

IOS Fisheries Improvement Project (Goa and Maharashtra) – Management plan links to the Fisheries Action Plan

Introduction

The aim of the FAP is to get the fisheries to a point where they meet the Marine Trust standard and are, by extension, compliant with the FAO Code of Conduct for Responsible Fisheries.

India is a signatory to the CCRF and whilst the Code is not binding on states, it is a valuable guide for fisheries agencies seeking to put their fisheries on a sustainable footing. The Code is broad ranging and not every Article needs to be addressed, as many are not relevant for wild harvest fisheries, for example. Nevertheless, the intent of the Code, when it comes to fisheries management is clearly set out in Article 7.3.3:

7.3.3 Long-term management objectives should be translated into management actions, formulated as a fishery management plan or other management framework.

Elaboration of this and other statements of broad guidance is provided by the FAO in a series of guidance documents such as:

1. Two volumes providing guidance on managing fisheries (Cochrane, K. ed, 2002) and Cochrane and Garcia (eds)(2009) both of which provide guidance on the preparation of fishery management plans, and
2. Technical guidelines for Responsible fisheries – including the guidance on implementing the ecosystem approach (FAO Fisheries Department 2003) as set out in Garcia et al (2003).

As stated by Die (2009)(Chapter 10 in Cochrane 2003) the purpose of a management plan is to put together all the building blocks. Die (2003) states that a management plan goes further than dealing with the long term objectives (Article 7.3.3) by including short term operational measures as follows:

The FAO Technical Guidelines for Responsible Fisheries (FAO, 1997), however, clarify that FMPs have a tactical component to them that defines day to day management:

“The management plan provides detail on how the fishery is to be managed and by whom. It should include a management procedure which gives details on how management decisions are to be made in accordance to developments within the fishery...”.

In fact these FAO guidelines give a very specific definition of an FMP:

“A fisheries management plan is a formal or informal arrangement between a fishery management authority and interested parties which identifies the partners in the fishery and their respective roles, details the agreed objectives for the fishery and specifies the management rules and regulations which apply to it and provides other details about the

fishery which are relevant to the task of the management authority.”

The development of the Ecosystem Approach to Fisheries Management (EAFM) built on the more technical, fish stock management approach discussed by Cochrane and others by including wider ecosystem components (e.g. non target species and habitats, and including a social dimension). The EAFM guidance emphasizes the importance of a fisheries management plan and sets out recommendations for including the wider ecosystem components.

Thus the importance of fishery management planning is clearly identified in FAO guidance associated with the Code of Conduct for Responsible Fisheries. A plan brings together a variety of elements such that they work together in a cohesive way. As stated by Die (2003) this approach is not unique to fisheries and he uses the example of car manufacturing to illustrate how all elements need to be brought together in a coordinated manner if production is to be successful.

Fishery management plans represent best practice in the following ways:

1. Provide clarity for all those involved in the fishery (including those that depend on the catch) about the objectives, rules/regulations, catch sharing arrangements and sustainability measures all work together.
2. Provide opportunities for stakeholders to be involved in the decision making process. Increasing transparency helps build support amongst interested parties as well as accountability.
3. Ensure that information collection is focused on supporting management and those that depend on the fishery.
4. Provide certainty and investment confidence for the post harvest sector if sustainable use is achieved.

India and the CCRF

India is a signatory to the Code of Conduct for Responsible Fisheries. Mohamed et al (2017) analyse the policy and management needs of fisheries in India in the context of the Code. With regards to Article 7.3.3. they state that:

Practical FMPs would be developed by the CMFRI for each maritime state keeping in view the long-term objective set out in the MFRAs.

They also state that the plans will be developed by the CMFRI and the relevant Department of Fisheries of all maritime states.

The CMFRI has already prepared management plans for the states of Karnataka and Tamil Nadu. However, these are in the form of recommendations as the plans need to be implemented by the Departments of Fisheries via relevant regulations.

As set out in Garcia et al (2003) the main elements of a fishery management plan are as follows:

(i) the issues covered;

- (ii) the setting of agreed targets and limits (related to constraints);*
- (iii) details of the management actions that will be taken to meet targets and stay within limits;*
- and*
- (iv) procedures to measure performance in achieving the above.*

There is a great deal more detail behind these general topics and it is not intended to go into detail in this short paper. However, these topics serve to provide a framework to illustrate how the activities of the FAP can assist government agencies to work with stakeholders on the development and implementation of a fisheries management plan.

Key elements of the Fishery Action Plan (FAP) in relation to the Code

Over the past 4 to 5 years the Indian Oil Sardine FIP has undertaken the following:

Actions undertaken by the FIP	Relation to the Code of Conduct and Fishery Management Planning
Review of current status of the fisheries.	An analysis of the fishery is central to identifying issues that require a management response. The fishery assessment looked at key elements such as the status of stocks, ecosystem impacts and the current management system.
Created a stakeholder consultation group	Stakeholder involvement in fisheries management is an essential component, especially for implementation of the Ecosystem Approach to Fisheries Management. Meetings have been held with this group from the beginning of the process with a recent in-person update held in April of 2023.
Conducted an assessment of the fisheries for Indian Oil Sardine and Indian Mackerel	Ratnagiri College of Fisheries conducted an assessment of the status of both of these species and also provided further information on the catch composition of the mackerel fishing, which is conducted using different purse seine nets.
Reviewed information on the interactions between the fisheries and threatened/protected species	The FIP was able to source information published by the Central Institute for Fisheries Technology on interactions between purse seining and marine mammals in the waters of Goa. Information is being sought from the fisheries agency of Maharashtra State.
Conducted a workshop on reference points in fisheries management and applicability to small pelagic fisheries	Reference points are an important mechanism for controlling catches in sustainable fisheries and a way of implementing the precautionary principle as set out by FAO. The workshop output will be an important input to the fishery management plan.
Commissioning a Ecopath with Ecosim (EwE) model of the waters adjacent to Goa and Maharashtra states as we mechanism for understanding the ecosystem consequences of fishing for small pelagics	Understanding the ecosystem consequences of the fisheries is an important component of the Ecosystem Approach to Fisheries Management. At present there is a model available for the southern states (Karnataka and Kerala) and there is a need to extend this north. This is a significant undertaking and discussions are well advanced.

The preparation of a formal fisheries management plan will enable these elements to be brought together, in addition to any other requirements determined by government to be relevant.

Fishery management plans in India

At present the fisheries laws in India do not provide for the preparation of fisheries management plans. However, the Marine Fisheries Bill of 2021 provides for the following:

Marine Fisheries Management Plan.	6. (1) The Central Government may, after consultation with the State Governments, prepare and notify one or more Marine Fisheries Management Plans in accordance with the National Policy on Marine Fisheries, for realising the full potential of marine fisheries.	
	(2) The Marine Fisheries Management Plan notified under sub-section (1) shall focus on sustainable utilisation of marine fisheries resources including their conservation through adoption of such measures as may be specified therein, including—	
	(i) optimisation of fleet-size and fishing effort; (ii) spatial and temporal closures; (iii) specifying species-specific mesh size for protection of juvenile fish; (iv) promoting area-specific and resource-specific fishing practices; (v) reduction in by-catch and discards.	
	(3) Without prejudice to the provisions contained in sub-sections (1) and (2), the Central Government shall,—	
	(i) for the purposes of sustainable and responsible utilisation of fisheries resources in the high seas by the Indian fishing vessels and for conservation and management of such resources, from time to time, specify by notification, the measures in compliance with the resolutions emerging from the international instruments and agreements to which India is a party;	
	(ii) for the purposes of holistic and sustainable development of fisheries resources, and after consultation with the State Governments, specify by notification, the measures, based on the FAO Code of Conduct for Responsible Fisheries, adoption of the Ecosystem Approach to Fisheries Management and Co-management and the precautionary approach wherever required.	
	(4) Every licence holder under this Act shall comply with the measures notified under sub-sections (2) and (3).	

There is a clear intent to prepare formal plans and these plans will be linked to both the Code and the EAFM. Interpretation of the requirements in the law will be facilitated by an updated National Fisheries Policy. The current policy dated 2017 has been updated but the 2020 version is yet to be formally adopted.

The Bill is yet to be enacted under law and the government has been consulting with state governments and stakeholders. As with any fisheries law there is a diversity of opinions (see articles below).

[Indian Marine Fisheries Bill: Fisheries ministry to hold virtual meet with MPs from coastal areas | India News - Times of India \(indiatimes.com\)](#)

[Tamil Nadu: Fishermen Hold Massive Protests Demanding Withdrawal of Fisheries Bill | NewsClick](#)

The 2017 India national fisheries policy sets out the following:

1. The need for management controls to ensure that catches are sustainable. The policy envisages a reliance on input controls and a reduction in overcapacity (too many boats in some fisheries) to ensure optimum fleets size.
2. Specific mentions of species and or area based fishery management plans. Plans should be prepared within an Ecosystem Approach to Fisheries Management framework.
3. Better and more up-to-date information – including information on fishery resources.
4. Improved governance including stakeholder involvement
5. The need to sustainably manage the fishmeal production sector
6. Opportunities for mariculture development
7. Trade opportunities
8. The growing role of traceability and standards, some of which are based on the FAO Code of Conduct for Responsible Fisheries to which India is a signatory.
9. The importance of Monitoring, Control and Surveillance to protect fishery resources from illegal activity by both domestic and foreign fishers.

There is a clear intent to manage the fisheries for sustainable use and to promote economic opportunities and trade and fishery management plans play a key role.

CMFRI has been preparing management recommendations for state fisheries and so far has completed documents for Karnataka (Rohit et al 2016) and Tamil Nadu (Sivadas et al 2019) and there is also a management recommendation document for a clam fishery in Ashtamudi Lake in Kerala (Mohamed et al 2013).

Each of these planning documents brings together the following categories of information:

1. A description of the existing fisheries – main species, gear types, numbers of fishers and changes over time;
2. The main issues facing the fisheries, including levels of exploitation, bycatch, threatened species etc;
3. Known scientific, economic and social information including stock status, maximum sustainable yield, reference points, economic status, etc
4. Existing management measures including fishery controls and any measures to protect threatened species and habitats;
5. Management recommendations.

The planning recommendations will require adoption under the relevant state laws, some of which may be achievable under existing laws whilst the new national fisheries law quite clearly contains provisions for the adoption of management plans.

Current status of the FAP

The Fishery Action Plan

As can be understood from the information presented above, the FAP operates within dynamic processes undertaken by governments which will have their own priorities and challenges to deal with. As has been found in published reviews of Fishery Improvement Projects (see for example Cannon et al 2018, Crona et al 2019) the main areas of progress are in gathering information whereas progress is more difficult when government action on management is considered. There are many reasons for this but as the current FIP moves towards encouraging greater action by government the greater the challenges will become. Recent positive views from the governments of Maharashtra and Goa regarding a willingness to support management plans are encouraging.

The FIP can assist governments to implement government policy in many ways such as:

1. increasing stakeholder involvement – the FIP brings together fishermen and the post harvest sector to seek alignment on what needs to be done to ensure sustainable use;
2. A well managed fishmeal sector can assist the orderly development of mariculture – with benefits for trade and employment
3. The use of an international FAO Code of Conduct based fisheries standard (via Marine Trust) helps India to demonstrate that it is meeting its international obligations and commitments to sustainable fisheries and assists trade in markets where such standards are important.
4. The FIP is based on the Ecosystem Approach to Fisheries Management (EAFM), including the adoption of the precautionary principle (via reference points and harvest control rules)
5. The FIP has been proactive on key elements of good fisheries management such as collecting information and promoting MCS arrangements.

Next steps

In addition to other commitments in the current (2023) iteration of the FAP the FIP steering committee is currently focused on two parallel tracks, namely:

1. Continuing to progress actions that will be important inputs to a management plan such as the EwE model and obtaining information on threatened species interactions in Maharashtra.
2. Continuing to follow up with the CMFRI and the fisheries departments of Goa and Maharashtra the pathway to be followed for the preparation and adoption of fisheries management plans. As mentioned above the CMFRI can prepare management plan documents but these need to be formally adopted in order to make them operational. The timetable for the latter process in particular is unknown and likely linked to the Marine Fisheries Bill.

With regards to the preparation of draft plans the FIP has already commenced a dialogue with CMFRI to advise them of the work that has been undertaken and seeking an opportunity for this work to be incorporated into the plan preparation process.

References

- FAO Fisheries Department.(2003). The ecosystem approach to fisheries. *FAO Technical Guidelines for Responsible Fisheries*. No. 4, Suppl. 2. Rome, FAO. 2003. 112 p.
- Cannon, J., Sousa, P., Katara, I., Veiga, P., Spear, B., Beveridge, D. and Holt T, V. (2018). Fishery improvement projects: Performance over the past decade. *Marine Policy*, Volume 97, November 2018, Pages 179-187
- Cochrane, K.L. (ed.) (2002). A fishery managers guidebook. Management measures and their application. *FAO Fisheries Technical Paper*. No. 424. Rome, FAO. 2002. 231p.
- Cochrane, K. and Garcia, S. eds (2009). *A Fishery Manager's Guidebook – second edition*. Published by The Food and Agriculture Organization of the United Nations And Wiley-Blackwell
- Crona B., Kall S. and Van Holt, T. (2019) Fishery Improvement Projects as a governance tool for fisheries sustainability: A global comparative analysis. *PLoS ONE* 14(10): e0223054. <https://doi.org/10.1371/journal.pone.0223054>
- Garcia, S.M.; Zerbi, A.; Aliaume, C.; Do Chi, T.; Lasserre, G. (2003). The ecosystem approach to fisheries. Issues, terminology, principles, institutional foundations, implementation and outlook. *FAO Fisheries Technical Paper*. No. 443. Rome, FAO. 2003. 71 p.
- Mohamed K.S., V. Venkatesan, V. Kripa, D. Prema, Mathew Joseph, P.S. Alloyicious, Jenny Sharma, K.K. Valsala, K. K. Saji Kumar, N. Ragesh, John Bose and Anjana Mohan (2013). *Fishery Management Plan for Ashtamudi Lake Clam Resources*. CMFRI Special Publication No: 114 48p.
- Mohamed, K.S., K. Vijayakumaran, P.U. Zacharia, T.V. Sathianandan, G. Maheswarudu, V. Kripa, R. Narayanakumar, Prathibha Rohit, K.K. Joshi, T. V. Sankar, Leela Edwin, K. Ashok Kumar, Bindu J, Nikita Gopal and Pravin Puthra (2017). *Indian Marine Fisheries Code: Guidance on a Marine Fisheries Management Model for India*. CMFRI Marine Fisheries Policy Series 4: 120 p
- Rohit, P., Dineshbabu, A.P., Sasikumar, G., Swathi Lekshmi, P.S., Mini, K.G., Vivekanandan, V., Thomas, S., Rajesh, K.M., Purushottama, G.B., Sulochanan, B., Viswambharan, D. and Kini, S. (2016). *Management Plans for Marine Fisheries of Karnataka*. ICAR-CMFRI, Marine Fisheries Policy Series No. 5, 110p.
- Sivadas, M., P. U. Zacharia, P. T. Sarada, R. Narayanakumar, Shoba Joe Kizhakudan, Margaret Muthu Rathinam, S. Surya, L. Remya, M. Rajkumar, E. M. Chhandaprajnadersini, P. P. Manojkumar, I. Jagadis, M. Kavitha, K. N. Saleela, Grinson George, P. Laxmilatha and A. Gopalakrishnan (2019). *Management Plans for the Marine Fisheries of Tamil Nadu*. ICAR-CMFRI Mar. Fish. Policy Series No.11. ICAR-Central Marine Fisheries Research Institute, Kochi, Kerala, India, 104p.