop, implement and improve practical and effective CDS;
2. develop an adequate legal and regulatory framework for CDS;
3. strengthen institutional organization and infrastructure needed to ensure effective implementation of CDS;
4. build institutional and human resource capacity including for monitoring and control purposes and for training, at the national and regional levels, for CDS; and
5. participate in international organizations.

Mozambique already has a CDS system in place, the European catch certificate scheme (EU-CCS section 2.3.5 below), and similar paperwork would be needed for exports to North America (USA, Canada) or Australia. The now agreed VGCDS indicate that international trade will increasingly require precise catch documentation for all fish product exports and countries. Finally, the latest IUU-related instrument agreed at the FAO concerns the marking of fishing gear.

¹⁸ <http://www.fao.org/iuu-fishing/international-framework/voluntary-guidelines-for-catch-documentation-schemes/en/>
<http://www.fao.org/3/a-i8076e.pdf>

¹⁹ <http://www.fao.org/iuu-fishing/international-framework/psma/vn/>

²⁰ No current information for Mozambique see : <http://www.fao.org/iuu-fishing/tools-and-initiatives/global-record/vn/>

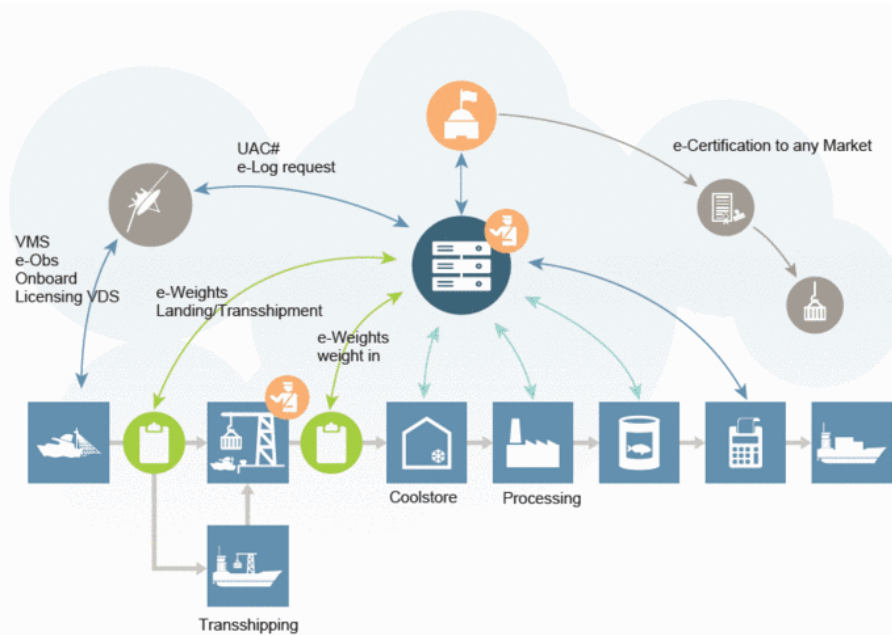


Figure 4: CDS Information flow, inspection and control for the e-Certification of export(source: FAO¹⁸)

2.3.4 Marking of Fishing Gear - 2018 Draft Voluntary Guidelines

Legally binding international instruments already provide explicit requirements for the marking of fishing gear and for improved management of fishing gear generally, including the United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks, and IMO’s MARPOL (in its Annex 5). The FAO’s PSMA also prescribes that inspections should include examination of fishing gear to ensure that its markings correspond to those authorized for the vessel (see earlier sections). The FAO’s International Guidelines on Bycatch Management and Reduction of Discards published in 2011²¹ also call upon States to adopt measures, including gear marking, to prevent gear loss.

The draft VGs validated in 2018 on the basis of an FAO Expert report and Expert Consultations go one step further²². A key objective is to help reduce the number of abandoned, lost or otherwise discarded fishing gear (ALDFG), which have negative impacts on marine and coastal ecosystems. Another key objective is to contribute to the reduction of IUU fishing activities, by facilitating procedures to recover accidentally lost gear and seize illegal gear.

In particular, a **system of marking fishing gear should be put in place for all gear types** unless the relevant authority, as a result of risk assessment or other appropriate means, deems otherwise. The level of complexity of the gear marking should be based upon the necessity and practicality of such a system.

International initiatives are progressively coming together, notably through catch documentation schemes (CDS) aimed to inform buyers, processors and consumers by linking the fish product (by species) to the vessel and fishing gear, to the catch area, stock of origin and management regime through an auditable traceability documentation system. An example of requirements to import fish products into the European Union is given in the following section.

2.3.5 Europe’s IUU Regulations 2008 and 2009

The European IUU Regulations (from the European Council of Ministers: EU (European Union), 2008. Council Regulation (EC) No. 1005/2008 of 29 September 2008 Establishing a Community System to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing²³; and its implementation details from the EU Commission: EU (European Union), 2009. Commission Regulation (EC) No. 1010/2009 of 22 October 2009 Laying Down Detailed Rules for the Implementation of Council Regulation (EC) No. 1005/2008 Establishing a Community

²¹ <http://www.fao.org/docrep/015/ba0022t/ba0022t00.pdf>

²² <http://www.fao.org/3/CA0196EN/ca0196en.pdf>

²³ EU-IUU Reg. English version: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008R1005&from=en>
 Portuguese version: <https://eur-lex.europa.eu/legal-content/PT/TXT/PDF/?uri=CELEX:32008R1005&from=en>

System to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing²⁴) set out detailed documentary obligations for fishery products caught by foreign-registered vessels to enter the territory of the Community (which would include any mainland European Member States and its overseas territories such as Mayotte and Ile de La Réunion in the Indian Ocean). In particular, the EU IUU Regulation aims to obtain a full traceability record of all imported fishery products. Reg. No. 1010/2009 requires:

1. Prior notification (usually 3 days);
2. Procedures and forms for pre-landing and pre-transshipment declarations including the submission of catch certificates before the estimated time of arrival;
3. Port inspections of at least 5 % of landing and transshipment operations by third country, or systematically depending on a number of risk criteria (art.4).

The EU catch certification scheme (CCS) applies to all third country fishing vessels, although a simplified version may be used for vessels (a) with an overall length of less than 12 metres without towed gear; or (b) with an overall length of less than 8 metres with towed gear; or (c) without a superstructure; or (d) of less than measured 20 Gross Tonnage (GT art.6).

Verifications of the Catch Certificates are focused towards the same potential risks as for Port Inspections and are identified on the basis of the following criteria:

- import, export or trade in fishery products obtained from species of high commercial value;
- introduction of new kinds of fishery products or discovery of new trade patterns;
- inconsistencies between trade patterns and known fishing activities of a flag State in particular in respect of species, volumes or characteristics of its fishing fleet;
- inconsistencies between trade patterns and known fishing-related activities of a third country in particular in respect of the characteristics of its processing industry or its trade in fishery products;
- trade pattern not justified in terms of economic criteria;
- involvement of a newly established operator;
- significant and sudden increase in trade volume for a certain species;
- submission of copies of catch certificates (instead of originals) accompanying processing statements according to Annex IV of Regulation (EC) No 1005/2008, for instance when the catch has been split during production;
- prior notification, required under Article 6 of Regulation (EC) No 1005/2008, not transmitted at the proper time or information incomplete;
- inconsistencies between catch data declared by the operator and other information available to the competent authority;
- vessel or vessel owner suspected of being or having been involved in IUU fishing activities;
- vessel having recently changed name, flag or registration number;
- flag State not notified according to Article 20 of Regulation (EC) No 1005/2008 or information available on possible irregularities in the validation of catch certificates by a given flag State (e.g. stamps or validation seal from a competent authority lost, stolen or forged);
- presumed deficiencies in the control system of a flag State;
- operators concerned who have already been involved in illegal activities constituting a potential risk in respect of IUU fishing.

Therefore, a precise and organised administrative documentation process is essential in order to support businesses wishing to export to Europe, which Mozambique has already in place, although some links between M, C and S information need to be (re-)established and strengthened. It is important to note that the focus of the European CCS extends to the sustainable exploitation and management of the resource, and that these criteria are likely to become more important in the future.

For exports to Europe, the CCS complements the Food Safety Certificate issued by the INIP as Mozambique's Competent Authority for fisheries products exported by EU-agreed (European Commission, Directorate General for Health and Food Safety) establishments (FV: factory vessel, ZV: freezer vessel, CS: freezer warehouse and PP: processing plant). In 2018 (version dated 09/08/2018), a total of 79 agreements are listed for Fishery products

²⁴ EU Com Reg. English version: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02009R1010-20130917&from=EN> Portuguese version: <https://eur-lex.europa.eu/legal-content/PT/TXT/PDF/?uri=CELEX:02009R1010-20130917&from=EN>

from Mozambique, their list is kept on the EU Traces²⁵ system²⁶. Details are discussed in section 4.4. The link between IUU and Food Safety documentation is now firmly established for Trade with the EU, and therefore the links between INIP and the MCS Competent authority partners (DNOP and ADNAP) also need to be strengthened.

2.3.6 Other IUU-relevant international obligations

2.3.6.1 Verification of imports

The strengthening of Mozambique MCS system is also vital for the protection of its own national seafood businesses, its markets and consumers, including the Tourism industry (see section 4). It is always the producer's responsibility to provide the required paperwork, but the MCS services must also be able to require, inspect, verify and validate the documents that accompany any fish products imported into the country. Again, this is done by the INIP, which recovers the costs from importing agents or companies, but similar verifications are needed to ensure the validity of the Catch Certificates, for all categories of fish products, including fish used as bait for tuna longline fisheries or derived products used in aquaculture. As mentioned for export controls, efficient import controls will also rely on a close cooperation between INIP and the MCS services.

2.3.6.2 International cooperation

The importance of inter-sectoral coordination for MCS activities has already been mentioned with Flag State duties (section 2.3.2). Some of the coordination is done at global level, and the FAO and country delegates, participate in expert meetings of the International Monitoring, Control and Surveillance (IMCS) Network and contribute to Joint initiatives to improve coordination of key compliance programs regarding vessel safety and operations at sea (FAO/IMO Ad Hoc Working Group on IUU Fishing), seafarers working conditions (ILO), marine crime and piracy (UNODC), Trade (WTO and CITES) and International Food standards (FAO Codex Alimentarius).

For example, the IMO Torremolinos International Convention for the Safety of Fishing Vessels adopted in 1977 modified in 1993 by the Torremolinos Protocol, finally came into force with the adoption of the 2012 Cape Town Agreement. The Cape Town Agreement includes mandatory international requirements for stability, construction and associated seaworthiness of fishing vessels of 24 meters in length and over, as well as requirements for life-saving appliances, communications equipment and fire protection.

The 2012 Cape Town Agreement is an internationally-binding instrument. The Agreement includes mandatory international requirements for stability and associated seaworthiness, machinery and electrical installations, life-saving appliances, communications equipment and fire protection, as well as fishing vessel construction.

The 2012 Cape Town Agreement is aimed at facilitating better control of fishing vessel safety by flag, port and coastal States. It is also expected to contribute to the fight against IUU fishing.

In addition, the IMO's MARPOL regulations for the prevention of pollution from ships also applies to fishing vessels, including regulations for the prevention of pollution by garbage from ships, which prohibit the discharge into the sea of garbage and operational waste, including fishing gear (see section 2.3.4).

2.4 Regional networks and projects

The African Union and regional organisations have been providing MCS support and guidance are therefore important partners for Mozambique's MCS Strategy and its implementation. MCS-specific recent, on-going or forthcoming projects and activities are summarised below.

2.4.1 African Union (AU) and NEPAD

The EU-funded AU-IBAR Fisheries Governance Project (FishGov) is of particular relevance. It aims to "strengthen institutional capacity to enhance governance of the fisheries sector in Africa", including (result 1.2) "systems for effective MCS to combating IUU fishing". In February 2018, a "Consultative workshop on enhancing regional capacity for fisheries observer and fishing vessel register programmes (including interactive discussions on coastal, port and flag states measures)" brought together 41 participants representing the 18 African coastal states including Mozambique.

²⁵ TraCES: Trade Control and Expert System https://ec.europa.eu/food/animals/traces_en

²⁶ https://webgate.ec.europa.eu/sanco/traces/output/non_eu_listsPerCountry_en.htm#

The Workshop introduced participants to the basics of Coastal, Port and Flag states duties and rights, and priority actions needed to ensure uptake and effective implementation of the various international instruments. It aimed to share experiences, best practices and lessons learnt for an effective and sustainable implementation of:

1. a regional fisheries observers programme, especially the harmonized scheme for boarding and inspection of industrial fishing vessels as per the “AU-IBAR Manual on the duties, obligation and responsibilities of fisheries observers onboard fishing vessels” published in 2017²⁷;
2. the model for formulating treaty/agreements for regional cooperation on MCS currently led by SADC in the Eastern Africa, Southern Africa and Indian Ocean (EA-SA-IO) region; and
3. use of a database on regional fishing vessel registration, commissioned and developed by AU-IBAR.

NEPAD, recently rebranded the African Union Development Agency, has supported numerous initiatives to strengthen the MCS capacity of African states. In 2016, NEPAD published a set of guidelines for AU member States²⁸, which would still be very pertinent to include in a national MCS Strategy. They are summarised in Table 4.

Table 4: Importance of MCS capacity building (from NEPAD, 2016²⁸)

Build capacity to successfully apply low cost MCS:

Assess the human and institutional capacity needed to implement different approaches to MCS, prepare and implement capacity building plans to strengthen this capacity.

Facilitate targeted allocation of MCS resources by conducting fisheries risk assessments including assessing compliance levels and the impact of non-compliance.

Facilitate for effective MCS by implementing smart technology and simple cost effective tools to improve effectiveness of MCS including various types of satellite monitoring, shared ‘cloud’ technology, observer programmes and community- based surveillance.

Promote the use of catch documentation schemes and increase awareness of the rules and regulations among those working in the value chain in order to promote access to markets for legal African fish and fishery products.

Establish national MCS funds that utilise fines gained from fishery prosecutions to strengthen the MCS system.

2.4.2 Southern African Development Community (SADC)

The SADC aims to further regional integration and socio-economic cooperation as well as political and security cooperation among 16 southern African states (Figure 5)²⁹. The SADC Free Trade Area (FTA) was established in 2008.

SADC, with some support from AU-IBAR, initiated a process to establish a regional MCS Coordinating Centre (MCSCC) in 2013. The SADC Council approved a Charter establishing the SADC Regional Fisheries Monitoring Control and Surveillance Coordination Centre (MCSCC) in August 2017³⁰, to be located in Maputo. This is an exciting opportunity for the development of Mozambique’s own MCS activities, which could only benefit from state-of-the-art facilities and regional experts.

The project has been delayed in order to structure the necessary finances, but an Interim Project Management Unit (IPMU) for the MCSCC was approved by SADC’s Ministers responsible for Fisheries in November 2017. Some of the key functions of the IPMU will be to coordinate implementation of the regional fisheries observers and fishing vessel registration programmes as described in the previous section.

Mozambique’s MIMAIP is planning to use some of its SWIOFish1 finances to fund a preliminary study for the MCSCC conception and construction supervision in 2018/2019. Ultimately, when the regional MCSCC is built and

²⁷ <http://www.au-ibar.org/general-publications> - AU-IBAR, 2017. A model regional scheme for undertaking at-sea boarding and inspection of Industrial fishing vessels backed by harmonised port based pre-licensing inspections

²⁸ The Pan-African Fisheries and Aquaculture Policy Framework and Reform Strategy: How to Stop Illegal Fishing in Africa, Options for Actions to Ensure Change at National Level, NEPAD, 2016

²⁹ <https://www.sadc.int/about-sadc/> <https://www.sadc.int/themes/natural-resources/fisheries/>

³⁰ <https://www.sadc.int/news-events/news/sadc-ministers-justice-and-attorneys-general-meet-discuss-legal-instruments/>

becomes operational, Mozambique will need to plan and ensure a regular contribution to its operations. These will be considered as part of MCS costs for the ISIF.



Figure 5: Map of SADC member States + Comoros since 2017 (from SADC)

2.4.3 EU-funded Regional Fisheries Surveillance Plan (PRSP)

In recent years, a number of EU-funded projects based with the Indian Ocean Commission (IOC) in Mauritius have supported the coordination and capacity building of MCS in the SWIO region, including Mozambique. In particular, the Regional Fisheries Surveillance Plan (PRSP in French) with some of its activities carried over by SMARTFish2, and MCS-specific activities by the new EU-funded EEOFISH Program to be initiated in 2019 (cf. Study 1).

3 PRESENT AND FUTURE MCS SYSTEM LEGAL PROVISIONS

The Mozambique national fisheries management system prevails for fishing activities inside Mozambique's EEZ and domestic fisheries resources. The national legislative framework for fisheries management is currently being revised. A final text for the new Fisheries Law was adopted by act n° 22/2013 of November 1, 2013 which repealed the previous law n° 3/90 of 26 September 1990. The main implementing text of the new law has been drafted but it has not yet been formally adopted. It reforms and updates the 2003 REPMAR decree implementing the 1990 Fisheries Act, which is therefore still in force today. However, several texts of application of the new law have already been adopted, such as the 2017 decree regarding fishing rights and licences. Our analysis is therefore based on all the texts in force, whether they are based on the old (repealed) or the new primary legislation.

3.1 Government services and jurisdictions

Commercial fishing activities are placed under the authority of the Ministry of the Sea, Inland Waters and Fisheries (MIMAIP), whose organization, powers and functioning are governed by Presidential Decree n° 17/2015 of 16 January 2015 and Ministerial Diploma No. 98/2015 of 13 November 2015.

3.1.1 National

The institutional fisheries management framework for MCS varies according to the fishing activity and the delivery of MCS activities from central to local levels. As detailed in Studies 1 and 2, other government ministries and agencies have specific prerogatives and complementary MCS responsibilities, at national, provincial, district and local levels, which are legally defined.

3.1.1.1 Government ministries

The MCS Policy (2008) defines institutional responsibilities for its implementation, which appear to remain largely valid³¹ as follows:

- Ministry of Fisheries (now MIMAIP): Inspects fishing activity in the jurisdictional waters of Mozambique; directs a corps of fishing inspectors whose function is to oversee compliance with fishing legislation;
- Ministry of National Defence: Ensures territorial defence and national sovereignty; prevents violations of the EEZ;
- Ministry of Transport and Communications: Ensures application and enforcement of standards regarding maritime traffic safety in Mozambique's waters; access rights, port entry and exit, and national ("flag") fishing vessels registration;
- Ministry of the Interior: Controls entry and exit of vessel crew and foreign passengers; policing of maritime, lake and river waters.

3.1.1.2 National fisheries administration and advisory bodies

Under the new legislature following the national elections in Mozambique in 2014, the Fisheries Ministry became the Ministry of the Sea, Inland Waters and Fisheries (Ministério do Mar, Águas Interiores e Pescas - MIMAIP). The Fisheries administration organisational structure was changed, with a view to greater decentralization (cf. Study 1).

The following institutions are currently under the Minister of the Sea, Inland Waters and Fisheries (MIMAIP):

- the National Fisheries Administration (Administração Nacional das Pescas - ADNAP)
- the National Institute for Fisheries products Inspection (Instituto Nacional de Inspeção do Pescado - INIP)
- the Fisheries Development Fund (Fundo de Fomento Pesqueiro - FFP)
- the Fisheries Museum
- the National Institute for Fisheries Research (Instituto Nacional de Investigação Pesqueira - IIP)
- the National Institute for the Development of Fisheries and Aquaculture (Instituto Nacional de Desenvolvimento da Pesca e Aquacultura - IDEPA)
- the Fishing Ports public company, and

³¹ See <http://www.portaldogoverno.gov.mz/por/Governo/Ministerios>

- the Fisheries School (Escola de Pesca EP).

Articles 23 and 25 of the new fisheries law promote a participatory approach and also establishes a number of advisory bodies to improve the coordination of actions for the sustainable management and conservation of fisheries resources, including some aspects of MSC. These are:

1. The National Commission for Fisheries Administration (CNAP in Portuguese). A national central level advisory body coordinated by the Minister responsible of the fisheries sector, it includes representatives of other administrations (environment, tourism, transport and communications, defence, industry and commerce, finance), private sector and fishermen's associations;
2. Fisheries Co-Management Committees (CCGP in Portuguese), in charge of local level consultation.

These new consultative bodies contribute to participatory management, but their new attributions have not yet been established by application texts.

From the 2003 REPMAR legislation still in force, these two levels of administration and participative management existed already to some extent (article 15), through the establishment of: 1) the fisheries administration commission (articles 16 and 17 - CAP in Portuguese) for the national level; and 2) Fisheries Co-Management Committees (Article 18 - GCC in Portuguese) based on recognition at the provincial level of professional associations qualified as Community Fisheries Councils (Article 19 CCP in Portuguese).

In the new Fisheries Law (2013) and REPMAR draft, the national level is mainly involved in the management of industrial and semi-industrial fishing activities (licensing system³²), issuing authorizations for the construction of industrial, semi-industrial and artisanal fishing vessels (if these are equipped with in-board engines), and setting rules for the chartering of national or foreign fishing vessels.

3.1.2 Provincial

Several texts³³ set the rules applicable to local government organization (delegation of powers) according to the different levels of representativeness. Provincial government services have real autonomy. They exercise their responsibility under the supervision and control of the national level.

At Provincial level, public action is placed under the authority of governors appointed directly by the President of the Republic. As State representatives, they exercise all delegated powers in the various areas of intervention, including fisheries management and MCS. They have the means to do this through their provincial departments and services. The main implications of the recent organizational changes at Provincial level have been fewer delegations of central institutions. The National Fisheries Administration (Administração Nacional das Pescas – ADNAP) and IDEPA (previous IDPPE and INAQUA) have been integrated as provincial departments into the DPMAIPs. The provincial INIP and IIP delegations remain separate from the DPMAIPs.

Some decentralized organization exists. "Local authorities" constitution and statutes are governed by the principles of decentralization (transfer of power). However, the nature and scope of their legal competence remain very limited, even if in the area of fisheries, they are designed to play a co-operative role, in partnership with the local representative bodies³⁴, in the elaboration of rules and also involved in the monitoring, control and management of fishing activities. Their objectives, means (manpower, budgets) available, methods of operation and impacts need to be defined.

3.1.3 District

At District level, matters related to the MIMAIP are dealt with by the District Service for Economic Affairs (Serviço Distrital de Assuntos Económicos – SDAE), in collaboration with the respective Provincial DPMAIP.

These adjustments have immediate implications regarding:

- the approach for and the implementation of the fisheries development projects;

³² See also Conselho de Ministros: Decreto n.º 74/2017: Aprova o Regulamento de Concessão de Direitos de Pesca e Licenciamento da Pesca.

³³ Lei n.º 8/2003, de 19 de maio, estabelece princípios e normas de organização, competência e funcionamento dos órgãos locais do estado; Decreto 11/2005 de 10 de Junho aprova o regulamento da Lei dos órgãos locais do estado

³⁴ MIMAIP DNAP Aviso 12 de Abril 2006, Estatuto-Tipo do Conselho Comunitario de Pesca (CCP) ; Diploma Ministerial n.º 49/2007: Aprova o Regulamento-Tipo de Funcionamento dos Comités de Co-Gestão de Pesca

- the respective role and *modus operandi* of ADNAP and IDEPA, which have become institutions hardly represented at central level and simultaneously, the enhanced role of the DPMAIPs at provincial level;
- the clarification of the district system for promoting the development of artisanal fishing and small-scale aquaculture and monitoring the management of local fisheries;
- the incorporation, operation and use of information provided by the statistical system on catch, fishing effort and prices and the biological sampling of catch in the various fisheries, which was transferred from IIP/IDPPE to the DPMAIPs and the Directorate for Studies, Planning and Infrastructure (Direcção de Estudos, Planificação e Infraestruturas – DEPI) of MIMAIP.

All these responsibilities need strengthened means to become effective, as detailed in Studies 1 and 2.

3.1.4 Local

Locally, there are two additional deconcentrated levels represented by the “Posto administrativo” (ministerial appointment or by delegation to the governor) and the “Localidade” (appointment by the provincial governor).

In addition to the national level (see CNAP above), advisory bodies also intervene in support of the local administrations and participate in the decision-making process and implementation of the rules applicable to fishing activities, including the monitoring, control and surveillance mechanisms. The new REPMAR draft restates the existing provisions (Articles 16 and 17) for Fisheries Co-Management Committees (Co-Gestão de Pescas Committee - CCGP) while providing additional elements regarding the competence of the CCPs.

3.2 DNOP Institutional strengthening

An important mechanism to strengthen the DNOP’s Fisheries Surveillance operations would be a functional decentralization based on a principle of delegation of a specialized mission to an autonomous body, in this case the DNOP, which would be recognized as a separate legal entity from the central administration.

The process entails adopting a legal status specific to the DNOP in order:

- 1) To define precisely its transferred attributions and decision power;
- 2) To set up a public (state) institution in charge of this delegation with its own management constituent bodies.

The DNOP would thus become an administrative authority designated as a legal person, under supervision of the central administration but with no hierarchical link. The legal bases would need to be defined in a set of regulatory texts, such as those to create the ADNAP and its provincial Delegations that are listed below:

- Decree N° 4/2010 (March 8) creating National Fisheries Administration (ADNAP)
- Resolution N° 36/2010 (December 22) approving the Statute of the National Fisheries Administration (ADNAP)
- Ministerial Order N° 188/2011 approving the Regulation of the National Fisheries Administration (ADNAP)
- Ministerial Order N° 301/2011 creating Provincial Delegations (10) of the National Administration of Fisheries (ADNAP).
- Diploma Ministerial N° 286/2012 (October 31): Regulamento de Funcionamento do Centro de Monitorização e Vigilância created under the jurisdiction and authority of ADNAP

For the DNOP to be changed into an agency, several key aspects have to be defined in legislation, and in particular there will need to be a clarification of missions with those of ADNAP. For example, the last ministerial decree (N°286/2012), which set up the Fisheries Monitoring Centre (FMC) within ADNAP will need to be revoked, and the Centre officially created within the new DNOP or fisheries surveillance agency.

The need for both agencies to collaborate will also have to be clearly defined, at national and provincial levels. An effective and permanent coordination between the two institutions will have to be monitored and operational plans will need to be set out at central level their close collaboration. Key elements to be defined for the new DNOP agency are given in Table 5.

Table 5. Provisions of a government fisheries surveillance agency

PRINCIPLES (constituent texts)	DEFINITION	CONTENT AND SCOPE (comments and/or risks to be taken into account)
Autonomy	Public institution (power attribution)	Legal capacity recognizes by the act of creation of the institution (staff, finances, heritage)
Mission	Public service and general interest	Under MIMAIP supervision <i>Risk of fragmentation of power and sovereign competences of the State but better adaptation and improved efficiency of public action</i>
Objectives	Detail content of entrusted missions	Provide a precise definition of the concept of fisheries surveillance, its nature and its scope (material, spatial, legal basis, etc.) and all activities/functions related to the exercise of the mission <i>Risk in case of incomplete or confusing definition of fisheries surveillance due to other components of MCS</i>
Assignment	Detail powers entrusted to the public institution created	Decision power, consultation, rules and surveillance plans (National and Provincial) elaboration and enforcement, other actors /associated institutions (participation) involved in surveillance, cooperation and agreements, etc. <i>Essential aspects to be determined in the mandate assigned to the agency</i>
Organic setting	Define the new institution's components, their respective functions and competencies in accordance with objectives and capacity of the institution.	<ul style="list-style-type: none"> - <u>General Direction</u> (Director and deputy/assistant - appointed) duties, responsibilities (internal /external), representation/delegation (territorial link with DPMAIP), coordination, planning of supervisory activities, appointment (local representatives); - <u>General and Executive Secretariat</u>: organization and operation, assistance, control and implementation of management decisions, communication and correspondence, logistical support (travel, meetings) and follow-up, relations with the public, etc. - <u>Advisory bodies</u> at different levels: direction/management, technical, administrative, etc. - <u>Services and Departments</u> to be determined (number and profiles, appointed by Ministry under proposition of General Director): planification (national and provincial), legal (including inspection and offenses procedures), ISIF/SSF (dissociate?), VMS (<i>Plan for a reform of Diploma Ministerial N° 286/2012 to integrate the role of DNOP in fisheries surveillance and clarify the sharing of competences with ADNAP</i>), asset management of the institution (heritage - movable and immovable property), administration and finance, human resources, etc. <i>Avoid risks and confusion with the monitoring and control functions performed by the ADNAP</i>
Sources of funding	Define financial endowment from the State, services, other forms of revenue (fines, licenses, partnerships agreements, programs management, etc.)	Department of administration and Finance (budget management, planification and sharing, including heritage, goods and services) in accordance with the legal and regulatory provisions in force/ as well as potential new sources of funding for monitoring activities, at national and provincial level. <i>Essential to clarify/integrate: 1) the nature of paid services for the benefit of the institution; 2) the origin and method of calculation of other forms of new or complementary financing, e.g. from fines or fishing licenses.</i>
Staff status	Define general status of public function and government agents (official and contractors, technical and administrative)	Human Resources Division: Establish a specific framework for recruitment, contracting, promotion (planning and development strategy - including an electronic staff information system), technical and administrative training (annual plan, recycling) <i>In accordance with the texts relating to the supervision of public service employees (Decreto Presidential 13/2007 and e.g. table under regarding staff for provincial delegations)</i>
Delegations	Local bodies of the DNOP, relays functions and central action at decentralised level (Provincial).	Planification, coordination (horizontal and vertical), specific programs for surveillance (e.g. Caborra Bassa and Sofala Bank; chartering at sea, CCP's surveillances capacities, inspector's training program, etc.), statistic monitoring and links with other involved institutions at local level. <i>Importance of local implementation of monitoring actions, in their coordination and in the evaluation of the effectiveness of the monitoring objectives (results)</i>

3.3 International Level

At international level, three regional organisations have fisheries MCS remits. Their legal basis is briefly described below.

3.3.1 *The Southern African Development Community (SADC)*

The legal basis for the Southern African Development Community (SADC) is a cooperation agreement adopted in 1992 (the most recent version of the treaty) by 16 Southern African countries. A fisheries-specific protocol³⁵ was signed in 2001, to promote responsible and sustainable use of the living aquatic resources and aquatic ecosystems of interest to State Parties, in order to (i) promote and enhance food security and human health, (ii) safeguard the livelihood of fishing communities, (iii) generate economic opportunities from nationals in the region, (iv) ensure that future generations benefit from these renewable resources; and (v) alleviate poverty with the ultimate objective of its eradication.

In support of Article 9 of the SADC Protocol on Fisheries, the SADC Ministers responsible for Marine fisheries signed in 2008 a “Statement of Commitment to combat Illegal, Unreported and Unregulated (IUU) fishing”³⁶. The SADC Statement of Commitment to combat IUU fishing, which is an Annex to the Protocol on Fisheries, is aimed at (a) improving regional and inter-regional cooperation with a view to eradicating IUU fishing, (b) strengthening fisheries governance and legal frameworks to eliminate IUU fishing, (c) developing regional plan of action in relation to IUU fishing, and (d) strengthening fisheries monitoring control and surveillance capacity regionally. Point 5 of the IUU Statement, stipulates that a regional fisheries Monitoring, Control and Surveillance Coordinating Centre (MCSCC) must be created. Its location is planned in Maputo, Mozambique³⁷ as confirmed by a recent ministerial announcement (June 2018)³⁸.

SADC IUU Statement also recalls the priority (point 6, 7 and 8) given to the States to adopt their national action plan against IUU fisheries, with particular support given to artisanal and small-scale fisheries (SFF), as well as to post-harvest issues (monitoring and traceability of the products put for sale). Progressive harmonization of national legislations (point 15.e) is also considered essential for the implementation and effective enforcement of a regional MSC strategy.

3.3.2 *The Indian Ocean Tuna Commission (IOTC)*

The Indian Ocean Tuna Commission (IOTC) is an intergovernmental organization that co-ordinates the regulation and management of tuna and associated species in the Indian Ocean. Conceived in 1993, it came into existence in 1996. A multilateral Treaty, the Agreement for the Establishment of the Indian Ocean Tuna Commission, was approved by the Council of the Food and Agriculture Organization (FOA) of the United Nations (UN) in November 1993. The Agreement is open to any state that has coasts within the Indian Ocean region (or adjacent seas) as well as any state that fishes for tuna in the Indian Ocean region. The agreement is also open to regional economic organizations.

As a regional fisheries management organization (RFMO), the Commission performs the following standard functions:

1. carries out scientific monitoring and assessment of stocks, as well as catch and effort data;
2. supports and coordinates research, training, upgrading, technology transfer and capacity building activities related to its mandate;
3. adopts - on the basis of scientific evidence - conservation and management measures (CMM) to ensure the conservation of the stocks covered by the Agreement and to promote the objective of their optimal use throughout the area;
4. integrates in its work the economic and social aspects of fisheries based on the stocks covered by the Agreement, taking into account in particular the interests of developing coastal States.

³⁵ https://www.sadc.int/files/8214/7306/3295/SADC_Protocol_on_Fisheries.pdf

³⁶ https://www.sadc.int/files/8314/7306/3262/SADC_Statement_of_Commitment_on_IUU.pdf

³⁷ For more informations:

https://www.sadc.int/files/9814/8724/5613/SADC_Fisheries_Fact_Sheet_Vol.1_No.1_Focus_on_Mozambique.pdf

https://www.sadc.int/files/8514/7306/3248/Combating_IUU_fishing.pdf

³⁸ <https://noticias.sapo.ao/actualidade/artigos/mocambique-vai-ter-centro-de-controlo-e-monitorizacao-para-combater-pesca-ilegal>

Mozambique is a contracting party of the IOTC. Its latest annual enforcement report was released in March 2018 and highlights the following key points linked with MCS:

- Actions taken, under national legislation, to implement conservation and management measures : 1) The General Maritime Fisheries Regulation is in the process of revision to accommodate the requirements under the new Fisheries Law and to include requirements from IOTC resolutions (Port State Measures - PSM component); 2) Pending the conclusion of the above process, Mozambique has updated its Terms and Conditions for nationals and foreign tuna operators to include new resolutions approved by IOTC; 3) Mozambique also developed and approved the regulation of fishing right and fishing license; 4) Developed and approved Sea policy and regulation on Maritime Spatial Planning; 5) Conducted pre-fishing briefing and inspections for tuna fleet operators;
- Concerning the IOTC record of vessels authorised to operate in the IOTC Area of Competence, Mozambique is implementing an MCS system through: 1) Mandatory VMS system for all tuna vessels licensed to operate in its EEZ; 2) Conduct at sea and port inspections to comply with national and regional/international requirements; 3) Conduct pre-fishing briefings prior to commence the fishing operations; 4) Developed and introduced tuna logbooks to collect information; 5) Cooperation with regional initiatives to combat IUU Fishing; 6) Joint patrols with the IOC project (PRSP); 7) Implementation of the Terms and Conditions for tuna licensing including IOTC management measures.
- Regarding AFVs (authorized fishing vessels) on the IOTC Record, which Mozambican authorities must make sure keep valid certificates of vessel registration and valid authorisation to fish and/or tranship on board: The Fisheries Law 22/2013 of 1 November, Maritime Fisheries Regulation 43/2003 of 10 December (REPMAR) and other legal instruments require that vessel masters keep on board their fishing vessels valid licenses and authorization issued by Mozambique authorities. This requirement is verified during the licensing process, and during at sea and port inspections.
- For licence deliverance and it's monitoring, Mozambique license applications are subject to verification of any potential IUU activity records prior to issuance of the licence. The activity is carried out through cross-check of information held by different RFMOs and other combined IUU lists. Vessels with IUU history that has not been resolved cannot be licensed until the matter is completely solved.

3.3.3 The Southwest Indian Ocean Fisheries Commission (SWIOFC)

The Southwest Indian Ocean Fisheries Commission (SWIOFC), which secretary is currently based in Mauritius, was established in 2004 by Resolution 1/127 of the FAO Council under Article VI 1 of the FAO Constitution. The SWIOFC aims to become a regional fisheries organisation in charge of shared fisheries resources or widely distributed stocks in the SWIO region that do not come under IOTC's remit. Its Rules of Procedures were adopted by the Commission at its First session in 2005. It aims to promote concerted action for the sustainable exploitation of fisheries resources, in accordance with the provisions and objectives of the Code of Conduct for Responsible Fisheries and various international relevant legal tools described in previous sections. A recent UNEP initiative aims to jointly support Nairobi Convention signatories and SWIOFC member states and promote adaptive ocean governance and fisheries management for Sustainable Blue Growth in the WIO region, especially in support of small-scale fishing communities with a focus on women and youth³⁹.

In liaison with other regional organizations, particularly the SADC, the SWIOFC aims (art. 4.h) to provide, advice and promote co-operation on monitoring, control and surveillance⁴⁰ (SFS/DM/SWIOFC17/6 for Regional Monitoring Control and Surveillance Coordination Centre – SWIOFISH 1 project), including joint activities, especially with regards to regional and sub-regional cooperation.

3.4 MCS Legislation

We consider the legal framework of MCS provisions in the new 2013 law and other relevant legislation first. Second, we examine current regulations, recalling that some are still based on the previous fisheries legislation (even repealed) as long as the new implementing rules, such as the new REPMAR draft, have not been adopted

³⁹ https://wedocs.unep.org/bitstream/handle/20.500.11822/25926/SIDA_NC_SWIOFC.pdf?sequence=1&isAllowed=y

⁴⁰ Report of the eighth Session of the South West Indian Ocean Fisheries Commission Antananarivo, Madagascar, 28–31 March 2017 - <http://www.fao.org/3/i8437b/i8437B.pdf> See also the 2013 Report of the Performance Review of the South West Indian Ocean Fisheries Commission http://www.fao.org/fishery/docs/DOCUMENT/SWIOFC/PerformanceReview_Report.pdf

yet. We also describe more specific measures in place under the various fisheries management plans, as well as the legal framework applicable to technological tools for monitoring/surveillance of navigation and fishing activities.

3.4.1 2013 Fisheries Law

Articles 7.2 and 8.b of the new Law recall the responsibility of the Government and its administration for the monitoring and control of fishing activities as an integral part of fisheries policy at national level. To this end, it adopts the necessary measures for the management of fisheries, the monitoring of the resources and their marine environment (article 12.1.i. n o). Management plans also include specific provisions for control and surveillance (art. 15.2.e). The collection of research and monitoring data is recorded in section 6 of the Act. It is envisaged that scientific advice will be taken into account (Article 51), but also an obligation for masters of vessels to complete the statistical forms and their catch declarations (52.1.a), confidentiality (52.2) and the provision of samples of their fishery products when requested (52.1.b).

The monitoring system for fishing vessels is laid down in Article 54 of the Law. It provides the principle of permanent monitoring, applicable to all fleets (national or foreign) by using satellite information (VMS) or other relevant geolocation mechanisms. This generalist principle may seem in some cases unjustified, especially for the smaller coastal or inland vessels (SSF). Spatialized monitoring of small units, most often non-motorized, seems unrealistic anyway because too complex to implement and monitor in an effective and complementary way to SSF global regulatory action.

With regard to control (*fiscalização e inspeções*), the provisions of Title III of the law establish the applicable rules. Specialized agents (Article 72) benefit from the powers (territorial, material and temporal) to exercise these operations and the investigation of infringements. For the purposes of prevention, the control rules also provide for the possibility of precautionary measures (Articles 72 and 93) with the seizure of ships (with the obligation to post a security deposit in order to recover it) and / or of illegally caught products. The text also stipulates the conditions of use of the seized products (sealing, sale, donation, storage/conservation, etc.) without however mentioning a possibility of destruction. The value of the deposit shall be fixed by the control agent and shall not be less than the market value of the fishing vessel concerned, plus the amount of the fine corresponding to the fishing offense (Article 94.2). The sanitary control of fishery products and their documents (certificates) are carried out by the same agents according to the conditions set out in Articles 95 and 96.

It can be noted that the law can sometimes lead to consider the use of the same term “*monitorização*” to designate two different types of activities (monitoring and surveillance). We will see that in other regulatory texts (see under 4.2.2), the term “*vigilância*” is specifically used to refer to “*surveillance*”, which clarifies the legal definition of MCS through its three essential components. But in fact, at legislation level, the Portuguese term “*monitorização*” could have a dual meaning of monitoring and surveillance depending on the situation. So, the same term can be used to designate both of these two parts of the MCS. This legal qualification may be confusing as to the definition and scope of the terms used. At the level of the law (general and impersonal), it is thus necessary to make an objective interpretation of the different expressions contained in the articles in order to determine whether they fall under monitoring or surveillance issues. For example, article 54 of the law is titled “*Sistema de monitorização de embarcações de pesca*”. In its content, it clearly refers to continuous surveillance mechanisms for vessels with automatic satellite detection devices or other applicable systems in order to obtain their location in real time, in accordance with the applicable procedures. This article does not cover, for example, the monitoring of capacity (power and tonnage) or the establishment of a monitoring register for fishing vessels, whereas its title refers to the notion of monitoring and not surveillance.

3.4.2 Secondary legislation

We must consider the two main texts already mentioned: 1) REPMAR of 2003 still in force and its secondary texts of application⁴¹, some of which possibly referring to the old Fisheries Law abrogated by that of 2013; and 2) the

⁴¹ Diploma ministerial 22/2008 approving the legal framework of the fishing offense process (PIP processo de infracção de pesca). This text defines in particular the nature of the procedure, the competent agents, the acts performed and their probative force: seizure, destruction, restitution, deposit of security (Article 22), public sale (catches, boats, equipment and fishing gear), constitution of the means of proof and their destruction, the modalities and deadlines for instruction, etc. .

We can also consider the following texts, but we will consider them more specifically for study 4:

- Resolução 26/2008 Approving MCS fishing policy and its implementation strategy

new REPMAR project that will bring compliance with the new legal framework. In the 2003 REPMAR, art.2.9 defined the Monitoring and Surveillance Centre (CMV Centro de Monitorização e Vigilância⁴²), based onshore under the Ministry of Fisheries and intended to control fishing vessels with the Automatic Locating Device by satellite (DLA - Dispositivo de Localização Automática), State approval (art. 148), installed on board and organized through a Fishing Vessel Monitoring System (SMEP Sistema de Monitorização de Embarcação de Pesca – art. 2.50 and 146). The installation of this instrument is conditional on the issuance of fishing authorizations (art. 147). The Monitoring and Surveillance Centre (art. 152) manages the reception and processing of data (which remain confidential) received from the DLA. Transmitted and retained data have probative value in case of infringement and can be used in any case by the supervisory authorities (art. 155). Monitoring tools are complemented (art. 137 and following) by fishing logbook, capture files and shipping reports and other related documents. The maintenance of these documents (obligations imposed on captains) and the technical equipment of the ships (DLA) are mandatory for industrial and semi-industrial (ISIF) fishing vessels, while the modalities for small-scale fishing (SSF) must be established directly by the Minister of Fisheries.

Fisheries control is presented in Chapter 9 of the 2003 Decree (Article 156 et seq.). It lays down in the first place the preventive safety measures related to the signalling of fishing operations. Are also detailed the minimum conditions in which fishing operations must be carried out in order to ensure normal use of the sea, to respect cohabitation with other vessels and fishing gear, to avoid accidents, damage to species, gear, ships, etc. The control activities are entrusted to specialized, authorized and identified agents (professional card – art. 162). Their conditions of boarding on fishing vessels are specified, as well as the obligations of the captains of ships in their regard. The agents may also carry out checks at landing areas (art. 99), without prejudice to the competences of the other supervisory authorities, in particular those in charge of hygiene and safety of food products⁴³. The text refers also to the procedures for recording offenses by agents and the time taken to process cases, as well as the rights recognized to the offenders. Finally, in support of state agents, the decree recalls the complementary role of the CCPs in the conduct of control operations (art. 19).

Regarding the new REMPLAR draft, it brings many complementary elements, most of which:

- A clarification of the terms of the MCS enshrined in Article 8 on management plans and their contribution to the objectives of "monitorização, controlo e fiscalização" and their respective definitions;
- Expanded monitoring means (art. 125): Transshipment declaration, AIS (Automatic Information System), Port or Sea Inspection Reports, Unloading Reports, Catch Legal Certificates, Sanitary and Other;
- More detailed measures (art. 114) for the control of landings in ports include the obligation to land at the port of residence or at another port after prior notification to the competent authority. The landing operation must also be subject to 48 hours' notice and must contain mandatory information elements for the competent authorities, including: Identification of the fishing vessel, quantities of fishery products on board to be landed and their destination, fishing gear used. Foreign ships must also obtain a specific authorization 48h before entering the port; Finally, post-landing inspections may be carried out in case of strong suspicion of illegality in the origin of the products. The notion of simple unannounced control without prior indication or presumption of infringement is not recognized by the present text;
- Establishment of the definition of surveillance vessels (also art. 163) and fisheries inspectors;
- Risk assessment of fishing activities entrusted to the central authorities responsible for fisheries surveillance (art. 89). This analysis may lead, in case of high risk, to an obligation to provide a bank guarantee for the ship owner applying for a fishing license from Mozambique; The inspection procedure in ports is also developed (Article 118) in accordance with the relevant international provisions, in particular concerning procedures applicable to foreign vessels, as well as interstate information / cooperation arrangements and relations with international and regional fisheries management organizations;
- Related fishing operations (art. 122), including transshipment (art. 121), involving several types of vessels (ISIF and SSF) are subject to systematic surveillance by the specialized agents;

- Diploma Ministerial n.º 58/2009: Approves the National Plan of Action to Prevent, Prevent and Eliminate Unreported and Unregulated Illegal Fishing..) and resolução 68/2010 ratifying the agreement of port State control measures.

⁴² Diploma Ministerial n.º 286/2012 de 31 de Outubro : Regulation of Operation of the Center for Monitoring and Surveillance

⁴³ Decreto 76/2009 : Approves the general regulation for the sanitary and hygienic control of food products of aquatic origin.

- More explicit supervision of the duties of the surveillance officers (art. 162), in particular by wearing a uniform and writing inspection reports according to a pre-established framework and observing the basic rules of confidentiality.

3.4.3 Fisheries management plans (FMPs)

Fisheries Management Plans (FMPs) are provided for by art. 15 of 2013 Fisheries law, which lays down the principles applicable to these plans for exploitation, development or regeneration of fisheries, mainly based on the FAO Ecosystem Approach to Fisheries (EAF). FMPs describe the characteristics of the fishery and species considered, their life cycle and the exploitation strategy to be implemented. This may include conservation measures, as well as fishing effort limitation or total allowable catch regimes. All the plans need to be organized around effective means of research, monitoring, control and evaluation. Finally, due to their socio-economic dimension, FMPs are normally elaborated and validated through stakeholders' meetings between resource users and managers.

There are currently three fisheries management plans (FMPs) in place⁴⁴, as well as four ministerial decisions⁴⁵ implementing fisheries closure for certain species, areas and/or periods. Decisions to close fisheries fall under art. 14 of the 2013 Law regarding preservation and management measures and which pre-empt the more specific content of the plans provided for in article 15 below. For these closed periods, we do not know if they were renewed in the following years, nor what are the observed effects of these protective measures.

3.5 Legal and customary provisions for rent collection

3.5.1 Vessel and gear registration

The analysis is based on the provisions of the new law because, unlike the draft new REPMAR Decree, a specific decree on fishing rights and licenses has been adopted in 2017 under the 2013 law and its provisions are now fully in force.

Vessel registration does not fall directly under fisheries regulations. The Fisheries Act simply states (Article 22 and 30) that every fishing enterprise, gear and vessel must be entered in a compulsory administrative register as a condition for obtaining a fishing license. A specific regulatory document must be adopted indicating the requirements, conditions and elements to be included in the register. This type of arrangement is entirely in line with the achievement of the basic objectives of fishing activities monitoring. This is also often a mandatory requirement for States whose flag vessels are integrated into a regional / international regulatory framework under the umbrella of RFMOs (regional fisheries management organization – art. 86.2.a), such as the IOTC. The establishment and annual updating of these registers makes it possible to identify authorized vessels (licenses), to limit the fishing capacity ceilings in order to prevent the development of IUU fleets and the inherent risks of overexploitation.

In the new REPMAR draft, article 173.1.c specifies that the issuance of registration certificates of fishing enterprises is subject to the payment of a specific tax, but does not detail the method of calculation and the amount. The concept of registration of a "fishing enterprise" is broader than that of a "vessel", and it may also relate only to individual fishermen active in fishing activities without a vessel, such as fishing on foot or diving. The detailed contents of the certificate and the model to be used are included in a recent decree of 2017⁴⁶ (Figure

⁴⁴ Diploma Ministerial n.º 160/2014: Aprova o Plano de Gestão das Pescarias da Albufeira de Cahora Bassa para o período de 2014 a 2018; Diploma Ministerial n.º 161/2014: Aprova o Plano de Gestão das Pescarias de Camarão do Banco de Sofala para o período de 2014 a 2018; Diploma Ministerial n.º 162/2014: Aprova o Plano de Gestão das Pescarias de Linha das Águas Marítimas de Moçambique para o período de 2014 a 2018 ;

⁴⁵ Diploma Ministerial n.º 107/2015 de 9 de Dezembro estabelecimento, no Banco de Sofala, do período de veda para a pescaria do camarão para o ano 2015/2016; Diploma Ministerial n.º 108/2015 de 9 de Dezembro estabelecimento, na Foz do Rio Limpopo, do período de veda para a pescaria do camarão para o ano 2016; Diploma Ministerial n.º 109/2015 de 9 de Dezembro estabelecimento, na Baía de Maputo, do período de veda para a pescaria do camarão para o ano 2016; Diploma Ministerial n.º 110/2015 de 9 de Dezembro estabelecimento, no Banco de Sofala, do período de veda para a pescaria artesanal do camarão para o ano 2016.

⁴⁶ Decreto n.º 74/2017 de 29 de Dezembro 2017, Regulamento de Concessão de Direitos de Pesca e de Licenciamento da Pesca

6). Article 31.2 specifies that the certificate is compulsory for industrial and semi-industrial fishing companies for all their components: companies, units of production, fishing vessels, ancillary vessels and fishing gears.

Figure 6: ISIF registration certificate

For SSF, only an administrative register of fishing gear is compulsory. It is free of charge (art. 31.7, 8 and 9), established by the district authority under the model given in annex V (Figure 7 and Figure 8). This does not, however, dispense SSF vessels from being registered in an administrative database provided for in Art. 22 of the aforementioned law.

Figure 7: SSF fishing gear registration certificate

Ordem	1. INFORMAÇÃO SOBRE O PROPRIETÁRIO						TIPO DE ARTE DE PESCA			3. OUTRAS INFORMAÇÕES		
	NOME	NUIT *	ENDEREÇO	PROVINCIA	DISTRITO	POSTO ADMINISTRATIVO	DESIGNAÇÃO DA ARTE	CARACTERÍSTICA ESPECÍFICA DA ARTE	CÓDIGO DA ARTE	CONTACTO	EMAIL	OBSERVAÇÕES
1												
2												
3												
4												
5												
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19												
20												

Figure 8: SSF registration information *(NUIT = Número Único de Identificação Tributária)

Prior to any fishing activities, it should be noted that the construction, modification, purchase or chartering of a fishing vessel is also subject to prior authorization by the competent authorities (art 40 of 2013 law, and 101 to 106, 111 to 113 of new REPDMAR draft). The conditions for obtaining these authorizations are subject to various

fees (administrative files, visits, etc.) and rights (registration, etc.), but we have not been able to determine the exact amounts, their subsequent use and their potential contribution to fisheries MCS activities.

3.5.2 Fishing rights and annual licences

The 2013 law introduced new legal concepts into Mozambican fisheries law. It sets out (Articles 28 to 36) a new system of access to fisheries resources, based on the allocation of fishing rights for ISIF. These rights (direitos de pesca) give the holder the ability to exploit (own) and market the tonnage of species concerned (not a % share of the TAC) for a period between 3 and 20 years renewable. These are clearly economic devices, which main purpose is to ensure private and competitive access to fisheries areas / resources.

These new rules, however, include first some ringfenced (reserved) specific fishing areas (not tonnage per species) for SSF fisheries (as well as for subsistence, research and other non-commercial fisheries) to 3 nautical miles (art. 27) and in continental/ inland waters. Second, fishing rights concessions are also subject to annual fishing licences (art.39, for specific species and/ or gear of fishing rights concession) issued by the competent authorities. Several regulatory texts specify the content of these concessions and licences, including the method of fee calculation (art. 35 and 46).

The main implementation text is the Decreto n.º 74/2017 de 29 de Dezembro 2017 (Regulamento de Concessão de Direitos de Pesca e de Licenciamento da Pesca) modified by Decreto n.º 60/2018 de 1 de Outubro.

The implementation text defines precisely the nature and content of the concession (art. 6 to 30) and fishing licences (art. 31 to 41): objectives, award criteria, duration, management, transmission, rights and obligations of holders, etc. It also defines the fees to be paid in return for the fishing rights and the licences (art. 42 to 44) from the following information:

- For fishing rights concessions, taxation level is computed on the basis of: 1) the market value of the aquatic species concerned; 2) the volume of catches provided and the yield of the fishing gear used to carry them out; 3) the fishing zones and the type of fishing vessel to be used; 4) The economy of the fishery and the respective income; 5) The costs of producing scientific knowledge; 6) Any environmental damage that may result from fishing activities.
- For licences, fees are calculated on the basis of the value of the fishing rights (concession), and the cost of the services provided by the issuing authority.

Annexes of the decree give the amount of applicable fishing right taxes and licence fees as detailed below.

There appears to be no rights or licences for fish buyers (receivers of fish) and sellers, or for traders generally.

3.5.2.1 ISIF Fishing rights taxes and licence fees

Fishing access rights (direitos de pesca) for Industrial Fisheries are indicated in Table 6. The unit value is per year, the minimum is for three to five years, depending on the fishery and the zone. The maximum is for a period between 9 to 20 years for the tuna fisheries.

Table 6: Fishing rights for Industrial Fisheries (IF)

Pescaria		Valor Unitario / ano	Minimo	Medio	Maximo
Camarao de superficie		424 961	1 274 884	2 549 768	3 824 651
Gamba		700 576	2 802 303	5 604 606	8 406 909
Lagosta com covos		288 360	865 080	3 460 320	
Caranguejo de profundidade com covos		42 210	126 630	253 260	
Peixe Demersal de Fundo		260 067	1 040 268		
Peixe	Zona A	115 159	460 634	921 269	1 381 903
Linha de	Zona B	143 948	575 793	1 151 586	1 727 379
mao	Zona C	143 948	575 793	1 151 586	1 727 379
Peixe	Zona A	35 492	106 477	212 954	319 432
Arrasto em	Zona B	44 366	133 097	266 193	399 290
Parelha	Zona C	44 366	133 097	266 193	399 290
Peixe Demersal de Fundo com palangre de anzol		854 645	3 418 578	6 837 156	10 255 734
Tubarao com palangre de anzol		854 645	3 418 578		
Arrasto de pequenos pelagicos		44 366	133 097	266 193	
	Cerco (Porto Nacional)	576 000	2 880 000	6 912 000	11 520 000
Atum	Cerco (Porto Estrangeiro)	720 000	3 600 000	8 640 000	14 400 000
Nacional	Palangre (Porto Nacional)	139 500	697 500	1 674 000	2 790 000
	Palangre (Porto Estrangeiro)	540 000	2 700 000	6 480 000	10 800 000
Outras Pescarias		288 360			

It would be essential to have the detail of the economic models used to devise the expected value of these rights, which are detailed to the centavos (rounded here to the closest metical - Mt).

For IF, the annual licence fee is a function of gear characteristics (cabo mestre) for prawn trawlers, and mostly a quota fee per tonne (tonelada) for the other fisheries, except for tuna vessels where it is simply per vessel, with a distinction between longliners and purse seiners, and between national and foreign vessels.

It is not apparent whether the quota tonnage licensed is a quota with a landing obligation of all that is caught, or a quota on quantities that can be landed. A landing obligation is now mandatory for EU vessels, for example, but has not been common practice in industrial fisheries. In any case, proper monitoring of catch quotas demands extensive MCS capabilities compared to effort quota management regime. A licence fee based on “guaranteed” annual quota tonnage, as opposed to a measure of effort and market price, also presents the risk of variable licence revenue for the government, and unsustainable expectations from the licensees.

Table 7: Annual Fishing licence fees for IF (taxas de licencas)

Pescaria		Taxa Anual por metro de cabo (Mt)	Taxa Anual por tonelada (Mt)	Taxa Anual por embarcado (Mt)
Camarao por metro cabo mestre		31 340	-	-
“ Peixes Fauna Acompanhante		472	-	-
Gamba (Nacional)		-	6 367	-
“ Peixe Fauna Acompanhante		-	472	-
“ Cefalopodes Fauna Acompanhante		-	698	-
“ Caranguejo Fauna Acompanhante		-	1 963	-
“ Lagosta Fauna Acompanhante		-	13 145	-
“ Lagostim Fauna Acompanhante		-	16 431	-
Lagosta com covos		-	20 087	-
Caranguejo de profundidade com covos		-	2 465	-
Peixe Demersal de Fundo com Palangre ou Rede e Emalhar		-	12 250	-
Peixe Gata		-	12 250	-
Peixe Linha de mao	Zona A e B	-	3 697	-
	Zona C	-	4 313	-
Peixe Arrasto em Parelha	Zona A e B	-	3 286	-
	Zona C	-	3 866	-
Peixe Demersal com palangre de anzol		-	6 417	-
Tubarao com palangre de anzol		-	20 250	-
Arrasto de peixes (pelagicos ou semi pelagico)		-	7 800	-
Arrasto de pequenos pelagicos		-	6 367	-
Fauna Acompanhante de pequenos pelagicos no Banco de Sofala		-	21 155	-
Atum (Frota Nacional)	Cerco (Porto Nacional)	-	-	620 009
	Cerco (Porto Estrangeiro)	-	-	1 157 350
	Palangre (Porto Nacional)	-	-	413 790
	Palangre (Porto Estrangeiro)	-	-	1 074 832
Atum (Frota Estrangeiro)	Cerco (Porto Nacional)	-	-	9 038 400
	Cerco (Porto Estrangeiro)	-	-	12 000 000
	Palangre (Porto Nacional)	-	-	6 489 000
	Palangre (Porto Estrangeiro)	-	-	8 400 000
	Operacoes Conexas	-	-	1 500 000
Operacoes Conexas Nacional		-	-	154 039

Commonly, fisheries market prices adjust to production volumes and annual licence fees, when they exist, are adjusted each year (see for example, Falklands Islands Fisheries Department⁴⁷). Therefore, monitoring of both national and international market prices will be needed to ensure a realistic and fair revenue to the government.

Information on sustainable production tonnage and updated FMPs for specific species and mixed species, per stock and area will be key to estimate the sustainable revenue that could be generated by these new provisions. In all instances, both fishing rights and licence fees regimes will need a very strong MCS system in order to be applied effectively.

The rights regime and annual licence fees are similarly detailed for semi-industrial fisheries (Table 8). SIF fishing access rights may be obtained for a minimum of 3 years (prawns), 4 years (longline and line fisheries) or 5 years (kapenta and tuna).

⁴⁷ <https://www.fig.gov.fk/fisheries/component/jdownloads/send/11-licence-advice/113-licence-advice-2019?Itemid=0>

Table 8: Fishing rights for Semi-Industrial Fisheries (SIF)

Pescaria	Taxa Anual	Mínima	Media	Maxima
Camarao (congelador)	184 245	552 735	1 105 470	1 658 205
Arrasto de camarao (barco a gelo BS)	38 753	116 258	232 515	
Arrasto de camarao (barco a gelo BM)	31 535	94 604	189 208	
Arrasto de camarao (barco a gelo) foz do rio Limpopo	31 535	94 604	189 208	
Arrasto de pequenos pelagicos	22 183	66 548	133 097	
Peixe oalange de Anzol	427 322	1 709 289	3 418 578	
Pesca com Linha de mao (zona C)	66 501	266 004	532 008	
Pesca com Linha de mao (zona B)	65 777	263 106	526 212	
Pesca com Linha de mao (zona A)	52 621	210 485	420 970	
Kapenta	49 410	247 050	494 100	
Pesca do atum (Salto e Vara)	34 875	174 375	418 500	
Pesca do atum (Rede de emalhar cercadora ou cerco)	34 875	174 375	418 500	
Outras artes nao especificadas	552 735			

Table 9: Fishing licence fees for Semi-Industrial Fisheries (SIF)

Pescaria	Taxa Annual por metro de cabo mestre (Mt)	Taxa Annual por embarcado (Mt)
Camarao por cabo mestre (congelador)	31 340	
" Peixes Fauna Acompanhante	472	-
Arrasto de camarao (barco a gelo) No Banco de Sofala		158 147
Arrasto de camarao (barco a gelo) na Baía de Maputo o Foz do Rio Limpopo	-	148 147
Arrasto de pequenos pelagicos	-	167 184
Arrasto de pequenos pelagicos em parelha	-	250 000
Arrasto de peixes (pelagicos ou semi pelagico)	-	185 000
Pesca com Linha de mao (Zona C)	-	110 908
Pesca com Linha de mao (Zona A e B)	-	96 531
Pesca de Peixe com palangre de anzol	-	68 188
Kapenta	-	100 000
Pesca de atum (Salto e Vara)	-	26 765
Pesca do atum (rede de emalhar cercadora)	-	51 300
Pesca do atum (Palangre de Anzol)	-	275 300
Outras artes nao especificadas	-	35 326
Operacoes conexas	-	40 050

Annual licence fees are per gear size for prawn trawlers and per vessel otherwise (Table 9). The detail of licensed fisheries, in terms of zones and gear corresponds to that of access rights of industrial vessels for the fisheries that are prosecuted by both IF and SIF vessels. We assume that the IF-SIF distinction is based on the new definitions for vessel size categories (see section 4.2), although these are not in effect yet.

There is no quota fee basis for SIF licences, even though the new SIF maximum vessel length is 24m, a vessel size that may be able to catch as much tonnage as the smaller industrial vessel. However, licence fees per vessel are often a preferable option when MCS capacity is limited when compared with the large numbers of SIF vessels, if and only if, fishing effort can be effectively controlled through closed seasons and closed areas. In all cases, activities at sea, such as collections from small vessels and transshipments will need to be controlled as much as

quantities landed in order to have sufficiently precise catch/ fishing mortality data for scientists to compute sustainable production potentials and update FMPs.

3.5.2.2 SSF Fishing rights and Licence fees

There are no community rights or other rights regimes envisaged for SSF fisheries in the current or proposed legislation. This would be an important aspect to discuss and possibly rectify.

Licence fees are per vessel (barco), gear (arte), or per fisher (Table 10). Again, one would first need precise knowledge of these numbers in order to estimate the revenue potential generated by the new regime. In particular, an SSF census is urgently needed (see section 4.2.2).

Most importantly, from these new provisions, it is not clear how much of the fisheries' renewable potentials are expected to be allocated to SSF activities if they do not have specific rights to hold.

Table 10: Fishing licence fees for Artisanal small-scale Fisheries (SSF)

PESCARIA/POR ARTE		PESCA EM AGUAS MARITIMAS	EM AGUAS INTERIORES	
			LAGO NIASSA / MASSINGIR / CHICAMBA / CORUMANA	OUTRAS AGUAS INTERIORES
Pesca costeira –	Barco com motor interno (Conves)* * Por embarcao ** Por pescador	108 000	2 970	-
Arrasto para bordo	Barco com motor for a de bordo	6 100	1 940	-
Pesca costeira – Arrasto para terra/prai	Barco commotor fora de bordo	2 464	1 766	-
Pesca Local – Arrasto para terra/prai	Barco nao motorizado/ sem embarcao	1 766	924	-
Pesca Costeira rede de emalhar	Barco com motor interno (camarao)	6 100	-	-
	Barco com motor interno (peixes)	822	678	616
	Barco com motor for a de bordo (camarao)	3 984	-	-
	Barco com motor for a de bordo (peixes)	698	616	308
	Barco nao motorizado/sem embarcao	1 766	-	-
Pesca Local com rede de emalhar	Barco nao motorizado/ sem embarcao	452	308	206
Pesca Costeira com rede de cerco	Barco com motor interno	1 026	822	-
	Barco com motor fora de bordo	514	410	308
Pesca Local com rede de cerco	Barco nao motorizado/ sem embarcacao	410	308	206
Pesca Costeira com linha de mao	Barco com motor interno (Conves)*	50 000	1 356	636
	Barco com motor fora de bordo	1 396	658	452
	Barco nao motorizado/ sem embarcacao	658	410	200
Pesca Costeira com palangre de anzol	Barco com motor interno	780	616	308
	Barco com motor fora de bordo	698	308	206
Pesca Local com armadilhas	Lagosta	822	-	-
	Caranguejo	554	554	164
	Peixe	206	308	268
Pesca Local com gamboas fixas		308	308	268
Pesca Local submarina	Lagosta com arpao	5 750	-	-
	Lagosta com gancho	3 080	-	-
	Outros	2 054	-	-
Apanha**	Bivalves	206	-	-
	Caranguejo	452	-	-
	Holoturias	6 162	-	-
Artes nao especificadas		718	534	410
Operacoes conexas	Barco motor interno	1 972	1 026	884
	Barco motor fora de bordo	1 232	884	410

4 MOZAMBIQUE FISHERIES AND AQUACULTURE SECTORS 2013 - 2017

4.1 Introduction

There are several dimensions to the financing options for MCS costs, one is a function of the size and characteristics of the productive sector and another is the value and value added generated. This chapter gives an overview of the sector between 2013 and 2017, the reported numbers of vessels and gear used, the reported quantities and value of resources exploited, and some information on the volumes and values traded and consumed.

Fishers target a number of species groups in specific ecosystems (shallow sandy, shallow rocky/corals, surface coastal waters, deep sandy, deep rocky and offshore pelagic) along the coast, inland water bodies and offshore, which determine the type of vessels and gear used.

This presentation of the fisheries sector is elaborated from MIMAIP's documents. The data have been mostly extracted from the "Boletim Estatístico de Pesca e Aquacultura (2006 – 2017)" published by the MIMAIP in 2018 (2nd edition). The latest 2012 census information is used to estimate the numbers of persons participating or dependent on the sector.

4.2 Fishing vessels and gear categories and numbers

The National General Sea Fisheries Regulation of 2003⁴⁸ defines three categories of commercial fishing activities, according the fishing vessel characteristics, the length overall (LOA) in metres, engine power (in HP) and gross tonnage, a measure of the vessels' volume (GT).

The categories defined in the proposed new Regulation are expected to better reflect the different sectors, now divided into 4 sub-categories for commercial fishing. However, statistics used in this report still refer to the previous regulation's categories⁴⁹:

2003 Regulation (art. 74 to 83):

1. Industrial: LOA > 20m and 1500 HP max.
2. Semi-industrial: 10m < LOA < 20m and 350 HP max.
3. Artisanal : LOA < 10m and 100 HP max.

New Regulation draft (art.18 and 90) :

1. Industrial: LOA > 24m and HP > 350;
2. Semi-industrial: LOA < 24m and 140 < HP < 350 ;
3. Artisanal coastal: LOA < 13m and 40 < HP < 140 ;
4. Artisanal Local: 40 HP or less

Art. 91 to 99 of the new regulation complete these definitions by enacting additional requirements relating to the distribution of fishing zones between the different types of vessels, as well as their technical characteristics and their equipment.

Article 49 of the law of fisheries requires the proper and consistent marking of fishing gear. The conditions are then detailed in REPMAR's draft from articles 77 to 83 and integrate most of the international recommendations in this area, including those from FAO⁵⁰ already mentioned.

For non-commercial fishing, the new Regulation proposes 4 sub-categories, but without any specific conditions regarding the vessels used: i) subsistence fishing, ii) experimental/ demonstration fishing, iii) training fishing and

⁴⁸ REPMAR: Decree n. 43/2003 of 1st December 2003, articles 74 to 83 and completed by Decree n. 57/2008 of 30rd December for inland water fisheries.

⁴⁹ It is important to note that the current regulatory framework in force of application is based on a law n° 3/90 of 26 September 1990, which has been repealed and replaced by the new Fisheries Act No. 22/2013 of November 1, 2013. Some regulatory instruments are therefore without legal basis, including the REPMAR Decree of 2003, whose new revision has not yet been adopted.

⁵⁰ <http://www.fao.org/3/MX136EN/mx136en.pdf> and <http://www.fao.org/3/CA0196EN/ca0196en.pdf>

iv) recreational/sport fishing. The 2003 regulation defined only two categories (fishing for research/experimentation and recreational/ sport purposes), without specifications about the vessels used.

These definitions provide the basis of the MCS legal framework. It is therefore very important that they reflect recent changes, noting that numerous and detailed categories are very costly to monitor.

4.2.1 Industrial and semi-industrial fisheries (ISIF)

Mozambique's national industrial marine fishing fleet changed relatively little in the 5 years between 2013 and 2017. Industrial (IF) vessels target mostly shallow water prawns and deep-water gambas (Table 11) together with a few SIF vessels (Table 12). Some IF vessels are licensed to target demersal or pelagic fish with lines, which are exploited mostly by SIF vessels.

The overall MCS risk analysis presented in Study 1 for the ISIF national fleet revealed a good level of compliance for the well-established fleet of prawn trawlers and tuna longliners, which also comply with the IOTC activities and landing declaration system.

It is important to note that prawns and gambas resources targeted by ISIF vessels appear to be over-exploited (section 4.3) and consequently fishing activity and most probably licence numbers may have to decrease in order to allow stock recovery. It is also important to note that prawn stock recovery also depends strongly on the control of SSF fishing of juveniles in coastal nursery areas. The various fleet and gear types exploiting a common resource are considered together in the fishery management plan (FMP) for the penaeid shallow water prawns on the Sofala Bank, which is expected to be drawn in the near future.

4.2.1.1 National Industrial Fishing fleet (IF)

There were 8 national vessels licensed to fish for tuna in 2017, all longliners. However, not all were reported as active in the IOTC vessels database, which includes all vessels LOA>24m and those smaller, if they operate outside Mozambique's EEZ.

Table 11: National Industrial fishing (IF) fleet - Licenciamento da Pesca industrial - Nº de Barcos (MIMAIP and IOTC 2018)

Fishery	PESCARIA	20	20	20	20	20
		13	14	15	16	17
Frozen Prawn - Industrial	Camarão de superfície Industrial	39	39	41	43	40
Frozen Prawn - Semi-industrial	« - Semi-Industrial (congelador)	5	1	7	7	9
Gamba (on ice)	Gamba	19	21	25	25	28
Auxiliary vessels (surface shrimp)	Op. conexas (camarão de superfície)	-	1	-	-	1
Lobster (with pots)	Lagosta (covos)	1	-	-	1	1
Demersal fish (line)	Peixe Demersal (Linha)	3	2	2	2	2
Pelagic fish (Pair)	Peixe Pelágico (Parelha)	1	-	1	1	2
Pelagic Fish (Longline)	Peixe Pelágico (Palangre de Anzol)	3	2	1	2	2
Research fishing	Pesca de Investigação	1	3	-	3	1
Tuna (national)	Atum (Nacional)	1	2	9	17	8
Total	Total	73	71	86	101	94
Tuna (national) IOTC-active	Atum (Nacional) IOTC-ativo	0	2	9	11	2

Only 2 Mozambique-registered tuna fishing vessels were reported to be active to IOTC in 2017, down from 11 in 2016 .

As an IOTC coastal state, with rights to shared and straddling stocks managed by IOTC, Mozambique drew an ambitious tuna fishery development plan in 2013 (PEDPA⁵¹) that aimed to increase the national tuna fishing capacity, develop port facilities and value added, which had been until then mostly let out to foreign fleet with no direct economic links. The PEDPA included a strengthening of VMS system and fisheries inspections capacities (see Study 1), to be financed through a mix of fishing rights and licence revenue.

Elements of Mozambique's national tuna fleet development plan are also noted in the 2017 IOTC Compliance Committee report⁵². It mentions a planned increase in active capacity to target tropical tuna to 51,000 GRT by

⁵¹ Plano de Desenvolvimento da Pescaria de Atum, ADNAP 2013, 29pp.

⁵² <http://iotc.org/documents/report-14th-session-compliance-committee>

2021, from 2,136 GRT in 2016 corresponding to an addition of 25 vessels. Similarly, for the temperate swordfish and albacore fisheries, a planned fleet increase from 0 GRT in 2016 to 15,000 GRT for 25 vessels by 2021 (Study 1). At the time, this was planned to replace the purse seiners and longliners targeting tropical tuna, and seasonally swordfish and sharks for some of the longliners⁵³ that were active within the framework of the European Fisheries Partnership Agreement, which ceased in 2015 (see Table 13).

4.2.1.2 National Semi-Industrial Fishing fleet (SIF)

The numbers of licensed semi-industrial vessels were also quite stable over the five years, around 340 units between 2013 and 2017 (Table 12).

On the marine side, the most important national semi-industrial fleet segment targets demersal fish with lines (linha) with 2 IF (Table 11) and 39 SIF vessels in 2017. Some vessels were licensed to use longlines (palangre) or gillnets (rede de emalhar) until 2015. There is also a marked decrease in the number of licensed national SIF trawlers targeting small pelagics after 2015 (Table 12).

Table 12: National semi-industrial fishing (SIF) fleet - Licenciamento da Pesca semi-industrial - Nº de Barcos (MIMAIP 2018)

Fishery	Pescaria	2013	2014	2015	2016	2017
Prawn (artisanal closed bridge)	Camarão (artesanal de convés fechado)	-	1	-	3	3
Demersal fish (lines)	Peixe Demersal (linha)	31	30	32	30	39
Demersal fish (longlines)	Peixe Demersal (palangre)	-	1	1		
Demersal fish (gillnet)	Peixe Dem.(rede de emalhar)	1	1	4		
Small pelagics trawl	Peixe (arrasto de pequenos pelágicos)	4	2	11	8	5
Kapenta	Kapenta	245	243	246	248	250
Kapenta support vessels	Op. Conexas da kapenta	9	11	8	10	8
Total	Total	341	332	345	329	341

The largest number of registered vessels by far is for the Kapenta fishery in freshwater impoundments and lakes, with 250 licensed SIF vessels/rigs in 2017 and 8 support vessels. According to Study 1, there were 250 Kapenta licences for Cahora Bassa alone in 2017 and possibly more than another hundred unlicensed rigs. An additional 50 licences were planned in 2018 in order to 'legalize' some of the illegal operators, which would make up 300 official licences. There does not seem to be a Kapenta FMP at present but the local Kapenta Producer Association considered that the lake could only safely handle 150 to 200 rigs (Study 1). Therefore, fishing effort of Kapenta rigs on the lake will have to be decreased markedly, and not be increased. In the context of short-term fishing access privatisation, 5 to 10 years for Kapenta fisheries (Table 8), it is imperative that the resource is sustainably managed, it's target and minimum sustainable levels and annual variations in biomass levels are known before quotas can be allocated at a realistic market price.

The current lack of FMP and of ineffective MCS for the Cahora Bassa kapenta fishery, for example, is most certainly leading to decrease in the production biomass of the resource (see Table 21), and to a possible decrease in market prices of local sales and exports of unlicensed catch, although price changes would not be visible from official statistics, which seem to assume prices rather than estimate them (see Table 25).

⁵³ COFREPECHE, MRAG, NFDS et POSEIDON, 2015. Rapport d'analyse de la dynamique économique des flottes thonières de l'Union européenne impliquées dans des activités de pêche encadrées par des ORGP ou par des APP. Contrat cadre MARE/2011/01 - Lot 3, contrat spécifique n° 09. Bruxelles 88p.
https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/eu-tuna-fleet-2015_fr.pdf

4.2.1.3 Foreign ISIF fleet

Two foreign (Namibian) vessels were briefly licensed in the Gamba fishery in 2014 and 2015. Apart from these, between 2013 and 2017, foreign IF licences only concerned the tuna fishery (Table 13), including European (EU) purse seiners and EU and Asian (Korean, Japan) longliners.

Mozambique did not renew its Fisheries Agreement Protocol with the EU in 2015, which led to a sharp decrease in the number of licensed vessels and associated licence fee revenue (see Table 41), although some have been replaced by Chinese (PRC and Taiwan and Seychelles registered vessels).

Table 13: Foreign IF licensed vessels (Licenciamento - Nº de Barcos from MIMAIP, 2018)

Fishery	Pescaria	2013	2014	2015	2016	2017
Tuna	Atum (Estrangeira)	46	56	33	30	28
Auxiliary vessels	Operações Conexas	1	9	3	4	3
Shrimp	Gamba (Acordos com a Namíbia)	-	2	2	-	-
Total		47	67	38	34	31

Unfortunately, licence information for foreign ISIF vessels, appears to be grossly incomplete. Information collected for Study 1 during 2018 regarding IF and SIF fisheries related mostly to 2017. For example, licences delivered to the Global Reach company by ADNAP (7 China, 1 Seychelles) concern tuna longliners (2), small pelagics (3) and demersal fish (3) trawlers and netters. In addition, there seems to be no national compilation of licences awarded at the Province and District levels in the Boletim Estatístico. Therefore, it is not possible to examine trends or numbers of foreign vessels by fishery. This lack of compiled records for fisheries other than IOTC-registered tuna activities is a very serious breach of MCS best practice, and would significantly limit the proposed revenue collection described in section 3.5.

Estimated risks vary for the **ISIF foreign fleet**. Regarding IOTC-managed fisheries (tropical and temperate tunas and associated species), the tightening of controls through the Port States Measures implementation in the Indian Ocean (PSMA see section 2.3.1) can be expected to improve overall compliance for foreign tuna vessels, and for those vessels based in Mozambique once all key elements of the ISIF MCS system are fully functional.

For licences awarded in fisheries entirely inside the EEZ in 2018, MCS non-compliance risks for the **ISIF foreign fleet** operating in 2018 are estimated to be very high (Study 1). In addition to the lack of official statistics for foreign ISIF vessels exploiting demersal or small pelagic fish, several stakeholders interviewed for this study are convinced that systematic non-compliance has increased for all fleet types operating offshore since 2015, when the Antillas Reefer national patrol vessel ceased operations (Study 1).

As an example, it was mentioned that the Chinese vessels licensed in 2018 were suspected of IUU fishing inside national water previously, so “might as well give them licences in order to control them.” Awarding rights or licences to IUU vessels goes against best practice put in place worldwide, which establishes black-lists of IUU vessels to avoid any accidental legalisation of their bad practice. Certainly, the detailed analysis undertaken in Study 1 reveals serious discrepancies in the official records, which need to be corrected urgently for Mozambique to comply with its Flag State and Port State obligations. High MCS risks may also apply to foreign-owned - Mozambique - registered vessels (Study 1).

4.2.2 Small-Scale (artisanal) Fisheries (SSF)

For SSF, Fishing Gear (artes) are licensed individually by the District Services (Serviços Distritais das Actividades Económicas - SDAEs) and their numbers are summarised annually by the Province. In the 2003 Regulation, each licence indicates the type and the number of gear (artes) allowed by the authorization. However, there are no categories of gear specifically considered or reserved to small-scale fishing, or which would be defined as such. The regulation determines 6 types of gear that can be used in maritime waters (art. 20), followed by specific definitions and using conditions for each type of gear (art. 31 to 68).

Two categories of SSF licence foresee a multi-specific approach with a listing of the different gears allowed and detailed in the document delivered by local administration (see the model in annex 7 of REPMAR 2003).

In the new regulation project, there is a similar approach, supplementing the number of fishing gear that may be used, as well as the possibility of developing new techniques (art.34). Annex 3 of the draft specifies in detail

the type of gear authorized by fishing category for artisanal fishing activities without or with a vessel (Table 14 and Table 15).

Table 14: Fishing gear in local artisanal fishing (fishermen without a vessel)

	Artes de pesca	Características	Dimensões (Metros)
1	Armadilhas: Gangos para caranguejo Gaiola para peixes Gaiolas para chocos e lulas Covos Nasas Gamboas	Malha \geq 90 mm Forma livre Simples de barreira simples e única	livre Mas a malha de revestimento deve ser \geq 90 mm livre
2	Pesca por Ferimento (Arpão)	livre	livre
3	Tarrafas	Malha \geq 63.5 mm	livre
4	Linha de mão (simples)		
5	Redes de emalhe: Redes fixas (de fundo, pelágicas ou superfície)	Malha \geq 63.5 mm Coeficiente horizontal \geq 50% para camarão e 75% para peixes.	50% 75%

Table 15: Fishing gear in local artisanal (with a vessel) and coastal fishing

	Artes de pesca	Características	Dimensões (m)
1	Armadilhas: Gaiolas para peixes e lagostas Gaiolas para chocos e lulas Covos; Nasas	Forma: livre Malha \geq 160 mm Livre	dimensões: livre -
2	Linha de mão		
3	Corrico		
4	Palangre de armadilhas: de potes, pneus, gaiolas, covos e nasas		
5	Palangre com anzóis	Livre	Ate 500 azóis
6	Redes de emalhe: Redes fixas (superfície, pelágicas ou de fundo), Derivantes Cercadoras/ envolventes Polivalentes Tresmalhe emalhes de fundo derivantes (para camarão)	Malha \geq 38 mm Coeficiente horizontal \geq 50 por centos, para camarão e, 75 por centos para peixes.	Art. 54.3 : A autoridade provincial de Administração Pesqueira, ouvido o Comité de Co-Gestão Local pode fixar dimensões de redes inferiores E comprimento \leq 1500 [Nas baías, o comprimento da rede deve ser \leq 500]
7	Rede de arrasto manual a bordo Rede de arrasto mecânico para camarão Rede de arrasto mecânico para gamba	55 mm 55 mm 50 mm	- - -
8	Redes de cerco: Simples/Tradicional melhorada/clássica	Malha 19 mm	Compr. Rede 150 metros, copejada 10 metros e altura 15 metros.

The numbers of licences counted between 2013 and 2017 for ten Provinces arranged in geographical order from North to South and West to East are given in Table 16. There is also an indication if the water bodies are mostly marine (M: marinho) or only freshwater (D: água doce).

Over the last five years the highest numbers of licensed gear were noted for 2015, for all Provinces (Figure 9). Most likely, this correspond to the last year when sufficient MCS effort was deployed to count and register fishing gear.

Between 2015 and 2017, licence numbers have decreased in all Provinces except for Inhambane. In 2017, we also note that apart from Manica, which consistently has the smallest number of licences, Provinces cluster in two groups. One group with higher numbers, between 2 200 and 2 600 fishing gear licensed, for six of the country’s 10 Provinces, and the other group with fewer than 1 500 gear registered (four Provinces).

We suspect that from 2016 onwards, that the numbers of SSF licences reported in official statistics may mostly illustrate the lack of MCS capacity of the District SDAE services, and most likely do not represent SSF activities accurately.

Table 16: SSF licences (nb. Gear) - Licenciamento da pesca artesanal (Nº de Artes) (MIMAIP 2018)

N>SE>W	Province	2013	2014	2015	2016	2017
01-M	Cabo Delgado	518	1 106	1 442	1 158	999
02-D	Niassa	1 419	1 406	2 212	1 615	2 396
03-M	Nampula	1 661	2 226	2 819	1 971	2 237
04-M	Zambézia	1 296	1 485	1 892	1 959	1 285
05-D	Tete	831	1 140	1 551	1 899	2 307
06-M	Sofala	1 552	1 771	2 208	1 261	1 376
07-D	Manica	340	440	550	552	251
08-M	Inhambane	1 562	1 477	1 855	2 122	2 636
09-M	Gaza	1 114	1 387	3 160	1 765	2 491
10-M	Maputo	2 270	2 678	2 679	2 109	2 219
	Total	12 563	15 116	20 368	16 411	18 197

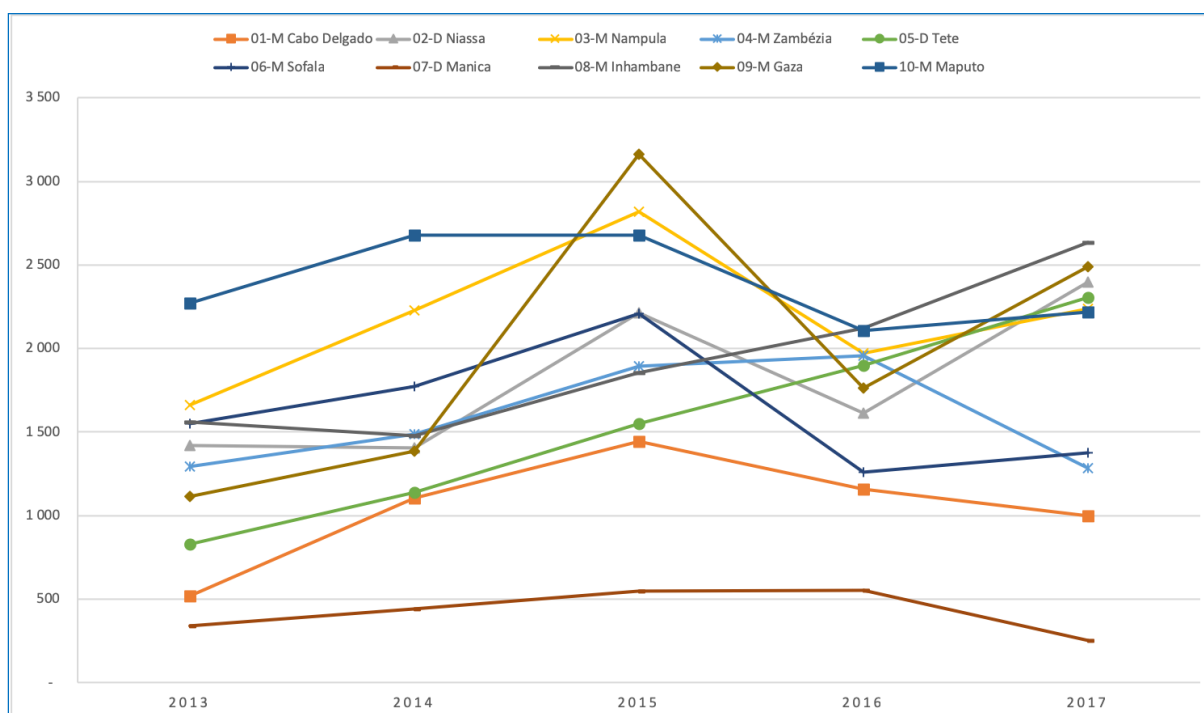


Figure 9: Numbers of SSF gear licences by Province 2013 - 2017 (MIMAIP 2018)

According to the last available SSF Fisheries Census information in 2012, the Provinces with most SSF fishing gear were Zambézia, Sofala, Cabo Delgado and Tete (Table 17). Therefore, the numbers of gear registered in 2013 did

not correspond to the census, and for some by a large margin, but the increasing trend in licensed gear visible between 2013 and 2015 (Figure 9) probably indicates an increasing registration effort, which then decreases dramatically in 2016.

Using the numbers of gear counted during the 2012 Census as a baseline, the numbers of gear licensed in 2015 provide a rough estimate of licence coverage. On average, we estimate that less than half of the gear were registered (47%) in 2015. We also note a significant variation between Provinces at that time, from very good (about 100%) for four provinces (Niassa, Nampula, Gaza and Maputo), to very low (30% or less) for five provinces (Table 17). Therefore, as analysed in detail for Study 2, there is likely to be a large amount of SSF IUU activity resulting from the lack of local means to register SSF gear after 2015, and the general lack of MCS capacity to enforce the need for registration. Some key points in support of a sustainably financed MCS system, are noted below.

Important points 1: SSF gear licensing

- Low licensing coverage weakens the entire MCS system
- Low licensing coverage = lost licensing revenue
- The 5-year Fishery Census due in 2018 needs to be undertaken as soon as possible to provide a baseline for the new Policy and the development of MCS activities
- Incomplete requirements for the technical regulation of fishing effort for certain types of gear need updating, in particular gillnets, of which only the maximum permitted lengths are known, but without elements regarding the number of gear that can be used by one vessel or per fisherman.

Table 17: SSF Licences (nb. Gear) - Licenciamento da pesca artesanal (Nº de Artes) in 2015 and from 2012 Fishery Census

N>S and E>W	Province	Census 2012	2015	% 2015/2012
01-M	Cabo Delgado	6 417	1 442	22%
02-D	Niassa	2 031	2 212	109%
03-M	Nampula	1 966	2 819	143%
04-M	Zambézia	9 603	1 892	20%
05-D	Tete	5 391	1 551	29%
06-M	Sofala	7 478	2 208	30%
07-D	Manica	1 767	550	31%
08-M	Inhambane	3 413	1 855	54%
09-M	Gaza	2 967	3 160	107%
10-M	Maputo	2 745	2 679	98%
	Total	43 778	20 368	47%

Incomplete licensing must be in part be attributed to the lack of a functional MCS system for SSF at local, district and Provincial levels.

Artisanal fisheries may target any type of resources that are locally available. Limited by their navigational autonomy, artisanal fishing activities exert the heaviest pressure on coastal and lake fisheries resources, habitats and ecosystems, mainly within 3 nautical miles (Linefish FMP, Kapenta fishery). It is therefore essential that licensing coverage is comprehensive so that the resulting fishing mortality may be realistically included and managed in the fisheries management plans (FMPs).

4.2.3 Subsistence fishing

Defined in the annexed glossary of the Fisheries Act No. 22/2013 of November 1, 2013, subsistence fishing is “practiced with or without vessels and with basic artisanal fishing gear, constituting a secondary activity for those who practice it, fishing for its own consumption and only sporadically sells its production”. The gear used for subsistence fishing need to be registered with the administration, but the activity is not subject to licence fees.

There is presently a major contradiction in the legal definition of « subsistence fishing » in the Fisheries Act No. 22/2013 as well as in the decree No. 74/2017 of 29 December 2017 for Regulation of Concession of Fishing Rights and Fishing Licences, which includes subsistence fishing in « non-commercial activities » (art. 4.2.b.i), while also considering that the fisherman may sell his production punctually. The possibility opens a legal gap in the ability of some fishermen to use subsistence fishing as a commercial activity in a much less controlled manner and free of charge. Many examples of "false" subsistence fisheries exist around the world, which create unfair competition with official SSF professional fishermen, and results in IUU fishing and environmental degradation.

Important points 2: Subsistence fishing potential competition with commercial SSF

- Catches from non-commercial activities have to be recorded otherwise they are IUU catches
- IUU catches compete unfairly with legal production and need to be eliminated
- If catches can be sold occasionally, they need to be registered as commercial to ensure product hygiene and avoid low value parallel markets.

Non-commercial fisheries (catch cannot be sold) in the new Fisheries Act No. 22/2013 need to be more precisely defined and framed in the new regulation (new REPOMAR draft - art. 22). Subsistence fishing need to exclude any commercial transaction or be included in commercial SSF licence types, through a new category of licence to provide catch records. The Decree No. 74/2017 of 29 December 2017 for Regulation of Concession of Fishing Rights and Fishing Licences (art. 7.2b, 14.2, 32.1.b.iv, 42.2) gives the following elements :

1. A fishing licence registration is necessary;
2. Granted by the Provincial Authority of the Fisheries Administration;
3. The granting of a fishing licence is subject to the payment of fees payable prior to its issue, with a part allocated to the fisheries monitoring effort.

4.2.4 Recreational and sport fishing

Recreational and sport fishing are managed as non-commercial activities, and are licensed per fishing gear used (Table 18).

Locals and tourists recreational and sport fishers may obtain a licence to target pelagic and demersal species. Licences numbers, per gear, are awarded at provincial level and subject to a licence fee. For demersal fish, there are limits to the number of individual fish that may be caught per day. Recreational catches are taken into account in the FMP for the Mozambican Marine Line Fishery.

Sport fishing operates mostly from vessels and is geared towards tourism, including international fishing competitions. In marine waters, sport fishermen target large pelagic fish. The targeting of demersal species is prohibited by law in fishing competitions.

Licence numbers appear to have changed little over the five years (Table 18), although numbers have decreased in Tete, which may indicate low compliance and/ or lack of sports fishing demand because of uncontrolled fishing having led to freshwater sport fish abundance decline. For marine fish, the larger numbers of licences are in the three Southern Provinces, Inhambane, Gaza and Maputo, where coastal waters are deepest.

Table 18: Sport and recreational fishing licences (nb. Gear) (MIMAIP)

N>S and E>W	PROVÍNCIA	2013	2014	2015	2016	2017
01-M	Cabo Delgado	306	201	174	266	356
02-D	Niassa	-	2	-	-	-
03-M	Nampula	24	27	78	-	-
04-M	Zambézia	10	50	-	51	68
05-D	Tete	277	191	220	85	81
06-M	Sofala	46	110	67	118	125
07-D	Manica	119	2	129	-	-
08-M	Inhambane	922	2 008	1 844	2 522	2 414
09-M	Gaza	800	361	396	839	1 190
10-M	Maputo	1 702	2 144	1 838	2 058	1 987
TOTAL		4 206	5 096	4 746	5 939	6 221

4.2.5 Scientific research fisheries

Research fishing activities may be diverse, as foreseen in the legal texts in force (Fisheries Act No. 22/2013 of November 1, 2013 and decree No. 74/2017 of 29 December 2017) and include research cruises for the purpose of the assessment of stock productive capacity and spatial distribution and biodiversity mapping, trips to experiment new techniques, areas, equipment or ships, and for training purposes.

Research fishing activities are subject to a licence free of fees (art. 42.2) supplemented by the required paperwork corresponding to the vessels (art. 37, 38, 39). Research fishing activities must also demonstrate a benefit resulting from fishing rights taken from other categories of commercial or non-commercial activities.

The costs associated with research activities vary depending on the fishery and the sampling frequency, and is usually borne out by the fishing companies, as part of their fishing licence obligations. They may include:

1. The board and lodging, and any product use by scientific on-board observers. This is the case of most tuna fisheries licenses;
2. A “scientific” quota (tonnage or days at sea) set aside in the FMP for scientific research, which may be caught by national or shared international research vessels;
3. One or several fishing vessels may be chartered for a fixed length of time and specific activities; a charter fee paid by the research programme per day covers the vessel owners expenses (fuel, crew full wage, use of gear, insurance etc.); once the products are sampled, the rest of the catch may be kept by the vessel owner/ crew as part-payment.

4.2.6 Aquatic production units - health and hygiene licences

The overall number of establishments or production units licensed for aquatic production increased markedly in 2014, and has remained stable since (Table 19).

Production units licensed for the national market are mainly artisanal (562 in 2017) and semi-industrial vessels (43 in 2017). Those that are licensed to export to the EU are mainly freezer vessels (55 in 2017) or factory vessels (7 in 2017).

Table 19: Production units with food safety licences by export market (MIMAIP)

Mercado	2013	2014	2015	2016	2017
Nacional	56	558	568	629	677
Uniao Europeia	70	71	80	81	77
Outros paises	407	404	368	443	407
Total	533	1 033	1 016	1 153	1 161

For exports to other markets, the larger numbers of production units are Kapenta rigs (248 in 2018) and drying production units (38 in 2017). Among the remaining 121 units in 2017, the most numerous are transports (36), processing plants (24), and 16 IF and 17 SIF vessels.

4.2.7 Concluding remarks

More than 90,000 people are reported to be involved in the fishing sector in Mozambique with some 70,000 directly in the marine sector and 20,000 in freshwater fisheries (FAO, 2019; IMF, 2018). Overall dependency is estimated at around 500,000 people, who would directly depend on fishing activities for their livelihood, with a majority employed in the fish and fish products distribution and sales thus providing a source of livelihood for a large number of women operating from landing sites to the markets (FAO, 2018).

These numbers are poorly reflected in the current official statistics for the sector. A national fisheries and aquaculture census is urgently needed, to provide baselines not only for SSF activities, but also to re-adjust statistics for ISIF and non-commercial activities.

4.3 Fisheries and Aquaculture resources

In 2016, a SADC regional compilation⁵⁴ estimated the following:

- Annual Fisheries Production at about 223 000 tonnes of fish (222 101 tonnes from capture fisheries and 721 tonnes from aquaculture);
- Value of imported fish almost twice that of exported fish;
- Fisheries sector employment at about 374 949 people (374 027 in fisheries and 922 in aquaculture) and
- Fisheries contributed 4% to Mozambique's GDP.

“The main fishery sector in Mozambique is industrial and semi-industrial, with over 70% of the active fleet targeting shrimp. The artisanal fishery has been growing as a result of substantial investment in the sector. The recreational/sport fishery is also an important fisheries sector for eco-tourism in Mozambique. In general, artisanal fishing extends along the entire coastline. The country has three main fishing ports.

Aquaculture practices range from extensive farming (tilapia and seaweeds) with few inputs and modest output, to semi-intensive farming (shrimp) with high inputs and high output.”

Some of these data were collected in 2011 and do not apply any longer. They are updated below.

4.3.1 ISIF production and value

Official statistics for the production and value of the IF (Table 20 and Table 22) and SIF (Table 21 and

Table 23) from the 5-year Boletim are given below. One exception from a relatively stable production is the SIF Kapenta fishery, which shows a very marked drop in reported production, which has decreased by more than half between 2013 and 2015.

It is also important to note that, despite the much larger number of semi-industrial licences, compared to industrial vessels (94 IF and 314 SIF in 2017, Table 11 and Table 12), the recorded production for the SIF fleet has been decreased markedly in 2016 and 2017, which may indicate a monitoring problem, especially for fish.

The Boletim also provides catch and effort statistics and corresponding catch per unit of effort (CPUE) for some of the main industrial fisheries, which mostly indicate stable trends.

⁵⁴ https://www.sadc.int/files/9814/8724/5613/SADC_Fisheries_Fact_Sheet_Vol.1_No.1_Focus_on_Mozambique.pdf and https://tis.sadc.int/files/2614/6486/0318/SADC_FTC_1_2016_11_CCADERSA_Report.pdf

Table 20: Annual industrial production (tonnes) 2013-2017 (MIMAIP)

DESCRIÇÃO	2013	2014	2015	2016	2017
Lagosta	574	262	290	172	237
Caranguejo	73	94	186	221	195
Gamba	1 813	1 718	1 526	2 043	1 934
Peixe	788	654	1 312	1 509	1 650
Camarão	2 078	3 556	2 897	2 406	3 720
Lagostim	139	173	201	184	143
Cefalópodes	404	331	330	229	357
Tubarão	319	-	-	-	-
Fauna acompanhante	1 541	1 870	1 571	2 532	2 287
Atum e espécies relacionadas (Nacional)	-	8	273	448	1 099
Atum e espécies relacionadas (Estrangeira)	3 009	3 916	3 193	2 613	3 478
TOTAL	10 738	12 581	11 779	12 357	15 100

Table 21: Annual semi-industrial production (tonnes) 2013-2017 (MIMAIP)

DESCRIÇÃO	2013	2014	2015	2016	2017
Peixe	841	870	913	738	574
Camarão	385	481	539	423	557
Kapenta	16 645	13 714	16 615	11 922	6 969
Fauna acompanhante	446	601	561	400	706
TOTAL	18 317	15 666	18 628	13 483	8 806

Table 22: Annual industrial production value (10³Mts) 2013-2017 (MIMAIP)

DESCRIÇÃO	2013	2014	2015	2016	2017
Lagosta	150 158	68 539	85 173	50 430	69 460
Caranguejo	5 205	6 702	14 402	17 128	15 130
Gamba	215 566	204 246	203 748	272 759	258 189
Peixe	46 886	38 889	87 576	100 739	110 111
Camarão	395 443	676 707	613 275	513 922	794 682
Lagostim	33 054	41 092	53 720	49 175	38 101
Cefalópodes	24 038	19 695	22 048	15 301	23 803
Tubarão	18 981	-	-	-	-
Fauna acompanhante	18 338	22 253	20 973	33 802	30 531
Atum e espécies relacionadas (Nacional)	-	476	18 189	29 923	73 338
Atum e espécies relacionadas (Estrangeira)				174 424	232 138
TOTAL (10³Mts)	907 669	1 078 599	1 119 104	1 257 603	1 645 483

Table 23: Annual semi-industrial production value (10³Mts) 2013-2017 (MIMAIP)

DESCRIÇÃO	2013	2014	2015	2016	2017
Peixe	50 040	51 765	60 923	49 234	38 315

Camarão	73 266	57 191	111 447	90 345	118 949
Kapenta	474 383	390 849	532 345	381 981	223 287
Fauna acompanhante	5 307	7 152	7 498	5 337	9 433
TOTAL	602 995	506 957	712 213	526 896	389 983

For each ISIF category, apparent prices (Table 24 and Table 25) show similar values and trends for common fisheries, which could also be due to data anomalies from value/ price information that are notoriously difficult to monitor.

Table 24: Annual industrial fisheries apparent prices (Mts/kg) 2013-2017 (MIMAIP)

DESCRIÇÃO	2013	2014	2015	2016	2017
Lagosta	262	262	294	293	293
Caranguejo	71	71	77	78	78
Gamba	119	119	134	134	134
Peixe	60	59	67	67	67
Camarão	190	190	212	214	214
Lagostim	238	238	267	267	266
Cefalópodes	60	60	67	67	67
Tubarão	60				
Fauna acompanhante	12	12	13	13	13
Atum e espécies relacionadas (Nacional)	-	60	67	67	67
Atum e espécies relacionadas (Estrangeira)	-	-	-	67	67
TOTAL	85	86	95	102	109

Table 25: Annual semi-industrial fisheries apparent prices (Mts/kg) 2013-2017 (MIMAIP)

DESCRIÇÃO	2013	2014	2015	2016	2017
Peixe	60	60	67	67	67
Camarão	190	119	207	214	214
Kapenta	29	29	32	32	32
“ Fauna acompanhante	12	12	13	13	13
TOTAL	33	32	38	39	44

We also note that the apparent price of Kapenta (Table 25) is reported to have remained stable, despite the sharp decrease in reported production in 2016 and 2017, which would need more analysis.

4.3.2 SSF production and value

SSF production has increased year on year over the 5-year period, for all categories apart from “others” and “associated species” (Table 26). In 2017, the reported annual production is greater than 300 000 tonnes, more than twice the SIF production excluding Kapenta.

Table 26: Annual artisanal production (tonnes) 2013-2017 (MIMAIP)

Description	2013	2014	2015	2016	2017
Lobster	159	106	116	155	1 058
Crab	1 346	1 966	2 894	1 554	3 587
Marine Fish	110 874	142 952	162 272	168 127	191 469
Freshwater fish	68 215	70 137	76 405	84 211	90 052
Tuna and related species	-	-	-	-	6 299
Shrimp	3 020	3 166	5 240	5 203	6 295
Small shrimp (acetes)	2 241	1 990	2 463	7 771	3 533
Cephalopods	1 671	1 847	1 772	2 283	4 125
Shark	653	854	1 298	1 786	1 969
Others	4 557	1 582	2 638	3 731	4 381
Assoc. spp.	3 319	4 234	4 276	1 543	1 703
Total	196 055	228 834	259 374	276 364	314 471

Keeping in mind the data limitation for the registration of gear licences (see section 4.2.2), we note that recorded production has increased for most Provinces (Table 27), including from freshwater bodies (02-D Niassa, 07-D Manica), but not from (05-D) Tete, which could confirm a general resource over-exploitation.

Table 27: Total annual artisanal production by Province (tonnes) 2013-2017 (MIMAIP)

N>S and E>W	Province	2013	2014	2015	2016	2017
01-M	Cabo Delgado	19 098	25 309	29 256	23 636	31 232
02-D	Niassa	11 833	13 265	17 953	15 821	23 197
03-M	Nampula	28 587	53 807	41 518	54 180	56 539
04-M	Zambézia	42 408	38 258	45 954	63 017	64 914
05-D	Tete	22 511	19 548	22 146	33 258	23 017
06-M	Sofala	26 427	31 559	42 672	36 333	46 422
07-D	Manica	6 310	8 233	8 366	5 204	10 285
08-M	Inhambane	17 281	18 722	26 755	24 888	32 646
09-M	Gaza	7 713	7 319	12 119	8 673	10 131
10-M	Maputo	13 887	12 813	12 638	11 354	16 088
	TOTAL	196 055	228 833	259 372	276 364	314 470

A presentation of the SSF production detailed by Province shows large volumes of freshwater fish (Peixe de águas interiores) production even in coastal provinces, including Maputo, Gaza, Zambezia, and some in Sofala province.

Table 28: Total annual SSF production value (10³ Mts) 2013-2017 (MIMAIP)

	2013	2014	2015	2016	2017
Lagosta	25 379	17 533	21 663	28 968	197 745
Caranguejo	92 852	135 685	326 604	120 322	277 754
Peixe marinho	6 541 547	8 434 147	10 831 660	11 221 866	12 780 536
Peixe de água doce	4 024 700	4 138 074	5 100 016	5 621 668	6 010 962
Atum e espécies relacionadas	-	-	-	-	331 889
Camarão	359 099	376 788	839 397	833 581	1 008 497
Acetes	26 667	23 885	32 863	103 749	47 164
Cefalópodes	99 452	108 948	118 255	152 402	275 343
Tubarão	38 880	50 358	86 618	119 195	131 430
Outros	22 785	18 983	35 222	49 808	58 482
Apr. da Fauna acompanhante	39 496	50 808	57 085	20 594	22 734
TOTAL	11 270 857	13 355 208	17 449 382	18 272 153	21 142 535

The total value of SSF production in 2017 was recorded to be 21 trillion Mts, more than double that of 2013. However, as noted several times already, production value data have to be taken with caution here as well because the corresponding apparent prices (Table 29) show very little change after 2015, despite likely changes in species catch composition, species abundance and/ or markets. It is very possible that price data are re-used by default and therefore cannot indicate meaningful changes.

Nevertheless, we note that SSF fisheries production contribute by far the largest tonnage produced and the most revenue to the national economy. Therefore, an effective and sustainably financed MCS system to ensure that SSF fisheries are sustainably managed must be the utmost priority.

Table 29: Annual SSF production apparent prices (Mts/kg) 2013-2017 (MIMAIP)

Description	2013	2014	2015	2016	2017
Lobster	160	165	187	187	187
Crab	69	69	113	77	77
Marine Fish	59	59	67	67	67
Freshwater fish	59	59	67	67	67
Tuna and related sp.	-	-	-	-	53
Shrimp	119	119	160	160	160
Small shrimp	12	12	13	13	13
Cephalopods	60	59	67	67	67
Shark	60	59	67	67	7
Others	5	12	13	13	13
Assoc. spp.	12	12	13	13	13
Total	57	58	67	66	67

4.3.3 Fisheries Management plans (FMPs)

As mentioned previously, there is no FMP for the Kapenta fishery of Lake Cahora Bassa yet, or for small pelagic resources for Lake Niassa, Massingir, Chicamba, Corumana and other freshwater bodies considered in the SSF fishing licence fee Table 10.

Apart from the tuna and associated large pelagic species managed by the IOTC, for which sustainable production levels are regularly estimated, up-to-date FMPs are not yet available for any fisheries, but some are in progress and others were drafted more than 5 years ago but do not have legal value at present. The information available is briefly reviewed by fishery below.

4.3.3.1 Shallow water Prawn (*Camarão de superfície*)

The national fleet is mostly targeting paneid **shallow water prawns** (*camarão branco* *Penaeus indicus* e o castanho *Metapenaeus monoceros*) **on the Sofala Bank** slightly offshore with freezer vessels or ice-boats at depth of 30m or less. All three vessel categories have increased, from 63 vessels in 2013 to 77 vessels in 2017 (Table 11).

An initial Fisheries Management Plan (FMP) for the penaeid shallow water prawns on the Sofala Bank was drawn up in 2011 and revised in 2013⁵⁵. It established the **need to decrease fishing mortality** and introduced a Total Allowable Effort regime (TAE - Total admissível de esforço) to replace the Total Allowable Catch (TAC - Total admissível de captura)⁵⁵. The FMP also noted that management had mostly focused on the ISIF catches, but also needed to take into account the captures of juveniles by the SFF (section 4.2.2) artisanal gear such as chicocota and chitlhamo-tlhamo / Maphikphic. A new FMP is expected to be drawn up in the near future, so it is important to note that the rights regime just introduced appears to be premature.

4.3.3.2 Gambas (*camarão de águas profundas*) and other deepwater crustaceans

The **deepwater gambas** are caught on the shelf edge at around 200m and corresponds to several species, mostly the pink Gamba rosa (*Haliporoides triarthrus*) and red Gamba vermelha (*Aristeaus foleacea*). The ISIF vessels also catch deepwater langoustines (lagostim *Metanephrops andamanicus*), crab (caranguejo *Chaceon macphersoni*), spiny lobster (lagosta *Palinurus delagoae*), cephalopods and demersal fish (cefalópodes e peixes de fundo). The fishing areas are mostly on the offshore edge of the Sofala Bank and in the South. An analysis of the fishery published in 2012⁵⁶ found the two main species **over-exploited**, and expressed concern regarding the lobster resources. The limited production potential of the deepwater grounds was confirmed by Everett et al, in a paper published in 2015⁵⁷.

⁵⁵ Plano de Gestão das Pescarias de Camarão do Banco de Sofala (PGC/BS) 2009 - 2013

⁵⁶ Dias, N., Zacarias, L., A-M Caramelo, INIP, 2012, Análise da Pescaria de Gamba e perspectivas de gestão, 24pp.

⁵⁷ Everett, B.I., 2015. Composition and abundance of deep-water crustaceans in the Southwest Indian Ocean: Enough to support trawl fisheries? Ocean & Coastal Management 111 (2015) 50-61.

The study also indicates that significant quantities (up to 60% of the total catch weight) of fish, elasmobranchs (sharks and rays) and cephalopods are caught together with the prawn by trawl nets. Similarly, to the shallow water prawn fishery, an effective FMP would be needed to limit the allocation of rights and guide the licensing policy for this fishery.

4.3.3.3 Linefish demersal fishery

A FMP for the Linefish fishery was published in 2014⁵⁸. Industrial vessels freeze the catch on board, mainly for export. Vessels were using monofilament handlines with one or more baited hooks (of various sizes) and with a manual reel. ISIF vessels operate primarily on rocky bottom areas. It is estimated that some 179 species are of significant value for the demersal line fisheries. A recreational fishery targets the same species, diving for spear fishing or using longlines.

According to the FMP, exploited demersal resources vary in each of three zones (Figure 10) as follows :

- North of Sofala Bank - Zone A: areas of rocky and coral bottoms (mostly in Zone A), the most prominent demersal resources are emperors (Lethrinidae), seabreams and snappers (Lutjanidae) such as the red snapper (*Lutjanus bohar*), red snapper (*Lutjanus sanguineus*), (Pristipomoides typus), pink snapper (*Pristipomoides filamentosus*), long-tailed snapper (*Etelis coruscans*) and ruby snapper (*Etelis carbunculus*).
- Sofala Bank - Zone B: areas of sandy and muddy bottoms typical of Zone B, the most common species are stonefish (*Pomadasys kaakan*), gonguri (*Pomadasys maculatum*), both belonging to the family Haemulidae, catfish (*Arius dussumieri*) belonging to the family Ariidae and (*Otolithes ruber*) and corvina real (*Argyrosomus hololepidotus*) of the family Sciaenidae., and
- South of Sofala Bank - Zone C: mostly (Sparidae) such slingers (*Chrysoblephus puniceus*), seabreams (*Cheimerius nufar*), dentex (*Polysteganus coeruleopunctatus*), and groupers (Serranidae). Thieves (Lethrinidae) are very common in areas very close to the coast, being associated with both reefs and seagrass areas. The main species are the lightning thief (*Lethrinus nebulosus*), the thief Masena (*Lethrinus mahsena*), the thief of the sequins (*Lethrinus lentjan*), the thief with the yellow tail (*Lethrinus crocineus*) and St. Peter (*Lethrinus harak*). Significantly, the populations of demersal fish exploited in the south of the country (Zone C Figure 10), have a limited distribution, especially among species of the Sparidae family.

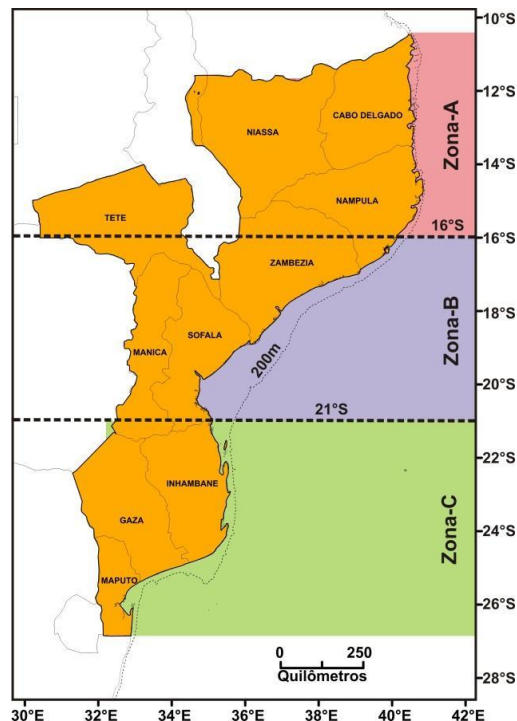


Figure 10: Proposed zones for the management of the line fishery (ADNAP, 2013⁵⁹)

⁵⁸ PLANO DE GESTÃO PARA A PESCARIA DE LINHA DAS ÀGUAS MARÍTIMAS DE MOÇAMBIQUE, MIMAIP Maio 2014, 56p.

⁵⁹ ADNAP, 2013. A management plan for the marine linefishery of Mozambique, MIMAIP, May 2013, 41p.

4.3.3.4 Linefish pelagic fishery

Medium-sized pelagic fish are caught by line fishermen along the entire coast. Target species include fish from the mackerel and tuna family (Scombridae), especially yellowfin tuna (*Atum albacora Thunnus albacares*), kawakawa or mackerel tuna (*Euthynnus affinis*), giant mackerel (*Acanthocybium solandri*) and narrow-barred Spanish mackerel (*Scomberomorus commersoni*), and several species of trevally from the Carangidae family.

The same species are also the most prominent species targeted by the sport fishing as trophies together with the common dolphinfish (*Coryphaena hippurus*), marlins and sailfish (Istiophoridae). There is no FMP.

4.3.4 Fisheries production potential

The latest official statistics published in the Boletim also mention an estimated potential total national fisheries production of 202 108 tonnes per year, with of 22 805 t of crustaceans, of 176 640 t of finfish and 2 663 t of molluscs. There is also some indication of the health of the resources with 4 categories, from moderately to over-exploited (Table 30).

Table 30: Indicators of production potential

Estado de Exploração
Moderadamente explorado
Optimamente explorado
Completamente explorado
Sobre-explorado
Não avaliado

For crustaceans and cephalopods other than octopus (Table 31), the “optimal exploitation” levels reported appear to be in contradiction with historical scientific evaluations and current landing. For example, the annual production of lagostim was 143 tonnes in 2017 down from 201 tonnes in 2015 (Table 20) , but the sustainable production potential is given as 125 tonnes, and the exploitation indicator is given as “Moderadamente explorado”. The same applies to the gamba fishery, which is noted as “Completamente explorado” with a production potential of 1 650 tonnes, with a catch of 1 934 tonnes reported for 2017, which makes the fishery over-exploited.

Table 31: Production potential of main crustacean and cephalopod fisheries (MIMAIP)

RECURSO	Localização	Potencial (t/ano)
Camarão de superfície	Banco de Sofala	6 125
Camarão de superfície	Baía de Maputo	Não Estimado
Camarão de profundidade (Gamba)	Zona Sul (Maputo, Gaza e Inhambane) e Banco de Sofala	1 650
Lagostim de profundidade	Zona Sul (Maputo, Gaza e Inhambane) e Banco de Sofala	125
Lagosta de profundidade	Zona Sul (Maputo, Gaza e Inhambane)	255
Caranguejo de profundidade	Zona Sul (Maputo, Gaza e Inhambane) e Banco de Sofala	352
Cefalópodes de superfície	Zona Sul (Maputo, Gaza e Inhambane) e Banco de Sofala	3 864
Cefalópodes de profundidade	Zona Sul (Maputo, Gaza e Inhambane) e Banco de Sofala	10 434
Crustaceos		22 805

Table 32: Production potential of main finfish fisheries (MIMAIP, 2018)

RECURSO	Localização	Potencial (t/ano)
Demersais acessíveis à pesca Industrial e Semi-Industrial à linha rochosos (marreco, cachucho, garoupas e pargos)	Zona Norte	260
	Banco de Sofala	1 700
	Zona Sul	400
Demersais acessíveis à pesca Industrial Semi-Industrial à linha arenosos (peixe pedra gonguri e corvina)	Zona Norte	10 130
	Banco de Sofala	31 722
	Zona Sul	5 537
Pequenos pelágicos acessíveis à pesca artesanal	Zona Norte	35 193
	Banco de Sofala	35 445
	Zona Sul	16 603
Grandes pelágicos acessíveis à pesca industrial com recurso a palangre (atum e espécies relacionadas)	Toda a zona económica exclusiva	20 000
Magumba	Baía de Maputo	3 650
Kapenta	Cahora Bassa	16 000
Peixes		176 640

The production of molluscs fisheries exploited on foot, and most often by women, is given in Table 33. Production potentials are not presently available, but some FMPs are being developed at local level, although not yet reported on officially.

Table 33: Production potential of mollusc SSF fisheries (MIMAIP, 2018)

MOLUSCOS	Localização	Potencial (t/ano)
Polvo	Província de Cabo Delgado	1 800
Bivalveis	Província de Maputo	500
	Província de Cabo Delgado	363
Moluscos		2 663

There is no explanation in the Boletim Estatístico regarding the date and validity period of the annual production potentials above. One aspect is clear, the potentials cannot cover all possible exploited resources, because they altogether amount to about 200 000 tonnes, when the ISIF+SSF production was recorded to be about 340 000 tonnes in 2017. Therefore, sustainable resource potentials need to be complemented and updated urgently.

4.3.5 Aquaculture Production and potentials and value

Aquaculture activities also need to be considered in the planning of a sustainably financed fisheries MSC system, because they may concern similar species that could be substituted, or provide opportunities for the sale of IUU wild fisheries products. In all instances, aquaculture production is easier to register, monitor and inspect, even for the small-scale, than for coastal or freshwater fisheries. Production certification for aquaculture is common practice, long before catch certification was introduced for fisheries, as it naturally complements food safety and product quality certification. Production certificates need to become common place for wild fisheries, through close collaboration between the INIP and MCS competent authorities at all levels of government.

However, we note that the aquaculture development foreseen in 2011 that was mentioned in the introduction is only recently started in freshwaters, with caged Tilapia production from lakes (Table 34).

Table 34: Aquaculture production - Produção de Aquacultura (MIMAIP)

	2013	2014	2015	2016	2017
Camarão marinho	10	-	-	-	-
Peixe marinho	130	150	-	-	-
Peixe de água doce	67	237	276	241	408
Industrial	207	387	276	241	408
Pequena Escala (água doce)	514	792	857	939	1 427
TOTAL	721	1 179	1 133	1 180	1 835

4.4 Trade in Fish Products

Both exports and imports of fish products require a hygiene certificate and a food safety licence. The INIP is the Competent Authority, which certifies that a product, process or service has fulfilled all the sanitary and quality requirements. This activity is carried out mainly under art. 35 to 40 of the General Regulation for the Sanitary Control of Food Products of Aquatic Origin (Decree 76/2009 of 15 December) for the Sanitary Requirements for Sanitary Certification and by the Sanitary Certification Procedures for a fee approved by Order of June 2, 2004.

The certification process concerns exported products, imported products, and those that are traded domestically. Food safety and product quality certification documents are as follows:

- Sanitary Certificate - for products to be exported;
- Sanitary licence - for imported products;
- Verification Statement - for products intended for circulation within the country;
- Inspection Bulletin - for small quantities of products (maximum 6 kg) transported out of the country for non-commercial purposes.

The request for sanitary certification is made in through INIP's provincial Delegations / Representations or through institutions to which the INIP may delegate its competences. While issuing food hygiene certificates, the Competent authority records quantities, origin and types of products traded.

Increasingly, best practice dictates that data sources and inspection processes are integrated between the MCS system for the management of fisheries and aquaculture production, and the MCS system for products' health and safety certifications. Most major established markets, such as the EU and the US now demand that food safety certificates for capture fisheries products are presented together with catch certificates.

This is now the basis of the EU IUU regulation that aims to ban imports of products that cannot demonstrate traceability to legal and officially approved sources. For some years now, the EU has had a process of 'yellow card' issuance to countries for which there is concern about IUU fishing. The process initiates a dialogue and support to find solutions and ensure that international law is fully applied. This can either lead to the repeal of the yellow card or it can turn into a 'red card', which means a total ban of national products entering the EU market, which was in place for Comoros, as a result of lack of effective MCS system in place for fishing vessels on their national register.

4.4.1 Food safety licensed establishments for export

Fish and shellfish processing establishments, including freezer and factory vessels, must be licensed by the competent authority (INIP) and their certificates are renewed on the basis of regular audits. Some export markets may have specific certification requirements and procedures. Lists of approved export establishments were found for the EU and China (PRC), which would be set out in their trade-related legislation.

4.4.1.1 EU agreed exporters

For the EU, a list of categories and activities covered and of technical specifications in relation to the Master list of Approved Establishments is regularly updated and publicly available⁶⁰. The main types of establishments are AH = auction hall, CS = cold store, DC = dispatch centre (Live bivalve molluscs), FFPP = Fresh fishery products plant, FV = factory vessel, MSFP = mechanically separated fishery products plant, PC = purification centre (Live

⁶⁰ https://ec.europa.eu/food/sites/food/files/safety/docs/biosafety_fh_eu_food_establishments-techspecs_en.pdf

bivalve molluscs), PP = processing plant, RV = reefer vessel, RW = re-wrapping and repackaging establishment, WM = wholesale market, and ZV = freezer vessel.

In 2018 (version dated 09/08/2018), a total of 79 agreed establishments are listed for Fishery products from Mozambique, their list is kept on the EU Traces⁶¹ system⁶². This included 56 freezer (FV) and 8 factory (ZV) vessels and 4 cold stores (Table 35).

Table 35: EU Traces agreed fisheries products establishments by province (TRACES 09/08/2018)

Province	CS	FV	PP	ZV	Total
Nampula			3		3
Zambézia	2	1	1	21	25
Sofala	1	5	3	27	36
Maputo	1	2	4	8	15
Total	4	8	11	56	79

4.4.1.2 PRC agreed exporters

In 2018, there were 129 establishments in Mozambique registered as agreed for import of aquatic products by the CNCA, the Certification and Accreditation of the People's Republic of China⁶³ (Table 36).

Table 36: China (PRC) agreed aquatic products establishments by province (CNCA 05/06/2018)

Row Labels	CS	FV	IF*	PP	ZV	Total
Cabo Delgado				6		6
Nampula	1		1	12		14
Zambézia	2	2		1	23	28
Sofala	1	7	1	6	32	47
Inhambane				3		3
Maputo	1	2	1	8	19	31
Total	5	11	3	36	74	129

IF*: Ice factory

The nominative lists show that many of the vessels (FV, ZV), processing plants (PP) and cold store (CS) are common to both EU and PRC lists and carry the same INIP agreement number, although other details in the two lists are spelled differently, which suggest that there is not official publicly available master list at national level. We also note that there are more than three times the number of processing plants (PP) with export agreements to China than to the EU, and that they are based in six of Mozambique's 7 coastal provinces (Table 36) not just 4 for EU-agreed PP. Finally, we also note that the INIP had 121 production units licensed in 2017 (Table 19) to export to countries other than the EU beside Kapenta rigs and drying units, which is very close to the numbers licensed by the Chinese authorities in 2018.

4.4.2 Exports Quantities and Value

Quantities of fisheries products exported have been stable over the period 2013-2017 (Table 37), for many fisheries with long-established export markets, such as the EU (mostly prawns) or the SADC (mostly dried kapenta).

Table 37: Quantities (tonnes) exported by fisheries category 2013-2017 (MIMAIP, 2018)

Quantidade (ton)	2013	2014	2015	2016	2017	2017 (%)
Industrial	6 055	6 769	6 055	7 741	9 073	62%
Semi-industrial Fisheries	4 894	3 813	4 894	3 224	1 667	11%
Artesanal	1 109	1 157	1 109	3 451	3 994	27%
Total	12 058	11 739	12 058	14 416	14 734	100%

⁶¹ TraCES: Trade Control and Expert System https://ec.europa.eu/food/animals/traces_en

⁶² https://webgate.ec.europa.eu/sanco/traces/output/non_eu_listsPerCountry_en.htm#

⁶³ <http://www.cnca.gov.cn/ywzl/gjgnhz/jkzl/imports-list/Aquatic-Products/Africa/Mozambique..20180605.pdf>

For exports that have shot up in 2016 and/ or 2017, such as crabs (caranguejo) or cephalopods, MIMAIP statistics show that they contribute to an increase in exports to China (PRC and Taiwan) that have doubled since 2015, and multiplied by 3 since 2013, to reach nearly 5 000 tonnes for the two countries alone (Table 38).

New market developments are always important to monitor for an effective MCS system. Importantly, international development of Port State Measures (PSM) means that any undetected mix of IUU products are a threat to legitimate trade. Market closure because of IUU product can be very costly to a national economy, as demand may find alternative sources and take time to be re-established.

Table 38: Fisheries export tonnage by species group 2013-2017 (MIMAIP)

PRODUTOS DA PESCA	2013	2014	2015	2016	2017
Lagosta	673	292	500	494	538
Caranguejo	247	295	855	1 522	2 414
Gamba	1 719	1 870	1 426	1 732	1 960
Camarão	2 300	3 539	3 343	3 581	3 841
Lagostim	156	148	112	122	181
Peixe	1 090	1 236	1 214	1 362	2 582
Atum	-	-	54	12	948
Kapenta	5 027	3 628	4 753	3 422	1 292
Cefalópodes	200	307	268	294	636
Outros	646	424	352	1 874	343
Total	12 058	11 739	12 877	14 415	14 735

Official statistics show that the nearly 15 thousand tonnes of wild fisheries products exported in 2017 correspond to nearly 89 millions USD. As previously mentioned, market price information is always difficult to monitor, and the export values quoted in official statistics seem to confirm this. The apparent price obtained by dividing official export values (in USD) by the production tonnage shown in Table 39 appear to attest to this. It shows, for all fisheries products listed (apart from “Outros” in 2015), quasi constant apparent prices over the 5 years. This is extremely unlikely for several reasons.

One important reason is the enormous change in Mts/USD parity over the period, from 30 Mts in 2013 and 2014 to more than 70 Mts in 2017. Therefore, although it could be possible that the apparent price in Mts remained constant, this would probably not be the case for USD prices corresponding to the value data in Table 27 (Quadro 1 - Valoração das Exportação de Produtos da Pesca e de Aquacultura) of the Statistical Bulletin used to generate the apparent prices in Table 39.

Table 39: Fisheries apparent export prices (USD/kg) 2013-2017 (MIMAIP)

Avg price exports USD/kg	2013	2014	2015	2016	2017
Lagosta	15.00	14.99	14.99	15.00	15.01
Caranguejo	3.00	3.00	3.00	3.00	3.00
Gamba	5.00	5.00	5.00	5.00	5.00
Camarão	10.00	10.00	10.00	10.00	10.00
Lagostim	15.00	15.01	14.94	15.00	14.97
Peixe	4.00	4.00	4.00	4.00	4.00
Atum			3.98	4.00	4.00
Kapenta	5.00	5.00	5.00	5.00	5.00
Cefalópodes	3.00	3.00	4.00	3.00	3.00
Outros	0.50	0.50	3.00	0.50	0.50
Productos da pesca	6.24	6.51	6.47	5.74	6.03

Another reason to question the fisheries products export value information is the change in markets. Here lies one of the complexities of pricing fishing licences for foreign vessels. In order to generate the best possible revenue for government, producing countries must monitor not only foreign market demand, but also currency

exchange rates, production and storage costs and domestic and competing market prices by product type, by year and sometimes even monthly.

4.4.3 Imports of fish products

In 2017, Mozambique imported 79 thousand tonnes of fish and shellfish products (Table 40), of which more than 94% was horse mackerel or “carapau”, imported frozen from Namibia or South Africa. Horse mackerel is imported as food product, and could even be caught by Mozambique-registered vessels through a fisheries agreement with Namibia in the future. The increase in imported quantities of Carapau in 2017 may in part reflect the decrease in Kapenta production if the products are substitutes. Statistics of import values are not published in the Bulletin.

Table 40: Tonnage of fish and shellfish products imported (2013-2017 Kg/year, MIMAIP)

PRODUTO	2013	2014	2015	2016	2017
Atum	108	610	748	331	564
Peixe	621	980	651	627	631
Sardinha	448	1 257	1 290	495	580
Carapau	50 989	67 905	68 264	69 428	74 682
Bacalhão	120	140	148	104	86
Caranguejo	1	81	29	6	1 911
Camarão	11	7	15	14	10
Lula	44	134	180	188	82
Outros	530	514	689	210	541
TOTAL	52 872	71 628	72 014	71 403	79 087

4.5 Trade in Fisheries Service

It is now customary to include fisheries services in export statistics, such as for fishing licences for fishing vessels, fish processing plants and fisheries products certifications or inspections that may be billed in foreign currencies and provide government revenue.

These revenues would be generated through ADNAP (Licenças) and the INIP (Taxas de inspecção) central or local offices, or through the MIMAIP for fishing rights as they were for the EU agreements until 2014 (Table 41).

The costs of MCS services, such as catch certification are not presently invoiced.

4.5.1 Fishing Rights and fishing licences

Most of the revenue collected in the 5-year period came from the Fisheries Agreement with the EU, which included an annual lump sum (fishing rights) and annual licence fees for tuna vessels. It is worth noting that licence revenue from foreign vessels has varied markedly in 2015, 2016 and 2017 after the end of the EU-FA. Annual variations are typical of licence revenues if they are not awarded within a wider agreement framework, especially if they concern highly migratory resources such as tuna. The presence of inter-annual variability in licence revenue could justify the creation of a guarantee fund or provision mechanism to protect from the funding of essential services, such as INIP, licensing and MCS.

Table 41: Government receipts for Fisheries services (2013-2017 10³ Mts, MIMAIP)

RUBRICA	2013	2014	2015	2016	2017
Licenças de pesca industrial estrangeira (atum)	34 382	37 229	33 612	43 417	28 020
Taxas de inspecção de pescado	9 394	10 601	13 449	15 939	19 219
Direitos de pesca (UE)	52 198	68 860	-	-	-
Total	95 974	116 690	47 061	59 356	47 239

4.5.2 Food safety and quality inspection and certification

The law provides for hygiene control measures for fishery products (article 8.f), post-harvest practices (article 67) and for the issue of food safety and product quality certification of products and production units (art. 67). The control / inspection mechanisms (art.95) and the findings of infringements / sanctions (article 102) are exercised by inspectors, without prejudice to the competences of the other specialized administrations. Regulamento Geral para o Controlo Hígio-Sanitário dos Produtos Alimentares de Origem Aquática (Decreto 76/2009 de 15 de Dezembro⁶⁴) has created a service tax for the certification and agreement (art. 17), contributing to the revenue stream of the competent authority (INIP), given in Table 41.

The health and product quality inspection fees are presently not differentiated between national market and exports, or between imports and exports, although it is likely that they mostly correspond to exports. Inspection fee and tax revenue have been increasing markedly by more than 10% per year, and more than doubled over the 5-year period.

The hygiene and food safety licensing of SIF vessels and of on land facilities has been increasing markedly since 2014, leading to increased revenue collection by the INIP. In a similar way it will be important to identify the other services and inspections that are linked to export services, such as catch certification, in order to ensure that they can be provided in a timely fashion, are accounted for and are linked to the corresponding foreign currencies accounts.

4.5.3 Others

Other sources of revenue related to fishing activities are foreseen in the Law:

- Article 69 of the Fisheries Law sets fees to be paid in ports for services rendered to professional fishermen and in support of their activities, but without further indications as to the precise nature of these services and the revenue they generate;
- Article 48.3 of Decreto n.º 74/2017 indicates that the proceeds from the collection of fines imposed in violation of the Fisheries Law (art. 98 to 109) and related regulations (infringement) shall be delivered to the Tax Office of the respective tax area until the last day of the month following the month of collection, which shall be distributed as follows: a) 60% for the Treasury; b) 40% for the entity that has applied the fine, the application of which shall be defined by order of the Minister overseeing the Fisheries area.
- However, the law remains unclear as regards infringement and the control / sanctioning procedure seems exclusively administrative, except for Article 79 in the event of violence or threats of violence or in the event of non-execution (art.85.2) of a binding decision. The framework of sanctions pronounced by the administration is only administrative, including for very serious offenses, for which only fines are proposed with no risk of prison through intervention of judge and courts. On the content of the procedures, there is no precise information, for example relating to the skills of the inspectors.

As it stands, the Mozambican system appears to be similar to a "transactional" framework in which setting the amount of a fine and its immediate settlement avoids criminal prosecution and conviction of the perpetrator by a court.

This type of transaction is quite common, and often decried because it is not necessarily dissuasive or is not transparent. It can, however, be effective provided that it is subject to a strict control framework : setting the amount of fine on a case-by-case basis must be subject to specific conditions (ceiling, time limits and refusal in case of repeat offences), the procedure must be validated beforehand by the judicial authority (which does not seem to be the case here) and its execution must be subject to verification.

It will be important to evaluate the administration's control effort, and analyse the typology of infractions observed and the ratio between offence reports and actual penalties. This is usually the subject of annual activity reports from MCS enforcement agencies that provide important MCS effectiveness and impact indicators.

⁶⁴ See also : Diploma Ministerial n.º 145/2010 : Estabelece os procedimentos específicos referentes aos requisitos hígio-sanitários para a produção de produtos alimentares de origem aquática, nas suas diferentes, fases de produção e transformação (<http://extwprlegs1.fao.org/docs/pdf/moz119234.pdf>)

4.6 Social and environmental importance of fisheries and aquaculture

The production of SSF fisheries has steadily increased in the past decade, to greatly overtake ISIF production in tonnage and value. Unfortunately, the social impact is not clear at present, for a lack of a recent SSF census and general analyses of product flows and value chains. A worst-case scenario could be that a large part of the recent SSF production and value increase is captured by collectors to be exported, with little lasting benefits at local community level.

Without doubt, SSF fisheries have a crucial role to play for the development of fisheries-dependent communities as recognised in the new UN Sustainable Development Goals for 2030 mentioned in the general introduction.

For social and economic development benefits to increase at local level, exploitation rights must also be secured for SSF communities, and benefits must be accessible within accepted boundaries of resources sustainability. The steady and continuing increase in SSF production over the last decade presents numerous challenges for local administrations.

The recent deconcentrating process for government services will become most effective once the capacity of local, district and provincial services is increased. This process goes beyond the requirements of an effective MCS system, but needs to be closely integrated, particularly at local level, between various administrative services, such as for fisheries, health, education and environmental protection, cooperating and operating together naturally.

Indicators of sustainably managed fisheries and aquaculture resources for social benefits need to be devised, for and with local communities. They may include the following:

- Sector's contribution to local food and nutrition security;
- Numbers and roles of women and men dependent on fisheries at community, district and province levels;
- Distribution of local value added;
- Definition and use of local FMPs through training and business support, to manage community ecosystems and resources, including coastal habitat restoration and protection, etc.

4.6.1 Food security and Nutrition

The apparent annual consumption of aquatic products per capita is computed in official statistics as the sum of production and imports, minus exports, divided by the population size estimate for the year.

From official statistics, the apparent consumption has markedly increased (28%) over the period, despite a lower population increase (18%) (Table 42). The apparent consumption increase is driven by a production increase (50%) and equal increase in imports (51%).

Table 42: Apparent annual per capita consumption (aquatic products 2013-2017 kg/year, MIMAIP)

DESCRIÇÃO	2013	2014	2015	2016	2017
Produção (ton)	225 831	258 260	290 913	303 385	340 210
Importação (ton)	52 872	71 628	72 014	71 403	79 087
Exportação (ton)	12 073	11 800	12 877	14 415	14 853
Dispo.e alimentar (ton)	266 630	318 088	350 050	360 373	404 444
População (mil hab)	24 366 112	25 041 922	25 727 911	26 423 623	28 861 863
Consumo per capita (Kg/ano)	10.9	12.7	13.6	13.6	14.0

The numbers are higher than the estimate presented in 2016 by SADC⁵⁴ of 9 kg per person, which made up 40% of total animal protein intake and 5% of total protein intake. The figure of 14 kg/person/year for 2017 shows a significant increase in recent years, if the estimate mentioned in the introduction is assumed to date from 2011 or 2012.

Even though official statistics have to be interpreted with caution, fisheries products are known to be very important for food security and nutritional value, which places an even higher value on best practice in fisheries management and on the development of an effective fisheries MCS system, particularly for SSF fisheries.

4.6.2 Labour and gender aspects

The 2012 SSF fisheries census counted a total of 285 509 fishers, an overall increase of just 2% from the previous census in 2007. However, this hides a bigger increase (+16%) in fishers using a boat/ crew and a decrease (-11%) in the number of fishers on foot. At the same time, the number of fisheries centres was found to have increased by 29% from 2007, to 1 586 across the country in 2012, indicating a possible under-estimation of counted individuals.

In 2012, 55% of the fishers were using a boat as captain or crew, and 45% were not. We note that nearly all women (97%), who represented 18% of all fishers in 2012, fished on foot from the shore.

Table 43: Number of fishers in the 2012 SSF Census (IDPPE)

PESCADORES	Homens	Mulheres	Total 2012	%
Usando embarcação (tripulantes)	155 960	1 505	157 465	55%
Sem embarcação	79 494	48 550	128 044	45%
TOTAL	235.45	50 055	285 509	100%
	%	82%	18%	

The most recent population census information for 2017⁶⁵ shows an overall increase in population numbers compared to 2007, including for the large majority of coastal districts.

Overall population numbers show a year on year increase of 3% until 2016, and up to 9% for 2017, amounting to an 18% increase for the 5 years to 2017. Extrapolating numbers from the 2012 census, it is therefore likely that the number of fishers was around 350 000 in 2017. In the absence of a recent fisheries census (which should have taken place in 2017), it is difficult to assess the social importance of fisheries as an employ, or the impacts of the SSF production increase on local communities.

Information from Fisheries and Aquaculture need to be extended to cover all scales and fishing activities, and analysed in combination with that from the national population census, in order to be able to also monitor the impacts of fisheries sustainable development policies and projects on all sizes of fisheries businesses (not just SSF), and on education, food and nutrition security and health.

4.6.3 Environmental aspects

There are many environmental benefits from sustainably exploited fisheries managed through an ecosystem-based approach. Best practice show that fisheries can promote and sustain the protection, restauration and management of coastal habitats such as mangroves and coral reefs, and can decrease impacts on vulnerable and protected species. These would need to be taken into account by further developing Mozambique's fisheries national and environmental resources accounts of Mozambique initiated in a study from 2014 (NRA)⁶⁶.

4.7 Concluding remarks

Institutional change and budgeting limitations have delayed funding for the 5-year SSF census, and have compromised the collection and centralisation of national statistics. Detailed information is urgently needed to describe and understand the rapid changes taking place, at all scales but particularly in semi-industrial and small-scale fisheries. It would be also very important to have a precise baseline of the sector before the new REPMAR comes into effect with its new definition boundaries of IS, SIF and SSF categories.

Finally, we have also noted a lack of quantitative up to date scientific assessment of Mozambique's fisheries resources sustainable biomass and production levels in all key fisheries, apart from those monitored and managed by the IOTC. Therefore, there is a strong possibility that the present levels of exploitation of many key ISIF and SSF wild fisheries are excessive, that current fisheries resource levels are depleted and therefore that their production cannot be increased in the short-term.

⁶⁵ <https://www.citypopulation.de/php/mozambique-admin.php>

⁶⁶ See Fisher, J., Elfes, C. et al. (2014) Social and Ecological Linkages in Marine Resource Use: A Case Study of the Primeiras e Segundas Archipelago in Mozambique WWF Working Paper, Washington, DC

Present weaknesses of the fisheries MCS system since 2015 make it difficult to rely on official statistics to obtain a realistic and up-to-date image of vessel and licence numbers, for all scales of fisheries activities. The same most likely applies to production figures, and to price information that are used to estimate production value statistics, which are presently of limited meaning. However, these data are the only information available, and for quantities and values, they provide orders of magnitude indicated in Table 44.

Table 44: Total annual fisheries production value (10⁶Mts and 10⁶ USD) 2013-2017 (from MIMAIP)

	2013	2014	2015	2016	2017
Industrial - IF	908	1 079	1 119	1 258	1 645
Semi-industrial - SIF	603	507	712	527	390
Artisanal - SSF	11 271	13 355	17 449	18 272	21 143
Total (10⁶Mts)	12 782	14 941	19 281	20 057	23 178
Mts / USD	30	40	50	60	70
Total (10⁶ USD)	426	374	386	334	331

From these rough indications, it is worth noting that the value of IF catches has increased over the 5 years to reach 1.6 billion Mts in 2017. IF production values have kept up with currency exchange variations assumed for the USD rate as indicated in the table. By contrast, the production value of SIF fisheries has decreased, which probably reflects poor data quality and limited MCS rather than the reality. At the same time, the value of SSF production has increased from 88% to 91% of the whole sector's production value to 23 billion Mts in 2017.

The total USD value estimates presented in Table 44 provide a rough indication of the gross value of the fisheries landed production (GVP), for which official statistics ranged between 331 and 426 million USD per year.

5 MCS ACTUAL AND REQUIRED BUDGETS

5.1 MCS Budget 2013-2017

5.1.1 Sectoral Budget

There is no detailed official budget of past or current MCS expenses to be found. One complication comes from institutional arrangements that had some MCS tasks financed through central MIMAIP budgets, others through the ADNAP and other institutes, via the Ministry central budget, and also through the Provincial budgets. Another complication comes from the Ministry's re-organisation and de-concentration of MCS tasks since 2015, with activities previously financed through now defunct institutions, such as monitoring of SSF activities by the IDPPE.

Therefore, for the sake of simplicity, we assume in the first instance that the entire sectoral budget may be relevant to an MCS system for the management of sustainable ISIF and SSF activities.

The central, provincial budgets are summarised in Table 45, which shows the realised annual operational budgets at central and provincial levels, and investment budgets financed from internal and external sources, between 2013 and 2017.

The recent 5-year period has been exceptional for the MIMAIP, characterised by a budget freeze and for 2017 a major decrease at both central and provincial levels from 2015. Investments have also stayed nearly constant from 2015, with a decrease from own funds just compensated by external sources (Table 45).

Table 45: Fisheries sector operational and Investment realised budgets* (10³ Mts, MIMAIP)

	RUBRICA	2013	2014	2015	2016	2017
Operations	Desp. Funcionamento	343 521	401 705	409 222	449 688	371 643
Central level	Nível Central	207 041	207 565	227 464	225 250	196 986
Provincial level	Nível Provincial	136 480	194 140	181 758	224 438	174 657
Investments	Desp. Investimento	482 309	553 240	757 035	733 985	727 958
Internal	Interno	122 290	271 779	182 575	129 006	117 953
External	Externo	360 019	281 461	574 459	604 979	610 005
	Total	825 830	954 945	1 166 257	1 183 673	1 099 601

* Execução do Orçamento de Funcionamento e de Investimento do Sector (Boletim Estatístico de Pesca e Aquacultura 2006-2017 Edição n°2 – MIMAIP, 2018)

5.1.2 Central Operational Budget

The central sectoral budget covers the Ministry and its agencies (Table 46). Historically, and up to 2014, staff costs made up to 60% of the annual operational budget. That share increased from 2015 to make up 70% of operational costs. In addition to the overall budget decrease, budget cuts in recent years explain the present lack of MCS operational capacity in the field, which was observed everywhere in Studies 1 and 2.

Table 46: Operational Central budget 2013-2017 (10³ Mts, MIMAIP)

	RUBRICA	2013	2014	2015	2016	2017
Staff	Despesa com o pessoal	118 144	123 340	152 860	141 651	137 919
Goods & services	Bens e serviços	86 163	83 191	72 346	81 007	57 590
Transfers	Transf. correntes	2 734	1 034	2 258	2 592	1 477
	Total	207 041	207 565	227 464	225 250	196 986

The central budget proportions between the Ministry and its agencies also changed between 2014 and 2017, although there is no published explanation for these changes. First as a result of the merging of IDPPE and INAQUA into IDEPA, but also from budgetary choices that have sheltered some institutes more than others (Table 47). In percentages, the average decrease in operational budget of 5% appears to be larger for some than others, resulting in a more even spending spread across institutions in 2017 compared to 2014.

Table 47: Operational Central budget in 2017 % by institution 2014 and 2017 (from MIMAIP)

	2014 % by Inst.	2017 (10 ³ Mts)	2017 % by Inst.	2017 vs. 2014
MIMAIP	25%	55 349	28%	6%
ADNAP	8%	22 366	11%	34%
INIP	20%	31 174	16%	-25%
IIP	10%	25 782	13%	23%
IDEPA (IDPPE+INAQUA)	14%	25 173	13%	-13%
FFP	15%	19 603	10%	-36%
EP	8%	17 534	9%	7%
Total		196 981		-5%

5.1.3 Provincial Budget

At provincial level, the staff budget was increased in 2015 and 2016, but not the goods and services, which would have limited the possibilities for field interventions. In any instance, the increased responsibilities of de-concentrated services did not prevent a staff budget decrease of 20% in 2017 from the previous year (Table 48).

Table 48: Operational Provincial budget 2013-2017 (10³ Mts, MIMAIP)

	RUBRICA	2013	2014	2015	2016	2017
Staff	Despesa com o pessoal	85 789	113 690	129 664	167 685	133 449
Goods & services	Bens e serviços	50 192	79 446	51 125	54 815	40 045
Transfers	Transf. correntes	499	1 004	969	1 938	1 163
	Total	136 480	194 140	181 758	224 438	174 657

5.1.4 Investment budgets

MCS investments have been supported from internal and external sources (Table 45). The Nordic Fund was an important source of MCS-specific external investments until 2014. An 5-year investment project, part of the World Bank SWIOFish1 suite of projects, was planned to start in 2015, through a mix of loan and grants. Presumably, it formed most of the external investments up to 2017, although the Boletim Estatístico does not provide details.

5.1.5 Central budget arrangements

Presently, the present central budget reporting arrangements do not give details for DNOP-specific costs or budget rules. Budget restrictions put in place since 2015 coincide with the phasing out of external funding for the ISIF patrol vessel, which has since then severely limited the DNOP operational capacity. Key features of the current budget arrangement for a ministerial department of the MIMAIP such as the DNOP are given in Table 49. Although these budgeting constraints could be solved internally through specific budgetary procedures and dedicated budgeting rules, the budget and financing arrangements possible for semi-autonomous institutions such as the ADNAP (see section 3.2) appear to be more suited for the DNOP to manage the necessary Fisheries Surveillance investments and operations.

Table 49: SWOT analysis of DNOP budget arrangements

Ministerial Department	
Strengths	Relative stability of core funding
Weakenesses	Little budgeting visibility and transparency for DNOP separately Little or no budget flexibility to cover emergency operations
Threats	Operational budget reduced as part of general public spending reduction obligations Specific operational budget needs for Surveillance operations are not funded
Opportunities	Centrally managed external budget support funding (Ministry and FFP).

5.2 Revenue sources 2013-2017

Non-monetary benefits from wild fisheries are numerous and significant. Some key aspects (food security, nutrition, gender and labour, environmental) are mentioned in section 4.6. They are extremely important to the sustainable development of Mozambique's economy. However, only monetary benefits are reviewed below.

5.2.1 Traded catch

The bases for pricing the newly introduced fishing rights (*direitos de pesca*, section 3.5) are not published at present, but these are normally related to the expected revenue stream over a period of time, a function of the expected production tonnage and trading value. We reproduce part of Table 44 below, with an indication of production value in Mts and USD and percentages for IF, SIF and SSF in 2014 (baseline year) and 2017 (Table 50). In percentage terms, even allowing for substantial misreporting or missing statistics of semi-industrial fisheries from 2015, it is clear that Mozambique's fisheries trading value lies with its SSF, in addition to its social value. However, until the quality of published statistics improves, production potential for the main fisheries and stocks are updated and the allocation of fishing rights remains within said potential, including all catches, it is difficult to predict future revenues from the information currently available.

Table 50: Reported trading value for IF, SIF and SFF production in 2014 and 2017 (million Mts and million USD)

	2014	2014 %	2017	2017 %
Industrial - IF	1 079	7%	1 645	7%
Semi-industrial - SIF	507	3%	390	2%
Artisanal - SSF	13 355	89%	21 143	91%
Total (10⁶ Mts)	14 941	100%	23 178	100%
Mts / USD	40		70	
Total (10⁶ USD)	374		331	

5.2.2 Revenue from Fisheries Services 2013-2017

Fishing rights, or fisheries concessions were part of the European Fisheries Partnership Agreement (FPA), and represented a sizeable source of revenue for the Treasury (Table 51) until 2014. So far, they have not been replaced by other national or international-level tuna fisheries access agreements.

At this stage, there seems to be no project to introduce fishing rights for SSF, in the form of community rights or other. It is not clear how much of the sustainable Total Allowable Catch (TAC) will be allocated through rights. There is a risk that most of the fisheries production potential could be privatised to ISIF operators in the form of tonnage while SSF fishers in coastal waters (3 nautical miles) would be left to catch non-allocated over-quota and therefore IUU fish.

Until the new legislation comes into force, in 2018 and 2019 (see section 3), the main source of revenue from Fisheries Services has been from national ISIF fishing licences (Table 51). The decrease in MCS system effectiveness and activities (section 4.2) is clearly visible from 2015, with a decrease in licence numbers, licence revenues and absence of fines for the national fleet.

Table 51: Revenues from fishing rights, licence and inspection fees (10³ Mts MIMAIP)

		2013	2014	2015	2016	2017
Licences IF	Licenças de pesca Industrial	18 311	82 278	77 179	82 396	78 764
SIF	Semi-industrial	10 427	11 039	15 821	11 412	18 418
SSF	Pesca artesanal	1 444	1 834	2 638	1 170	1 901
Sport fishing	Recreativa e desportiva	1 885	1 563	1 898	1 423	2 358
Fines	Multas	-	1 790	-	-	-
Carried forward	Cobranças atrasadas	15 405	11 067	3 572	117	107
National fleet	Subtotal (Frota Nacional)	47 472	109 571	101 108	96 519	101 548
Tuna foreign licences	Licenças de pesca industrial estrangeira (atum)	34 382	37 229	33 612	43 417	28 020
Total fees	Subtotal (Licenças de pesca)	81 854	146 800	134 720	139 936	129 568
Food safety Inspection Tax	Taxas de inspeção de pescado	9 394	10 601	13 449	15 939	19 219
Fishing right (EU)	Direitos de pesca (UE)	52 198	68 860	-	-	-
Own funds	Receitas próprias	8 222	16 158	16 514	21 811	24 707
	Total (10³ Mts)	151 668	242 419	164 683	177 686	173 494
	Mts / USD	30	40	50	60	70
	Total (10⁶ USD)	5.056	6.060	3.294	2.961	2.478

The end of the EU fisheries agreement is also clearly visible, with a decrease in foreign tuna licence revenue after 2014. Using past exchange rates to obtain equivalent USD values (Mts / USD Table 51), revenues from rights and services amounted to 2.5 million USD in 2017.

Altogether, there was some small increase in the MIMAIP's own funds after 2015 (not detailed), but by 2017 the public sectoral budget was decreased by 28% when compared to 2014. This happened at the same time as the numbers of ISIF vessels and SSF fishers and fishery-dependent people increased, putting added pressure on decreasing government service capacities at central and at provincial levels.

5.3 MCS Strategy Budget needs

5.3.1 Fisheries management costs

A review by the OECD⁶⁷ from 2000, which is still pertinent, split fisheries management activities into research, management (licensing, and management planning) and surveillance and enforcement services. At the time, a survey, estimated management costs between 6% (15 European countries) and 18% (USA) of the landed value of the catch. On average, an updated study found that surveillance and enforcement costs were the highest contributors and made up 43% of management costs for the 21 OECD countries, or approximately between 3% and 8% of the landed value of the catch⁶⁸.

5.3.2 Mozambique Fisheries management costs

There are some complicating factors with estimating the costs of fisheries management (including MCS) in Mozambique at present:

1. The recent de-concentration of fisheries administrations from a central to the provincial level, has created important changes in costs and revenues at all levels;

⁶⁷ <https://www.cbd.int/finacial/finplanning/g-costfisheries-oecd.pdf> and OECD. 2003. The costs of managing fisheries. Paris: OECD

⁶⁸ <https://www.oceanprosperityroadmap.org/wp-content/uploads/2015/05/6.-Country-Level-Costs-vs.-Benefits-Fishery-Management-Report-5-26-15A.pdf>

2. Ministerial budget freeze and budget reductions from 2015 have resulted in a loss of staff, skills and operational means that will need to be re-built;
3. An important consequence of the two processes mentioned above is a dramatic decrease in data acquisition and data quality, which would be essential for a detailed budget estimation;
4. Finally, the change in fisheries management regime to fishing rights and multi-annual concessions (similar to “catch shares - CS” in the USA) introduced in 2017 and 2018 is known to be more costly to manage than open access (OA) or output controls (OC), which have prevailed in SSF and ISIF management respectively until now.

Several academic studies have found that, for most fishing nations, management upgrades (the move from OA or OC onto CS) outweighs their associated costs⁶⁹. However, it also seems that strong reforms, such as moving to rights-based management (RBM), are sometimes more expensive to implement and may increase management costs by 40% (median value)⁶⁹. The increase is not just for MCS-related activities, it is also necessary for research, licensing and administration. The greater net economic benefits expected of RBM, such as increased revenues for management, improved fishing conditions resulting in improved economic performance and therefore a larger tax base for fisheries charges, usually take some years to materialise.

Therefore, it is proposed to estimate the required fisheries MCS budget for Mozambique from several angles. First, to use the 2014 budget for MCS, complemented by an average annual investment budget, as it was formulated for the SWIOFish1 project in 2015, for activities that were considered essential at the time. Second, the generic budget is checked against proposals made in studies 1 and 2. Finally, figures for the costs of ISIF MCS are increased by 40% to take account of increased costs linked to the new rights-based management system mentioned above. Additional assumptions are proposed to split budget needs between ISIF and SSF and between Central and Provincial. They are detailed below.

5.3.3 MCS budget in 2014 with SWIOFish1

For MCS activities and the government fisheries sector budget, 2014 is considered in this analysis as a standard year. For ISIF Surveillance, the VMS satellite system was in use and the Antilla Reefer patrol vessel was operational. The DNOP (then DNFP) was working in close collaboration with ADNAP for Monitoring and Control. For SSF, the IDPPE and IIP were working actively through extension specialists based with the Institutes’ Provincial delegations. The 2014 annual report (Balanço Anual 2014 do Plano Económico e Social (PES) do Sector pesqueiro) provides the following indicators of Surveillance activities:

- 250 days patrol at sea with fisheries surveillance vessels;
- 250 days patrol on land;
- 200 days river patrols.

Operational budgets covered Staff (59%) and Goods and Services (40 to 41%) costs, with the same proportions at Central and Provincial levels (Table 52).

Table 52: Fisheries budget in 2014 (10³ Mts from MIMAIP)

	Central Operations 2014	Provincial Operations 2014	%
Staff	123 340	113 690	59%
Goods & services	83 191	79 446	41%
Transfers	1 034	1 004	1%
Total Operational	207 565	194 140	100%
Total Investments	553 240		

In 2014, the Central operations budget was 6.5% higher than the overall Provincial budget (see Table 46) and investments were centrally managed. Investments may be split according to their origin, internal (State budget, Common Fund, Consigned revenues) or external (e.g. European Union, foreign grants). It is recommended that to improve accounting transparency in the future, both Operations and Investment budgets be detailed in the annual reports, by Province and separately by central departments and agencies.

⁶⁹ Mangin T, et al. (2018) Are fishery management upgrades worth the cost? PLoS ONE 13(9): e0204258.

With increased responsibilities regarding SIF and SSF fisheries management, including MCS, Provincial Operational budgets will have to be increased significantly in the coming years, most likely to at least 4 times the budget for Central operations. We consider a bracket between 60% to 80% (Table 53).

Figures from the 2014 PES indicate that MCS-specific DNFP's spending (*despesas realizadas na DNFP no ano de 2014*), including from internal and external investments, together with ADNAP's operational and investment budgets, represented nearly 20% of the Ministry's total budget for the year. We shall use the proportion of 20% to estimate the 2014 MCS-specific budget, for Operations and Investments given in Table 53, also given in USD, using an exchange rate of 40.

The SWIOFish1 project budget for Mozambique was 37 million USD, of which 55% were originally programmed to develop and strengthen Mozambique's fisheries and aquaculture management system, which is highly relevant to a functional MCS system, such as research, information systems, fisheries management planning and capacity building. It also included an exceptional investment of 2.5 million USD to contribute to the construction of the regional SADC MCS Coordinating Centre building, which is not included in the estimates below.

Specifically, for MCS (DNFP+ADNAP) the planned budget was equivalent to 1.9 million USD per year covering activities for ISIF and for SSF. To account for the numerous SWIOFish1 MSC-specific project activities to manage, a global amount of 20% was added to operational costs, in addition to the government budget for 2014 (Table 53).

Apart from specific mention of activities to strengthen co-management systems (CCP) at local level, the SWIOFish1 project was formulated before the administration de-concentration reform, and therefore the project documents do not have indications of central or provincial budgets.

Altogether, on the basis of the sector budget in 2014 and investments programmed in 2015, a budget of 7 million USD per year was estimated to be necessary for Mozambique to develop and maintain a performant MCS system. It is the annual lower basis of our financial analysis. The higher estimate of 10 million USD per year is obtained from a 40% MCS costs increase linked to the fisheries management reform.

Our computations are quite approximative. Compared to the 2014 production landed value of 374 million USD (Table 44), MCS-specific costs of 10 million USD/year would represent 2.7%, which is lower than the bracket between 3% and 8% of the landed value mentioned in a recent review of reviews⁶⁹. However, these were estimated mainly for ISIF fisheries, which usually demand higher MCS investment and operational budgets.

5.3.4 ISIF and SSF MCS budget shares

The first priority for all levels of government must be to put MCS systems in place that ensure a 100% licensing rate and catch declaration in order to eradicate IUU activities; together with adequate and dedicated monitoring and evaluation (M&E) system.

For ISIF, 100% fishing licensing rate has to be achieved urgently within 2 to 3 years maximum, to accompany the food safety licensing of INIP with complete catch and traceability certificates, for all vessels and trading establishments, in particular for the recently developed semi-industrial activities that are presently not reported in national statistics. For catch declarations, priority will be given to fisheries with high IUU risk ratings (see Studies 1 and 2). Following a campaign of information to allow some unlicensed and unreported activities to be voluntarily declared, illegal activities will have to be stopped by MCS teams, perpetrators will need to be verbalised and brought to justice, and black lists of individuals and firms established so that those convicted of being involved in IUU fishing or trading in IUU products in one fishery cannot hold licences in another, or in another Province.

Reaching 100% licence coverage will take more time for SSF, and realistic targets will have to be set, at local, district and Province level for the next 5 years, which will guide the allocation of dedicated resources. In each Province, priority must be given to SSF activities exporting their catch (directly or through collectors – who should also be licensed), aiming to eradicate IUU sources for exported products within 3 years.

Table 53: Estimated necessary MCS-specific budget (10⁶ Mts and 10⁶ USD)

	MCS 2014 10 ⁶ Mts	MCS 2014 10 ⁶ USD	SWIOFish1 avg year 10 ⁶ USD	Total = proposed min / year 10 ⁶ USD	Proposed Max / year 10 ⁶ USD
<i>Central Operations</i>	41	1.0		40%	20%
<i>Provincial Operations</i>	39	1.0		60%	80%
Total Operational	80	2.0	0.4	2.4	3.4
Total Investments	111	2.8	1.9	4.7	6.5
Total	191	4.8	2.3	7.1	9.9

Fisheries MCS budgets are mostly set as a function of fishing activities (numbers of vessels, gear, fishers, traders) and the production trading value. On these bases, the MCS budget for SSF would be very much larger than that for ISIF. However, co-management arrangements are known to bring costs down with improved compliance, through simpler, better known, more legitimate and realistic regulations and through peer pressure. Main costs are for extension staff, training and support of local communities, therefore more towards operational costs with smaller equipment budgets. Staff and equipment needs are detailed for selected Provinces and districts in Study 2 report.

5.3.5 MCS Central and Provincial budget shares

As already noted in this report (section 4.7), detailed figures of central and provincial government funding and spending were not available to the consultants for this study. Therefore, it is not possible to go beyond the assumptions made above regarding the last 5 years.

The clamp down on IUU fishing needs to be exemplary at all levels for ISIF activities. The relative severity of the problem and IUU risks by fishery should guide budget allocations between Provinces, and between Central and Provincial levels, with the setting of precise targets and M&E indicators.

There are some indication in the recent and forthcoming legislation as to the allocation of specific tax revenue, from fishing rights and fishing licences to specific components of fisheries management, including “administration” or “control/ inspection” (sections 5.2.2 and 6.3), but there is no indication as to the expected revenue and sharing basis between Central and Provincial government budgets.

In all instances, Operational budget will need to reflect the split of tasks between Central and Provincial levels. The proposals for Staff recruitment for Province (DAMAI / DPMAIP), District (SDAE) and Antenna teams made in Studies 1 and 2 will have to be validated and programmed over several years, with a priority given to training of existing staff that ensure career and skills development (Services). The other priority is to provide adequate equipment (Goods), including some which may be centrally procured, and the necessary annual budget to ensure their working order and replacement.

The sharing of investment budgets and financing of specific investments between Central and Provincial levels will be a matter for government to decide and program. Equipment, operations and maintenance costs will need to be estimated for each Province, on the basis of up-to-date statistics for the number of fishers, gear and vessels to be licensed, and controlled/ inspected. The characteristics of priority large equipment to be purchased (cabin and open-deck patrol boats, 4x4, motorbikes, quad) by province DPMAIP / DAMAI and local representations are given in Study 1 (Annex 9) and Study 2 (Annex 7), the same for small equipment.

Depending of institutional strengthening and task sharing arrangements, we suggest that the present 40-60% share between Central and Provincial budgets could evolve to 20-80% to reflect the overall national importance of SSF and of SIF activities in most Provinces (Table 53).

Finally, it should be noted that large investments, such as proposed for a building to host the regional SADC MCSCC (SWIOFish1 2.75 million USD), for a dedicated offshore patrol vessel (5 million USD MIMAIP) or for a dedicated aircraft (2.5 million USD MIMAIP), are not included in the proposed MCS budget at this stage. They would be part of exceptional investments, which haven’t been programmed yet. In addition, the need to acquire a dedicated offshore patrol vessel or an aircraft does not seem to be compelling (Study 1) and chartering costs, including asset management and a trained crew, would be included in the 9.9 million USD annual budget mentioned above.

5.4 Budgets for the proposed MCS Strategy

The MCS Strategies proposed in Studies 1 (ISIF) and 2 (SSF) have been translated into 5-year Operational Plans summarised as roadmaps outlining the recommended measures along with priority level (High, Medium, Low), institution(s) responsible and timeframes, for three strategic objective (SO):

- SO 1: Strengthen the MCS system at national and provincial levels;
- SO 2: Ensure a persuasive legal framework capable of eliminating IUU fishing activities;
- SO 3: Develop international and regional cooperation.

For each of the SO, costs are estimated by activity and summarised into three categories, the costs common to both ISIF and SSF MCS development and operations, and costs that are specific to ISIF and to SSF MCS systems separately (see Tables in Annex 4, Section 7.4).

The estimated overall budget estimates are given in Table 54, they are close to the overall budget estimated above (Table 53), noting that the proposal for a patrol vessel for ISI fisheries detailed in Study 1 is to first rent a 24-30m patrol vessel at an annual cost of USD700 000 and then to buy a second fishing vessel and refit it to purpose at a total cost of USD500 000, therefore the corresponding investment cost is not indicated in Table 49.

Table 54: Budget estimates for the MCS Strategies (USD)

Draft Strategy Budget	Investment costs	Operational costs / year
SSF and ISIF strategies	3 692 100	909 000
ISIF Strategy*	61 000	1 880 000
SSF Strategy	400 000	345 000
Total	4 153 100	3 134 000

* See Study 1 for ISIF patrol vessel

From the ISIF and SSF Strategies detailed costs, it is also possible to show the detailed investment (Table 55) and operational (Table 56) proposed budgets by institution (MIMAIP, DNOP, ADNAP and DPMAIPs), common and specific to the ISIF and SS strategies.

Table 55: Investment budgets by institution for the MCS Strategies (USD)

	MIMAIP	DNOP	ADNAP	DPMAIPs
SSF+ISIF	25 100	892 000		2 775 000
SO1 - Strengthen the MCS system at national level	25 100	829 000		2 775 000
SO2 - Ensure a persuasive legal framework		63 000		
ISIF			61 000	
SO1 - Strengthen the MCS system at national level				
SO2 - Ensure a persuasive legal framework			61 000	
SO3 - Int'l and Regional cooperation				
SSF		65 000	335 000	
SO1 - Strengthen the MCS system at national level		25 000	95 000	
SO2 - Ensure a persuasive legal framework		40 000	240 000	
Grand Total	25 100	957 000	396 000	2 775 000

Table 56: Operational budgets by institution for the MCS Strategies (USD)

	MIMAIP	DNOP	ADNAP	DPMAIPs
SSF+ISIF		40 000		869 000
SO1 - Strengthen the MCS system at national level		40 000		869 000
SO2 - Ensure a persuasive legal framework				
ISIF		1 880 000		
SO1 - Strengthen the MCS system at national level		1 720 000		
SO2 - Ensure a persuasive legal framework				
SO3 - Int'l and Regional cooperation		160 000		
SSF		60 000	175 000	110 000
SO1 - Strengthen the MCS system at national level		55 000	85 000	110 000
SO2 - Ensure a persuasive legal framework		5 000	90 000	
Grand Total		1 980 000	175 000	979 000

It is important to note that the field diagnostic established in Study 1 and Study 2 shows that numerous investment and operational budget needs are common to both ISIF and SSF, particularly at provincial-DPMAIP level. Therefore, for all institutional levels involved, from the MIMAIP investments (Table 55), the DNOP, ADNAP and DPMAIPs investments and operations (Table 55 and Table 56), activities to implement the ISIF and SSF MCS strategies will have to be closely coordinated.

The Investments budget is highest for Fisheries Surveillance (DNOP), especially for the ISIF, but the Operations budget is highest for the DPMAIPs that are responsible of the Surveillance and MCS generally for important parts of the ISI Fisheries and all the SS Fisheries.

These estimates provide a basis to analyse sustainable financing options in the next section.

6 SUSTAINABLE FINANCING OF MCS BUDGETS

6.1 Introduction

A study by KPMG published in 2016⁷⁰, looking at Adequacy of the Fishing Sector Tariff Schedule examined a number of revenue streams that would allow the MIMAIP and all its components, ministerial departments including the DNOP, research and extension institutes (IIP and IDEPA), training school and agencies (ADNAP, INIP and Fishing Ports) to balance their expenditures from their own generated revenues (receitas proprias) instead of internal and external government generated funds. We have used the baseline year of 2014. However, our estimates of budget needs to support the MCS strategies appear to be much larger than foreseen in that study. Using an exchange rate of 70 Mts/ USD, estimates given in Table 54 are around 300 million Mts for investment costs per year over 5 years at least and in excess of 200 million Mts per year for operational costs and (Table 57) to support the MCS strategies.

Table 57: Budget estimates for the MCS Strategies (10³ Mts and USD)

Draft Strategy Budget	Investment costs	Operational costs / year
SSF and ISIF strategies (10³ Mts)	258 447	63 630
ISIF Strategy* (10³ Mts)	4 270	131 600
SSF Strategy (10³ Mts)	28 000	24 150
Total (10³ Mts)	290 717	219 380
Total (USD)	4 153 100	3 134 000

Standard fisheries bio-economic literature has estimated potential economic rents in fisheries to typically range from 10-60% of the gross value of landings (GVL)⁷¹. For Mozambique in 2014 GVL was estimated at 374 million USD (Table 44). Therefore, an extraction of even 10% rent could cover all fisheries management costs, including the 7 to 10 million USD per year estimated necessary for MCS activities.

Two complementary tax collection avenues have been opened in the new legislation following the KPMG report of 2016, one through fishing rights (taxas de direitos de pesca) and the other through licence fees (taxas de licença de pesca), which normally target private sector profits and public sector costs in different ways. They are examined separately.

Contrary to the KPMG report of 2016, we do not foresee that the fisheries sector should pay for itself, for a number of reasons, especially because of the social and nutrition benefits that fisheries bring to the people of Mozambique. Therefore we also examine complementary external sources and mechanisms for the sustainable financing of the MCS strategies (sections 6.4 and 6.5). Some mechanisms are specifically designed to improve financing sustainability of environmental and conservation projects, and to enhance climate change adaptation and mitigation strategies. External finances may combine loans at discounted rates with grants and fiscal revenue. We recommend that these new mechanisms be considered as soon as possible to contribute to restore marine ecosystems such as mangroves, coral reefs and freshwater flood plains habitats, that are essential fish and shellfish habitats and have very high natural capital values. Habitat restoration and ecosystem protection is urgently needed to phase out destructive practices such as xicocotas and reduce fishing activities for presently over-exploited fisheries resources, in order to restore their full sustainable production potential.

6.2 Fishing rights and Concessions

Fishing rights are often calculated on the basis of the first sale value of the products (see Section 5.2), summarised for 2017 separately in Table 58. The primary importance of Mozambique's SSF production in terms of volume and value already noted means that rights and concessions regimes adapted to SS Fisheries will need to be devised, that ensure that both the market value and the social roles that they play are fully recognised.

⁷⁰ Adequação do Quadro Tarifário do Sector Pesqueiro - Adequação do Quadro Tarifário, KPMG 2016, 135p.

⁷¹ Keizire, B., 2001. Opportunities and Options for Financing Fisheries Management in Uganda, 53p.

The SSF MCS Strategy is expected to play a crucial role, to ensure that some rent is collected in order to support its management system, but also to ensure that natural resources from coastal and inland waters bodies are exploited sustainably and continue to enable development of local community livelihoods.

Table 58: Estimate of Fisheries production 1st sale value (10³ Mts and USD)

Fisheries sector 1 st sale value 2017	10 ³ Mts	USD
1st sale value 2017 Industrial Fisheries (IF)	1 645 000	23 500 000
1st sale value 2017 Semi-industrial Fisheries (SIF)	390 000	5 571 429
1st sale value 2017 Artesanal Fisheries (SSF)	21 143 000	302 042 857
Total value (USD)	23 178 000	331 114 286

6.2.1 ISIF Fishing Rights – Resource rent

Fishing rights are most often collected for the wider public purse (Treasury) benefit, not directly to cover fisheries management costs. In countries where fishing rights may be privately owned and traded by the owners, treasury collects taxes on their capital value and on the rent they generate.

Fishing rights, concessions, effort or quota shares such as set in the proposed legislation and new decree (see section 3.5) have become widespread in fisheries management. The underlying principle is one of conventional economics, that private enterprises should be charged rent for the use of a public good. The extraction of a specific rent aims to capture some of the private benefits that arise from exploiting a sustainably managed natural resource, and also to ‘internalise’ some of their activities’ environmental costs by making some fishing techniques or gear much more expensive than other. The basis intent is also to correct for the effects of direct and indirect environmental impacts (“externalities”) such as on i) the targeted stock (excessive fishing mortality, discards), ii) the fishery’s ecosystem (other fish species, protected species, impact on habitats and food webs), and iii) climate-related impacts from fuel use. In that sense, they are an economics’ answer to both the ‘user-pays’ and the ‘polluter-pays’ principles. In addition, right holders are all bound to provide timely information and collaborate with government authorities monitoring and research programmes.

The fishing rights detailed in the Decree n°74/2017 are relatively short-term, 3 to 12 years depending on the fishery, and are not tradeable but are transferable. They include some stipulation about the maximum fishing capacity allowed, but their main specifications concern employment of national workforce and investments in the sector. In this sense, they are similar to commercial concessions granted in the Tourism industry, for example, for which “a concessionaire pays a fee for the right to undertake a commercial operation in a Protected Area (PA), in accordance with the ‘user-pays’ principle.” Some of the revenue from the concession fee is directly retained by the PA management system (through a park account or environmental or conservation trust fund⁷², and can become a significant and sustainable source of finance⁷³.

To this effect, the decree (section 3.5.2) includes provisions for the distribution of the taxes collected (art. 46) including 20% for the financing of fisheries control/inspection. Without the analyses that led to the proposals and up to date statistics, it is not possible to estimate the sums that are expected to be collected or to gauge the potential effectiveness and sustainability of this new regime. Training and strengthening fisheries administrators and tax collection officials will be essential to a successful application of the new system. The same remarks apply to the new licensing regime described below.

6.2.2 Fishing rights for SSF

As previously mentioned, the new law does not introduce fishing rights for SSF. Yet, there is ample academic research and examples of SSF fisheries that demonstrate how exclusive collective area-based rights provide an opportunity for fishers to invest in the future of their resources, and help strengthen local organizations and capacity for collective action that are essential for fisheries co-management and for anticipating and adapting to change⁷⁴.

⁷² https://www.undp.org/content/dam/sdfinance/doc/Environmental%20Trust%20Funds%20_%20UNDP.pdf

⁷³ <http://www.undp.org/content/sdfinance/en/home/solutions/Concessions.html>

⁷⁴ Finkbeiner et al, 2018. Local response to global uncertainty: Insights from experimental economics in small-scale fisheries. *Global Environmental Change* 48 (2018) 151–157.

SSF community or area-based rights will be particularly crucial to manage fisheries targeting resources that are shared between IF, SIF and SSF, such as coastal water prawns, some demersal fish and small pelagics species that need to allocate TAC shares to SSF and local communities who are often custodians of essential habitats such as mangroves, coral reef and estuaries.

6.3 Fishing licences - Cost recovery (ISIF and SSF)

Fishing licences, including Recreational and Sports fishing permits are similar to Tourism user fees. Most often licence fees are set to cover the costs of sustainable (protected area) resource management and generally per person, per day, per service used. etc. The revenue generated is usually entirely dedicated to supporting operational costs of management and environmental protection activities, such as MCS. The taxation basis is therefore normally very different from that of fishing rights mentioned above. It is based on the cost of management, not on the market value of the fisheries resource.

Cost recovery provides important source of sustainable funding. A comparison published in 2016 estimated that it amounted to 65%, 39% and 36% of management costs in Iceland, New Zealand and Australia respectively⁷⁵. An example is given below.

Therefore, cost reductions are important contributions to any sustainable MCS system provision. Some key avenues are would be:

- More effective uses of technology equipment for:
 - a. Information collection and management including: data entry, data validation, landings data checks against expected information (species, products sold, fishing areas, quantities reported etc. This is routinely used in the EU to establish IUU risks of domestic trade and imports;
 - b. Surveillance of fishing vessel activities, with maps of spatial patterns and alerts through i) VMS, in-out of zone reports and port use for ISIF vessels; and ii) AIS signals for smaller vessels and fishing gear;
 - c. Use of effective means of land and sea patrols, with vehicles and vessels of appropriate sizes and types, adapted to the type and level of MCS risks identified;
 - d. Regular and systematic information sharing with collaborating agencies at national (navy, coast guards, port authorities, Food hygiene and food safety, customs, police etc) and international levels;
- Co-management arrangements with fishing companies (ISIF), with individual fishers at community level (CCPs), and with merchants in order to ensure a clear understanding of the law and regulations and collaboration from law abiding fishers to create peer pressure and encourage compliant behaviour;
- Improved level of compliance resulting in a significant decrease in MCS risks, itself resulting in a decreased need for patrols and controls and therefore decreased MCS costs.

As already noted, the licensing system in place is not clearly defined as a cost-recovery scheme. Its contribution to revenue collection is given for the year 2017 in Table 59. There is no published basis for the catch value of sports fishing activities or for the tuna fisheries that would make it possible to estimate licence revenues as a percentage of the corresponding catch value. However, for Industrial and Semi-Industrial Fisheries, the various estimates available, which are very probably under estimates in terms of catch value, show licence costs represent just below 5% of the catch value. The percentage is very much lower (just under 0.01% or 9Mts for 100 000 Mts of product sale value) for SSF, and would definitely not cover the costs of issuing or renewing a licence, or the costs of Surveillance.

⁷⁵ Marchal, P., et al. (2016). A comparative review of fisheries management experiences in the European Union and in other countries worldwide: Iceland, Australia, and New Zealand. *Fish and Fisheries*, 17(3): 803-824.

Table 59: 2017 fishing licence revenue and % of 1st sale value (USD assuming 70 Mts/USD)

Fisheries sector internal revenue	Revenue collected 2017	2017 apparent fee %
Fishing licences Industrial Fisheries (IF)	1 125 200	4.79%
Fishing licences Semi-Industrial Fisheries (SIF)	263 114	4.72%
Fishing licences Artesanal Fisheries (SSF)	27 157	0.01%
Sport fishing	33 686	
Tuna foreign licences	400 286	
Total (USD)	1 849 443	

6.3.1 Australian cost-recovery fisheries levy example

Australian fisheries and aquaculture activities are managed by the Australian Fisheries Management Authority (AFMA), an agency of the Department of Agriculture and Water Resources. The Department and AFMA also have offices in each State, akin to Mozambique's Provinces. An important feature of Australia's fisheries management is its longstanding levy mechanisms that aims to recover the annual costs of managing fisheries from concession (fishing rights, see above) owners, including the costs of MCS activities. The Australian government also contributes to fisheries management costs. The allocation of the costs recovered is published annually. In 2017-18, it was distributed between Policy support (4%), Research (including scientific observers - 18%), Licensing administration and revenue collection (10%), and management (including MCS) of domestic fisheries (33%) and Data collection and management (35%)⁷⁶.

Levies are set separately by fishery, which requires specific accounting, and are presented and discussed with stakeholders each year prior to publication. Within a specific fishery, levy rates also vary depending on the permit held, by species targeted, type and size of gear and vessel, fishing area, and /or per tonnage for fisheries managed by a quota system. Therefore, depending on the type of fishing activity a specific vessel may be subjected to multiple levies if it uses several gear types or is active in several fisheries.

In addition, fees are charged to process licence application or logbook information submitted on paper (per day), but not for information submitted online with the government system, by contrast with the New Zealand fisheries administration, which charges levies and fees for all services, including for electronic data submission⁷⁷.

An important aspect of the Australian system, is that administrative and MCS costs are limited by efficiency targets for government services and by improved compliance from co-management and concession / rights holders. Their fisheries management cost recovery scheme has increased more slowly than inflation because of AFMA's cost savings and efficiency gains over the years. This feature increases the likelihood of sustainable financing.

Finally, for Australian fisheries, the de-centralised government offices (on a scale equivalent to provincial DPMAIP) conduct compliance risk assessments every 1 to 2 years in major fisheries and for fisheries perceived as being at high risk, and every 3 to 5 years in minor fisheries. The process may involve the participation of management, field-based Fisheries Officers, researchers, commercial and recreational fishers, fish processors, and representatives from other interested stakeholder groups. The level of compliance and enforcement is regularly evaluated across the range of input and output managed fisheries with a view to optimising the efficiency and effectiveness of the overall compliance program".

Very importantly, success, in terms of fisheries compliance, has to be monitored. An example of indicators used by AFMA is given in Table 60, which target an expected result and specific expected outcomes that guide the MCS activities planning. In this example, it is important to note that an indicator or result/ impact extends to the number of administrative / criminal prosecution, which is always an important step of a successful MCS system.

⁷⁶ See https://www.afma.gov.au/sites/default/files/afma_levy_arrangements_guide_for_2018-19.pdf

⁷⁷ <https://www.fishserve.co.nz/information/fees-and-levies#ScheduleFees>

Table 60: Fisheries Compliance Performance indicators (from AFMA, 2016⁷⁸)

Planned result	Defining success/ Intermediate Performance indicators outcomes	Performance indicators
High level of compliance with regulations in commercial fisheries	Low rate of illegal (under-sized) catch landed	Rate of illegal catch per 1 000 fish measured at landing Nb of licensed vessels fined or prosecuted as a proportion of all vessels licensed
	Fishers perceive a high probability of detection	Qualitative evaluation of community perception using focus groups
	Reliable recording of bycatch and discards	Low rates of catch report errors
	Sustainable stocks	Biomass levels; fishing mortality

The principles and design of MCS cost-recovery mechanisms is to first have clearly understood management objectives and management rules. Research undertaken in the Western rock lobster fishery in Western Australia, which supports SIF, SSF and recreational catches, for example, illustrated that compliance resources would be optimally utilised when enforcement effort is designed to maximise the potential for fishers to voluntarily comply with management rules, while at the same time providing a reasonable threat of detection, and successful prosecution, with significant penalties⁷⁹. A fisheries management risk-based approach to compliance demonstrated in Studies 1 and 2 helps ensure that the MCS system is cost-effective.

6.3.2 Mozambique new fishing licences

For fishing licence, the new licensing regime (2017 Decree) stipulates that fees are collected at different administrative levels, according to the category of fishing activity, by the District (artisanal), the Province (semi-industrial) or the Ministry (industrial).

The licence fees collected would be shared as follows:

- ISIF+ others: Tax revenue of industrial, semi-industrial, coastal recreational and sport fishing license fees shall be delivered to the Tax Office of the respective tax area until the last day of the month of collection. It shall be distributed (in the same way as for fishing rights) as follows: a) 40% for the Treasury; b) 25% for the financing of fisheries control/inspection; c) 5% for the financing of fisheries management; d) 10% for the financing of scientific research; e) 20% for financing the development and promotion of fisheries and aquaculture .
- SSF: Tax revenue from artisanal fishing licence fees shall be delivered to the Tax Office of the respective tax area until the last day of the month of collection, which shall be distributed as follows: a) 40% for the Treasury; b) 30% for local fisheries management and surveillance; c) 10% for research; and d) 20% for financing the development and promotion of fisheries and aquaculture.

Given the very recent adoption of this text, it is not possible to ascertain the level of tax collection and revenue. Although there are indications that taxation has been initiated⁸⁰. There is a great need for robust targets and meaningful indicators by fishery gear types and by fishery to guide MCS partners. Any sustainable financing mechanism(s) would demand the MCS system or system components and activities to be regularly monitored and evaluated for their cost-effectiveness.

Using very conservative percentages of the most likely grossly underestimated catch value for fishing licences and fishing rights, provides a potential revenue estimate of USD4.4 million per year (Table 61). Fines are not

⁷⁸ https://www.afma.gov.au/sites/default/files/afma_levy_arrangements_guide_for_2018-19.pdf

⁷⁹ McKinlay and Millington, 2000. Fisher obligations in co-managed fisheries: the case for enforcement, Proceedings of the FishRights 99 Conference, Fremantle, Western Australia, 11-19 November 1999, FAO Fisheries Technical Paper, No. 404/2, 2000.

⁸⁰ https://www.cartamz.com/index.php/economia-e-negocios/item/524-pescadores-de-capenta-sufocados-com-novas-taxas-em-cahora-bassa?fb_comment_id=1966226253494620_1980800595370519 and http://www.mozpesca.gov.mz/Vers%C3%A3o_finalissima_-_Relat%C3%B3rio_Tete09_a_14_05_18.pdf

included because, for a most effective surveillance strategy or MCS strategy generally the objective is to reduce non-compliance and therefore fines should be seen as exceptional revenues, and not as a sustainable mean of finance.

Therefore, if the calculation of the newly introduced licences and rights was simplified and their combined percentage for ISIF vessels amounted to 12% of the 1st value of the catch, together with modest SSF annual gear licence fee of 250 MTS per 100 000 Mts catch value, would generate more than enough revenue annually to cover the operational costs needed to support both ISIF and SSF MCS strategies estimated between USD 2.4 and 3.4 million (Table 53).

Table 61: Projected annual fishing licence and rights revenue (USD)

Fisheries sector sustainable projected revenue	Proposed %	Revenue / year
Fishing licences IF cost recovery	10.00%	2 350 000
Fishing licences SIF cost recovery	10.00%	557 143
Fishing rights for ISIF (assuming 2.5% tax)	2.50%	726 786
Fishing licences SSF cost recovery	0.25%	755 107
Total potential revenue (USD)		4 389 036

The MCS strategies investment budgets would need an additional USD 4.7 to 6.5 million per year (Table 53) over at least 5 years. Some of which could be sourced from licence and rights revenues through the FFP, for example, but the rest could be sourced externally (see next section).

It is also important to note that, apart from special cases of countries with relatively very low population numbers and very large fisheries resources such as the Pacific Islands states signatory to the Nauru Agreement⁸¹ for tuna fisheries or the Falkland Islands for squid and demersal fish fisheries⁸², commercial fisheries play a number of crucial roles. They support rural livelihoods, contribute to environmental protection and aquatic ecosystem management and provide food security and nutrition. For these very important contributions, which are renewable, if the fisheries are well managed, we believe that all scales of commercial fisheries should be prioritised to benefit from renewed internal and external investments to ensure their sustainable use.

6.4 External financing sources

A fully functional MCS system is only one part of the Fisheries Management system. The MCS system is highly dependent on performant administration and information systems, on fisheries management planning and on research and timely expert scientific advice. Therefore, any financing solution for MCS would need to ensure that all parts of the Fisheries Management system are also sustainably financed.

Mozambique's marine resources are diverse and abundant enough to sustain and fund a performant and comprehensive fisheries management system, but it is likely that some are in a depleted state at present. In addition, natural resource production is always variable and susceptible to environmental change and to natural disasters such as the two cyclones that have hit the coast of Mozambique in 2019.

Thus, we agree with a conclusion from a 2018 review of conservation financing mechanisms, that "typically, no single mechanism will ensure financial sustainability. Conservation finance strategies can be developed at different scales to meet different objectives, and an essential element of financial sustainability is the development of complementary mechanisms that ensure diverse funding sources."⁸³

6.4.1 Loans

Loans are routinely used to finance capital investments or structural adjustments in Fisheries Management and development projects. The World Bank suite of projects in the SWIO region, is an example, including Mozambique's SWIOFish1 project⁸⁴ already mentioned. One focus of SWIOFish is to strengthen regional

⁸¹ <https://www.pnatuna.com>

⁸² <https://www.fig.gov.fk/fisheries/>

⁸³ Gobin C. and B. Landreau, 2017. A review of financial mechanisms and their applicability in West Africa and the Mediterranean , Mava Foundation 40p.

⁸⁴ <http://projects.worldbank.org/P132123/south-west-indian-ocean-fisheries-governance-shared-growth?lang=en&tab=financial>

cooperation, and this also concerns regional MCS coordination through the IOTC and SWIOFP. For Mozambique specifically, SWIOFish interventions target several priority fisheries involving both ISIF and SSF and includes MCS-specific strengthening activities programmed over 5 years. However, of the 37 million USD project overall budget, 30 million USD are borrowed by Mozambique. Projects such as SWIOFish make it possible for Mozambique to invest in its Fisheries management system and private sector development. However, loans have to be repaid and are therefore only a short term sustainable financing solution.

6.4.2 Grants

Parts of the SWIOFish1 financing is made of grants, or multi-lateral aid funds such as from the Global Environment Facility (GEF), a multi-lateral aid fund. Donors often have specific priority areas and, as an essential component for fisheries management, MCS system development is often supported. For example, the cooperation from Norway (since 1970s) and Iceland (since 1995) with Mozambique planned between 2013 and 2017, had a total 5-year budget of 30.2 million USD, including 1.2 million USD financed by the Government of Mozambique, which included support to ADNAP and to DNFP (now DNOP) for Fisheries surveillance.

6.5 Financing mechanisms

The UNDP lists a number of possible financing mechanisms in support of SDG14⁸⁵. Some target in-country extractive industries to support biodiversity conservation (Biodiversity mitigation offsets - BIOFIN methodology⁸⁶), or mobilise creditors and donors to restructure financial debt (debt for nature swaps such as the recent Seychelles Blue Bond⁸⁷). The comprehensive analysis of Conservation Finance mechanisms by Gobin and Landreau (2017⁸³) considers two categories of funding mechanisms for the short and medium-term returns they may provide. All these could be channelled through the strengthened FFP, which could transfer regular internal and external funding to the strengthened new DNOP/ agency to finance the surveillance investments and operations planned in the MCS strategies.

6.5.1 Short-term return

For the short-term (2-3 years), philanthropy and voluntary funding financed by private foundations boosted by a strong stock market and contributions from the super-rich have supported numerous projects led by environmental NGOs. Short-termism is most often compensated by NGOs who ensure their more longer-term involvement through a gradual more direct involvement of the private foundations. A structured framework from central and most importantly, from provincial government would help coordinate projects and ensure that they take place in collaboration with the DPMAIPs own projects, and with the FFP.

6.5.2 Medium-term return

Multi-lateral aid funds, such as the GEF and the Green Climate Fund (GCF) provide co-financing over the short to medium-term, such as in the SWIOFish project mentioned above, which make them particularly well suited for large investments based on a sustainable financing model. However, financing sustainability may be difficult to achieve, because of the government's other pressing budget needs, which may easily divert most or all of the benefits of MCS investments. The same applies to external investments, which may be stopped before sustainable alternatives have been put in place. Regarding Fisheries Surveillance specifically, the Nordic support was interrupted in 2015 and therefore a replacement of the Antillas Reefer offshore patrol vessel was never phased in, which reveals possible limits to the sustainability of even the longest Development Cooperation support. This also happened to the Madagascar Fisheries Surveillance Centre (CSP), which is financed through an equivalent government-set independent financing institution, which suffered from highly reduced funding when donor support stopped momentarily.

Therefore, the government of Mozambique would be in a much stronger position to finance its MCS strategies by setting up its own financing mechanisms so support its fisheries investment. Examples of medium-term mechanisms include royalties from resource extraction. A 'green tax' or a voluntary form of support from the extractive industry would be particularly suited to support Mozambique's Fisheries Management, as the

⁸⁵ <http://www.undp.org/content/sdfinance/en/home/sdg/goal-14--life-below-water.html>

⁸⁶ <http://biodiversityfinance.net/news-and-media/biodiversity-offsets-harnessing-innovative-financing-solutions-biodiversity>

⁸⁷ <http://www.undp.org/content/sdfinance/en/home/solutions/debt-for-nature-swaps.html> and <http://www.naturevestnc.org/investment-areas/ocean-protection/?intc=nvest.header.projects>

government plans to enforce legislation to ensure that local communities and areas where natural resources are exploited receive a portion of the revenue⁸⁸. Notably the Oil & Gas industry, which is active in Mozambique’ marine waters, could contribute to finance the MCS strategies through a green tax. In return, the Oil&Gas industry would benefit directly from increased fishermen’s cooperation, increased seamanship training, and increased safety at sea, by supporting directly the programmes of inshore and offshore fisheries surveillance in particular. Similar support could be asked of mineral extraction operators for the surveillance and fisheries management of freshwater fisheries.

6.6 Financing mechanisms and Institutional structure

A successful implementation of the MCS Strategies depends on a reactive, well trained and efficient institutional structure. Most often, MCS operations are delivered by one of two type of institutions, a ministerial department such as the DNOP, or a semi-autonomous government body or agency such as the ADNAP. or a combination of the two. As mentioned in section 3, there are clear operational advantages to the DNOP being given budgetary autonomy, in particular to ensure smooth operations. Some of these are recapitulated in Table 62 below.

Table 62: SWOT analysis of Ministerial Department and Separate Agency for Surveillance budget financing

	Ministerial Department	Separate Agency
Strengths	Direct ministerial support and authority	Budget and budget cycle separate from the Ministry Specific staff career structure and salaries help train and retain experienced staff Improved re-activity for Surveillance Operations
Weaknesses	Operational priorities may be sacrificed by in-ministry arbitrations Little budgeting visibility and transparency	Additional costs for separate Agency management Separate staff status reduces staff mobility between Agency and Ministries
Threats	Operational budget reduced as part of general public spending reduction obligations Budget needs difficult to have prioritised	Reductions in Operational budget often result in loss of most experienced staff
Opportunities	Ease of coordination across ministries	Some independence from public spending reductions by international financial institutions Possible cross-ministerial oversight and support Arrangement favoured by international donors

However, it is important to note that, from a sustainable financing point of view, a review of successfully financed MCS systems across comparable fisheries in the world shows that there is no specific type of institutional structure that guarantees success. Some countries, where liberal economic principles have prevailed, have reduced central government services as a matter of policy, appear to have organised their Surveillance and MC activities to be managed by semi-autonomous government bodies or agencies. This is the case of Papua New Guinea or the Seychelles, for example. For countries with policies that favour strong government oversight MCS systems are often kept within central ministries, this is the case of Mauritius, South Africa or France.

Both types of institutions can produce equally effective MCS system, but they cannot operate effectively if they are not funded. Financing failure may be found in all types of institutions, although short-term consequences may differ, outcomes are similar, when MCS funding stops, the capacity of services and assets degrade quickly and is slow to rebuild.

⁸⁸ https://www.uneca.org/sites/default/files/PublicationFiles/agr-v_en.pdf

6.7 Concluding remarks

Fisheries management activities need sustainable financing to develop, operate and adapt, to ensure that natural resources are managed for the people of Mozambique and future generations.

It is important to note that the effective implementation of the new fisheries taxes (access rights and fishing licences) introduced by the 2017 Decree will take time. Effective implementation is known to require a strong institutional framework to be in place. Therefore, it will be important for both DNOP and ADNAP and the DMAIPs institutional technical capacity to be strengthened and support the fiscal administration at all (central, provincial and local) levels. Compliance will need to be improved; promoting transparency and accountability to win legitimacy and thereby cooperation from all stakeholders involved. Most importantly the newly created use and access rights will require more precise definitions through a participatory and equitable approach; traditional or customary rights will need to be more explicitly recognised in terms compatible with the new taxes⁸⁹.

Therefore, for the coming years, a mix of financing mechanisms and source both internal and external to the sector will be critical to ensure the sustainable financing of MCS and of all essential fisheries management capacities.

⁸⁹ Mohammed, E.Y., D. Stenbach and P. Steele. 2018. Fiscal reforms for sustainable marine fisheries governance: Delivering the SDGs and ensuring no one is left behind, *Marine Policy* 93 : 262–270.

7 APPENDICES

7.1 Annex 1 – Field mission Study 3 – 22nd to 30th November 2018

DATE	Purpose
Wednesday 21 November 2018	Experts Sophie des Clers and Bertrand Cazalet arrive in Maputo
Thursday 22 November 2018	Kick-Off Meeting with DNOP; Planning of the first on-site mission
Friday 23 November 2018	Information collection DNOP (legislation, budgets); Planning of meetings
Monday 26 November 2018	DNOP Director and team; World Bank
Tuesday 27 November 2018	FFP
Wednesday 28 November 2018	DAF
Thursday 29 November 2018	ADNAP + IDEPA
Friday 30 November 2018	Presentation and discussion of preliminary proposals with DNOP World Bank

7.2 Annex 2 – People met - November 2018

People met	Office	Email
Leonid Santana CHIMARIZENE	DNOP	lchimarizene@mozpzsc.gov.mz
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Josef HOMO	ADNAP	
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7.3 Annex 3 – Terms of Reference Study 3

<i>Study 3 Study for a long term sustainable financing regarding the MSC industrial, semi industrial and small scale component</i>	
a. <u>Contents</u>	
The study should address the following issues, but not be limited to	
<ul style="list-style-type: none"> i. Analyzis of the various current sources of funding of the DNOP regarding the MCS aspects (on regional, national and local level) and the conditions of availability of these funds over the past 5 years by identifying in detail the strengths and weaknesses of the current system. ii. Analysis of the different methods of financing fisheries surveillance activities in countries with similar context and draw the most relevant lessons that could be applied to Mozambique iii. In view of the results of the previous MCS strategic studies and decisions or approaches made by the Mozambican authorities on the dimensioning of the monitoring system on national and local level, the financing needs of the DNOP (operating, maintenance and investment budget) must be established. The different aspects of the participatory surveillance must also be taken into consideration. iv. Exhaustive identification of the different possible additional sources of financing in a logic of perpetuation of the financing of the DNOP's surveillance activities . propose the corresponding financial mechanisms for calculation, implementation and organization for each source. 	
The proposal should indicate possible allocation keys among the various sources of funding, including, for example, government grants from its regular budget, percentages of revenues from the payment of access fees by local, national and foreign fishing fleets and percentages coming from the payment of fines. For each source, the proposal should identify prerequisites, constraints and benefits, particularly in terms of sustainability and predictability of targeted funding.	
<ul style="list-style-type: none"> v. To propose the relevant changes in the budgetary and accounting procedures as well as the necessary statutory changes under Mozambican legislation and regulations, as well as any other management tools, for the implementation of these new financing mechanisms for surveillance in a logic of sustainable , efficient and transparent management. vi. Identify the regulatory measures and commitments that the Mozambican State will have to take to ensure the sustainability of the financing of the DNOP's monitoring actions. 	
iii. Drafting of relevant regulatory texts and support documents	
iv. Develop arguments on this topic to be sent to the relevant mozambican authorities	
c. <u>Links with other studies (if relevant)</u>	
Take account of the results findings and recommandations of the MCS strategy studies	
d. <u>Expected documents and actions</u>	
The consultant must provide:	
<ul style="list-style-type: none"> • General report regarding the different strategies for the small scale fisheries • Technical and operational documents to complete the general report as needed. 	
A restitution workshop will be animate by the consultant to present the content of the different strategies and explained the differents options	
e. Expected time frame for discussions with concerned parties – government and industry , as well as links/networking with existing MCS mechanisms for cost effectiveness - 60 person days	

7.4 Annex 4 – Detailed budget tables for the proposed MCS Strategy

Strategy - common to SF and ISIF	Purpose	Recommended measure	Details	Resp. authority	Importance [1] (C, H, A)	Priority [2] (H, A, L)	Investment cost	Running cost
SO1 - Strengthen the MCS system at national level	Institutional strengthening	Define and clarify missions and responsibilities of ADNAP and DNOP	- ADNAP responsible for Monitoring and Control - DNOP responsible for surveillance	MIMAIP	C	H	13,500	
SO1 - Strengthen the MCS system at national level	Institutional strengthening	ADNAP coordinate the management of fisheries	- Update of Fisheries Management Plan	ADNAP (assisted by DPMAIPs)	H	H		
SO1 - Strengthen the MCS system at national level	Institutional strengthening	DNOP coordinate the Surveillance of fisheries	- Transpose each National FMP into provincial FMP - Edit a National Fisheries Surveillance Plan	DNOP	H	H	19,000	
SO1 - Strengthen the MCS system at national level	Institutional strengthening	Confirm responsibilities of DPMAIP to coordinate MCS at provincial level	- Transpose this NESF into Provincial Fisheries Surveillance Plans Confirm DPMAIP powers (MCS planification & coordination)	DNOP	H	H	10,000	
SO1 - Strengthen the MCS system at national level	Institutional strengthening	Reorganise DPMAIP Inspection Services (DAMA)	Recruitment - Training - Equipment and IT - Building renovation for extra sites - Maintenance and replacement of operational Assets MCS Central databases -with provincial	MIMAIP DPMAIPs DPMAIPs DPMAIPs DPMAIPs DNOP	C	H	396,000 79,000 100,000 2,200,000 50,000	29,000 20,000 820,000
SO1 - Strengthen the MCS system at national level	Institutional strengthening	Creation of a structured corps of Fisheries Officers	Define Statutes, hierarchy, career opportunities and mission	MIMAIP	A	L	11,600	
SO1 - Strengthen the MCS system at national level	Institutional strengthening	Reinforcement of inspector's training	Uniforms - Definition of a minimum common curricula (initial training) - functional and -specialised modules	DNOP	A	L	180,000	40,000
SO1 - Strengthen the MCS system at national level	Institutional strengthening	Creation of a structured FMC	- FMC operator and managers training	DNOP	H	H	230,000	
SO1 - Strengthen the MCS system at national level	Operational strengthening	Implementation of specific MCS plans	- Implement integrated MCS Plan for Cabora Bassa	DNOP	C	H	45,000	
SO2 - Ensure a persuasive legal Framework	Legal review	Inspector's prerogatives	Clarify respective prerogatives of different people involved in fisheries surveillance Improve transparency and control of sanction procedures	DNOP	H	H	150,000	
SO2 - Ensure a persuasive legal Framework	Rules of procedure	Inspections procedures	Write implementing decrees to define and clarify: - inspection procedures - the procedures for dealing with offenses and their follow-up	DNOP	C	H	50,000	
							13,000	

Strategy - ISIF	Purpose	Recommended measure	Details	Resp. authority	Importance [1] (C; H; A)	Priority [2] (H; A; L)	Investment cost	Running cost
S01 - Strengthen the MCS system at national level	Operational strengthening	Implementation of regular at-sea surveillance	- charter a middle-range patrol vessel - Buy a middle-range patrol vessel	DNOP	H	H		380,000
S01 - Strengthen the MCS system at national level	Operational strengthening	Implementation of regular at-sea surveillance	- charter of long-range patrol vessel	DNOP	H	H		700,000
S01 - Strengthen the MCS system at national level	Operational strengthening	Implementation of regular at-sea surveillance	- implementation of air surveillance	DNOP	H	A		490,000
S02 - Ensure a persuasive legal framework	Improve monitoring	Licensing rules	Strengthen licenses, terms and conditions (By-catch, designated ports)	ADNAP	C	H	61,000	150,000
S02 - Ensure a persuasive legal framework	Improve monitoring	Catch declaration	Introduce the progressive obligation to use the electronic fishing logbook (ERS) for industrial fishing vessels	ADNAP	H	L		
S03 - int'l and Regional cooperation	Institutional strengthening	Develop int'l and regional cooperation	Participate to SADC Regional FMC	DNOP	H	A		
S03 - int'l and Regional cooperation	Institutional strengthening	Develop int'l and regional cooperation	Join IOC's PRSP regional plan of surveillance	DNOP	H	A		160,000
S03 - int'l and Regional cooperation	Institutional strengthening	Develop int'l and regional cooperation	Join IOC's Regional VMS protocol (SIGMA)	MIMAIAP	H	H		
S03 - int'l and Regional cooperation	Institutional strengthening	Develop int'l and regional cooperation	Implement FAO's PSMA agreement	MIMAIAP	C	H		
S03 - int'l and Regional cooperation	Institutional strengthening	Develop int'l and regional cooperation	Consider joining FITI (Fisheries Transparency Initiative)	MIMAIAP	H	L		
Strategy - SSF	Purpose	Recommended measure	Details	Resp. authority	Importance [1] (C; H; A)	Priority [2] (H; A; L)	Investment cost	Running cost
S01 - Strengthen the MCS system at national level	Institutional strengthening	Develop and implement MCS Plans for Artisanal fisheries	- to eradicate domestic unlicensed and - to eradicate destructing fishing practices together	ADNAP	H	H		50,000
S01 - Strengthen the MCS system at national level	Institutional strengthening	Develop Fishing gear marking plan	Rely on new tech (RFID and mobile apps)	ADNAP	H	H		50,000
S01 - Strengthen the MCS system at national level	Institutional strengthening	Develop CCP MCS plan	- designate CCP Project managers	DPMAIPs	H	H	70,000	10,000
S01 - Strengthen the MCS system at national level	Institutional strengthening	Implement CCP MCS plan	accompany the structuring of the CCPs	DPMAIPs	C	A		50,000
S01 - Strengthen the MCS system at national level	Operational strengthening	implement CCP MCS plan	Boost compliance culture in the fishing community (licences, fishing, gear, catch declaration)	ADNAP	C	A		20,000
S01 - Strengthen the MCS system at national level	Operational strengthening	implement CCP MCS plan	improve the licensing rate for artisanal fishing	DPMAIPs	C	H		50,000
S01 - Strengthen the MCS system at national level	Operational strengthening	implement specific SSF database	SSF licenses register	ADNAP	C	A	25,000	5,000
S01 - Strengthen the MCS system at national level	Operational strengthening	implement specific SSF database	record of infringement and penalties...	DNOP	C	A	25,000	5,000
S02 - Ensure a persuasive legal framework	Institutional strengthening	Boost compliance culture	Awareness / information campaigns for all incl. District levels	ADNAP	H	H	150,000	80,000
S02 - Ensure a persuasive legal framework	Operational strengthening	Legal review	Clarify CCP member's surveillance prerogatives	DNOP	C	H		
S02 - Ensure a persuasive legal framework	Institutional strengthening	Legal review	Consider distinguish between subsistence fisheries and commercial artisanal fisheries	ADNAP	H	H	40,000	
S02 - Ensure a persuasive legal framework	Institutional strengthening	implement CCP MCS plan	Produce specific vulgarization supports for CCP awareness	ADNAP	H	H	50,000	10,000
S02 - Ensure a persuasive legal framework	Institutional strengthening	implement CCP MCS plan	Develop a simplified SSF inspection report (including associated DB and mobile app)	DNOP	H	A	40,000	5,000