Food and Agriculture Organization of the United Nations

Evaluation of the project "Enhancing Livelihoods, Food Security and Maritime Safety through Increased Resilience of Fishing Communities Dependent on Coral Reef Fisheries in the African Coastal Countries of the Indian Ocean"

Project Evaluation Series
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Project code: GCP/RAF/520/JPN

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Abstract

This report presents the findings of the project "Enhancing Livelihoods, Food Security and Maritime Safety through Increased Resilience of Fishing Communities Dependent on Coral Reef Fisheries in the African Coastal Countries of the Indian Ocean" (GCP/RAF/520/JPN) carried out by the Office of Evaluation of the Food and Agriculture Organization of the United Nations (FAO). Also known as REEFFISH, the project, was funded by the Japan International Cooperation Agency (JICA) and implemented from November 2019 to June 2023.

The main goal of REEFFISH was to implement the restoration of coral ecosystems to assist the fisheries and aquaculture sectors in the Comoros, Kenya, Madagascar, Mauritius and Seychelles. Specifically, the project focused on coral reef fisheries management, fishery value chains, illegal, unreported and unregulated (IUU) fishing, and maritime safety. The main users of the evaluation are FAO, JICA, the World Bank and the above-mentioned countries.

In terms of methodology, the evaluation had a data-collection and assessment phase that consisted of interviews with key informants and stakeholders – including vulnerable groups and women – at regional, national and local levels. The report's findings highlight FAO's role in food security as the project aimed to improve coral reef fisheries production by restoring fragile ecosystems and assisting fishing communities in the management of their coral reef resources.

While this approach contributed to substantial progress towards the sustainable management and improvement of the fisheries and aquaculture sector, the project's effectiveness was hindered by issues that can only be addressed beyond the project timeframe. Among these are issues with the timing of studies and monitoring, the deployment of some equipment, the quality of fishing traps, and the ownership and sustainability of sophisticated equipment.

In terms of overall project implementation, some of the project's intended results were obstructed by late recruitment, challenges faced because of the COVID-19 pandemic, and lengthy procurement processes. An important lesson learned from the project's procurement delays is that the time required for procuring necessary equipment must be accurately estimated from the start, in the design phase.

In addition, REEFFISH could improve by actively seeking and formalizing partnerships with other initiatives working in related areas. This might include integrating communication strategies that ensure regular information exchange, visibility and coordinated efforts across projects.

Two recommendations emerge from the evaluation: i) to prioritize realistic goal setting and resource allocation in project design; and ii) to enhance synergy and communication between complementary projects. The goal of these recommendations is to strengthen the impact and continuity of other similar initiatives.

Contents

Box, figures and tables

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The evaluation benefited from the inputs of many other stakeholders, including national and local government officers, fishers' organizations, women's organizations, regional and local non-governmental organizations (NGOs), the personnel of other United Nations (UN) agencies and research centres, and private-sector representatives. Their contributions were critical to the team's work and are deeply appreciated.

Abbreviations

AIDE	*Association pour l'Intervention et du Développement de L´Environnement*
BMU	Beach Management Unit
CNCSP	*Centre National de Contrôle et de Surveillance de Pêche*
CORDIO	Coastal Ocean Research and Development in the Indian Ocean
CPF	Country Programming Framework
CPUE	catch per unit effort
DIANA	Diego, Ambilobe, Nosy Be, Ambanja region
DRP	Regional Director of Fisheries
FAD	fish aggregation device
FAO	Food and Agriculture Organization of the United Nations
GCRMN	Global Coral Reef Monitoring Network
ILO	International Labour Organization
IUU	illegal, unreported and unregulated
JICA	Japan International Cooperation Agency
KFS	Kenya Fisheries Service
M&E	monitoring and evaluation
MPA	marine protected area
NGO	non-governmental organization
NPC	national project coordinator
NSC	national steering committee
PSC	project steering committee
SWIOFish	South West Indian Ocean Fisheries Governance and Shared Growth project
VMS	vessel monitoring system
WCS	Wildlife Conservation Society

Map of the western Indian Ocean

Notes: Map of the western Indian Ocean with the coastal and island states, including the target countries of this project: the Comoros, Kenya, Madagascar, Mauritius and Seychelles. Refer to the disclaimer on copyright page for the names and boundaries used in this map. Refer to the disclaimer on copyright page for the names and boundaries used in this map.

Source: United Nations Department of Operational Support. n.d. *Map of the western Indian Ocean*. New York, United States of America. https://geoapps.dfs.un.org/

Executive summary

Introduction

1. The project "Enhancing Livelihoods, Food Security, and Maritime Safety through Increased Resilience of Fishing Communities Dependent on Coral Reef Fisheries in the African Coastal Countries of the Indian Ocean" (REEFFISH) was implemented between November 2019 and June 2023. Funded by the Japan International Cooperation Agency (JICA) and executed by the United Nations Food and Agriculture Organization (FAO), the project aimed to enhance the management of coral reef fisheries, improve fishery value chains, reduce illegal, unreported, and unregulated (IUU) fishing, and increase maritime safety in the Comoros, Kenya, Madagascar, Mauritius and Seychelles.

Purpose of the evaluation

2. The final evaluation was carried out to assess the project's relevance, coherence, effectiveness, efficiency, sustainability and inclusiveness. It aimed to inform project stakeholders, including the management team and the donor, about the project's performance and to provide evidence-based recommendations for future initiatives. The evaluation covered the entire implementation period, with a focus on the project's outcomes, challenges encountered and adaptations made in response to the COVID-19 pandemic.

Main findings

3. *Relevance:* The project was found to be highly relevant to both FAO's strategic objectives and the national priorities of the targeted countries. It addressed critical issues in coral reef fisheries management, which are vital for the livelihoods and food security of coastal communities. However, the broad geographic scope and the large number of objectives and activities within a limited implementation period posed significant challenges. Tailoring interventions to the specific needs and contexts of the different countries proved difficult, particularly in areas with varying levels of governance and economic development.

4. *Coherence:* The project demonstrated good coherence by aligning with existing regional initiatives, such as the Blue Growth Initiative and FAO's Code of Conduct for Responsible Fisheries. It also built on synergies with other projects in the region, including those funded by other donors. However, the diverse environmental and socio-economic contexts of the five target countries made it challenging to maintain a consistent approach across all locations.

5. *Effectiveness:* The project achieved several key outcomes, including the deployment of fish aggregating devices (FADs) in some areas, the development of co-management plans for marine protected areas (MPAs), and the enhancement of fishery value chains. These interventions contributed to improved livelihoods and increased food security in targeted communities. However, delays in key activities, particularly the deployment of FADs and the completion of baseline surveys, limited the ability to measure the project's impact. The effectiveness of FADs was difficult to assess due to delays and the complex logistics involved in their deployment.

6. *Efficiency:* Despite the challenges posed by the COVID-19 pandemic and the logistical complexities of working across multiple countries, the project was able to adapt and meet many of its key objectives. The use of resources was generally efficient, though some inefficiencies were noted, particularly in procurement processes and the coordination of activities across different countries.

7. *Sustainability:* The project made significant strides in building local capacities and establishing frameworks that could support the sustainability of its outcomes. However, concerns were raised about the long-term sustainability of certain interventions, such as the maintenance of FADs, which require ongoing local commitment and resources. The project's exit strategy was not fully implemented, raising questions about the continuity of benefits after project completion.

8. *Inclusiveness:* The project placed a strong emphasis on inclusiveness, particularly in involving women and youth in its activities. This focus on vulnerable groups was a key strength of the project, though the degree of benefit varied across the different countries. Some stakeholders expressed the need for stronger communication and visibility efforts to ensure that all beneficiaries were fully aware of and engaged with the project's activities.

Conclusions

Conclusion 1. Overall project implementation: The project was quite ambitious in its intended results over a short period and was further affected by late recruitment, the COVID-19 pandemic, other random events and lengthy procurement processes.

9. The project was spread over five countries in the western Indian Ocean, both coastal and island states, with different languages and different stages of development based on gross domestic product and status of governance (institutional, legal) of marine and coastal resources. For example, while some countries historically had a developed system of MPAs, others had only recently established a network of such areas.

10. In addition, for a project that was to be implemented over a period of three years, the objectives were highly ambitious, relating to how natural resources were used, associated changes in behaviour, and the use of new technology.

11. The project was further affected by tardy recruitment and late starts, the COVID-19 pandemic, and FAO procurement processes, which are lengthy and cumbersome. Even with all the limitations, the project succeeded in delivering most activities, though outcomes and impacts could not be observed.

Conclusion 2. Relevance and coherence: The project was highly appreciated by governments, local authorities and local communities.

12. The project's objectives, approaches and related work were consistent with national and local government policies, strategies and legislation, as well as FAO's Country Programming Framework (CPFs) for each target country. The project was generally appreciated by beneficiaries at local level, primarily fisherfolk.

13. The project also fit very well with the work that was done, or was still being done, by other programmes and projects financed by FAO, the World Bank and the European Union, among others. Certain ongoing projects could benefit by picking up where some elements of the REEFFISH project left off.

14. In some places, it was the first time any support had been provided for the improvement of marine resource management.

Conclusion 3. Delivering components of the project: The project managed to deliver on most of its outcomes and outputs by the end of the permitted no-cost extension. It also managed to deliver most

activities with speed and efficiency. However, some deliverables were of lower quality and some activities had yet to be finalized at the time of the evaluation.

15. Given the time allocated and the delays that hampered project implementation, the REEFFISH project did quite well. It needs to be said that around 50 percent of the budget was for expendable and non-expendable equipment, which means a great deal of effort was put into purchasing equipment and materials for distribution in different areas with distinct challenges. The equipment aimed to improve the value chain (fishing gear, including traps, solar-powered cold storage, freezers and ice-flaking machines and drying racks, among others), increase safety (training, life jackets) and combat IUU (boats and vessel monitoring systems [VMSs], among others). There was also genuine effort on the part of FAO, governments and other partners to move the project forward. Several examples underscore the huge effort made by the project team to ensure that the project was implemented to the best standards possible, while striving to build on existing local initiatives and lessons learned.

16. That said, there were issues with the timing of studies and monitoring (baseline studies were only ready towards the end of the project), FAD deployment (some were not allowed to be installed, some had design flaws and there were question marks about ownership), the quality of fishing traps, the size of life jackets and the ownership and sustainability of sophisticated equipment. These issues can only be addressed beyond the project timeframe.

17. Delays in the procurement of necessary equipment significantly hindered the timely implementation of crucial activities, such as capacity enhancement and the establishment of sustainability plans. These delays obstructed the achievement of some intended results.

Conclusion 4. Efficiency and internal processes: The project managed to deliver almost 100 percent of its budget expenditure, with two budget reviews and one no-cost extension. However, some processes could have been better given the short implementation period, such as integration, communication and participation.

18. Once the regional steering committees (RSCs) and the national steering committees (NSCs) had been established, they should have been better used for communication and decision making. Issues were raised about insufficient communication of project-related decisions by small circles of implementers. There was also some lack of communication with countries at the design phase of the project and later, during the implementation phase, on certain country/community requests.

19. Participants were disappointed that more was not done to enhance learning between countries and communities, as there were few exchange visits and regional learning meetings.

20. The workload of the national coordinators and focal points varied from country to country, but some found it impossible to dedicate the time required to project implementation. This was evident in progress reports and key interviews and needs to be addressed in future projects.

Conclusion 5. Sustainability: There is a huge question mark over the sustainability of some activities. By the end of the project, many activities were still being finalized, and it will be up to central governments, local authorities, local communities and other beneficiaries (NGOs) to deliver on continuity.

21. Because of the project's short timeframe and the fact that some activities were still being finalized in the final weeks, it is very difficult to predict outcomes and impacts.

22. The project delivered most infrastructure and equipment in the last trimester. It would have been far more appropriate, perhaps, to have had at least six months before project end to assess the

functioning and adequacy of the infrastructure and equipment, to test local management mechanisms and to observe the early programmatic results of their use.

23. The outlook for the future of the project´s investments was mixed, but there was cause for optimism. In Madagascar, the Wildlife Conservation Society (WCS) is supporting the MPA and it is hoped that this will continue. The Governments of Mauritius and Seychelles will step in and continue some work. In Kenya, central government (Secretary of State) and local authorities (counties) are expected to provide support. In the Comoros, local authorities expect other projects to support follow-up.

Conclusion 6. Gender and inclusion: This aspect of the REEFFISH project was weak, either due to project design or the fact that the teams did not have the time they needed for certain processes.

24. Fishing is an activity that is mostly undertaken by men, while women focus on processing and trading, or fishing "on foot", collecting seafood directly on the beach or using small-mesh nets. Men were perceived to be the primary beneficiaries of the project. Consequently, as the project aimed to promote fishing activities far from the coast and fringing reefs, it naturally benefited those men that went out to sea. This created a perception, particularly in the Comoros, that the project benefited mostly men. However, even in the Comoros, investments were made in the processing and storage of fish, an activity conducted more often by women than men.

25. In sum, the picture on gender and inclusion is a mixed one, with some countries performing better than others, depending on leadership. While women in Kenya, Madagascar, Mauritius and Seychelles appeared to be in positions of leadership, in the Comoros, women seem to have a long way to go. It should be also noted that in terms of project staffing levels, steering committee and other leadership positions, the project did quite well when it came to gender diversity.

Lessons learned

Lesson 1. The project became overly ambitious due to the multitude of objectives and the short implementation timeframe. This meant that completing all the planned activities became challenging. This underscores the importance of setting realistic and manageable objectives, particularly when dealing with complex issues such as natural resource management and behavioural change. It is crucial to ensure that the number and variety of objectives align with the time and resources available. This insight highlights the need for careful planning, realistic goal setting and efficient resource management in project design and implementation.

Lesson 2. This evaluation report noted some successful instances of synergy between REEFFISH and other projects by different donors. For example, fish boilers in Kenya were piloted during the implementation of another technical assistance project supported by JICA. The South West Indian Ocean Fisheries Governance and Shared Growth (SWIOFish) project supported monitoring, surveillance and control measures in Kenya and the Comoros, which were followed up, while the International Labour Organization (ILO) supported a project in the Comoros that financed smoking kilns, drying racks and market stands that are now being used by REEFFISH beneficiaries. Some of these may have been coincidental, others were complementary by design. However, this demonstrates that innovative and pilot ideas should be taken forward in the new design of projects. Lessons learned from other projects should also be used to avoid repeating the same mistakes.

Lesson 3. The fact that the project engaged several focal points in government and in local FAO offices was a very positive experience. It meant that when government focal points were too busy, the focal

points in the FAO offices were ready to fill the gap. Project implementation could have been negatively affected had it not been for this set-up.

Lesson 4. The crucial lesson learned from the project's procurement delays is that the time required for procuring necessary equipment must be accurately estimated in the design phase. Furthermore, these activities should be given utmost priority during implementation to prevent delays and to ensure the smooth and efficient achievement of intended outputs and outcomes.

Lesson 5. Because of the project's short duration and the intensity of some activities towards the end of the implementation period, communication (sharing information, exchange visits, regional workshops on lessons learned) and visibility (materials published in grey literature or media) were not given sufficient investment, time or priority. In many instances, institutional representatives and individuals complained about the lack of information. In other cases, perceptions did not match the reality the project was trying to address. The project was addressing a really important issue for coastal communities and governments in the region: overfished coral reefs in the western Indian Ocean. Investing more in communications and visibility would have transmitted those messages in a more meaningful way and generated more information that could have filtered through into new projects.

Recommendations

Recommendation 1. Prioritize realistic goal setting and resource allocation in project design.

26. Given the challenges faced due to the overly ambitious objectives and short implementation timeframe, future projects should prioritize setting realistic and manageable goals that are closely aligned with the available resources and timeframe. This includes conducting a thorough assessment during the design phase to ensure that the number and scope of objectives are feasible. By carefully planning and allocating resources, the project can avoid overextension and increase the likelihood of successfully completing all planned activities.

Recommendation 2. Enhance synergy and communication between complementary projects.

27. To capitalize on the successful synergies observed between REEFFISH and other projects and to address the communication gaps identified, future projects should actively seek and formalize partnerships with other initiatives working in related areas. This includes integrating communication strategies that ensure regular information exchange, visibility, and coordinated efforts across projects. By fostering collaboration and ensuring consistent communication, projects can maximize their impact, avoid duplication of efforts and build on the successes and lessons of complementary initiatives.

1. Introduction

1.1 Purpose of the evaluation

1. This evaluation concerns the project "Enhancing Livelihoods, Food Security and Maritime Safety through Increased Resilience of Fishing Communities Dependent on Coral Reef Fisheries in the African Coastal Countries of the Indian Ocean" (GCP/RAF/520/JPN), known as the REEFFISH project. It covers the entire implementation period from August 2019 to June 2023,[1] and assesses the contributions the project made across four outcomes in the beneficiary countries of the Comoros, Kenya, Madagascar, Mauritius and Seychelles.

2. The purpose of this final evaluation is to inform the project management team, the resource partner and other stakeholders about the project's progress and performance on attaining the expected outputs and outcomes in each of the targeted countries, drawing specific conclusions and formulating recommendations for the evaluation's stakeholders. It also identifies specific good practices and lessons to be learned for the formulation and execution of other projects that will be designed and implemented in the same geographical area, as well as projects of a similar nature.

3. This evaluation covers and assesses all activities implemented from the start of the project in November 2019 to data collection in April–June 2023, bearing in mind any possible delays associated with initial implementation and the onset of the COVID-19 pandemic. The final evaluation assesses all key elements of the project to date, across its four outcomes.

1.2 Intended users

4. The primary intended users of the evaluation include the budget holder, the Food and Agriculture Organization of the United Nations (FAO) technical, programme and operational personnel, project implementation personnel (at regional and national level), the donor, and other external stakeholders, including project-related government institutions that can use their findings to effect change. The evaluation team, together with the project team, conducted a detailed stakeholder analysis during the inception phase to identify the external stakeholders associated with the project and how they could use the evaluation, namely, government at national and local level, local non-governmental organizations (NGOs) that had intervened in or benefited from the project and local beneficiaries, including fisherfolk, women and youth.

1.3 Scope and objectives of the evaluation

5. The evaluation assessed the project's contribution to improving coral reef fisheries management for restoration, protection and income generation; to improving fishery value chains and access to market for coral reef fisheries products; to reducing illegal, unreported, and unregulated (IUU) fishing; to increasing maritime safety; and to enhancing and sharing knowledge on the improved management of coral reef fisheries.

6. The evaluation took into consideration any limitations that prevailed in the implementation period, specifically, the COVID-19 pandemic and other events that may have affected the effectiveness of its activities.

[1] A no-cost extension was granted for the period December 2022 to June 2023.

7. The objective of the evaluation is to provide valuable recommendations based on evidence and findings following the principles and criteria established by the Development Assistance Committee of the Organisation for Economic Co-operation and Development. These principles were refined into six criteria: relevance, coherence, effectiveness, efficiency, impact and sustainability. The evaluation also looked at cross-cutting issues such as inclusiveness, monitoring and evaluation (M&E), capacity development, partnerships, and project coordination.

8. Table 1 presents the list of evaluation questions, based on those included in the evaluation's terms of reference and methodological note, which this exercise intended to answer. A detailed evaluation matrix was prepared, which includes the lines of inquiry and indicators under each evaluation question, as well as the methods and sources that guided the collection of information and evidence (see Appendix 2).

Table 1. Evaluation questions and subquestions

Key question	Subquestions
EQ 1: To what extent is the project relevant to country priorities and FAO strategies for sustainable fisheries management?	● How well does the project align with the FAO strategies, particularly in the context of promoting sustainable small-scale fisheries, ecosystem-based management and the Blue Growth Initiative? ● To what extent does the use of fish aggregation devices (FADs) align with the FAO Code of Conduct for Responsible Fisheries, considering the specific environmental and resource management challenges in the project areas?
EQ 2: To what extent were the project's interventions implemented in synergy and complementarity with existing interventions, as well as global, regional, and national initiatives?	● To what extent was the project coherent with existing interventions in the same area (that is, similar projects recently implemented)? ● To what extent did the project design take into consideration good practices and lessons learned from similar projects (implemented in the same geographical area or other areas with similar issues and characteristics)? ● To what extent was the project aligned with FAO's initiatives and policies (for example, the Blue Growth Initiative, the Code of Conduct for Responsible Fisheries, and the Ecosystem Approach to Fisheries)?
EQ 3: To what extent were the project's interventions effective in achieving the expected results?	● To what extent did the project effectively achieve its intended results? ● What were the internal or external factors that helped or hindered the achievement of its intended results? ● What were the positive and negative intended and unintended project results that either facilitated or constrained FAO's work on this initiative? ● What changes did this project promote on the food security and livelihoods of the communities in targeted areas?
EQ 4: To what extent was the project implemented efficiently and was management able to adapt to changes in conditions?	● To what extent did the project adhere to the planned budget for the four components, activities, and project management (planned budget versus expenditures)? What were the major factors behind any deviations? ● To what extent did the project governance structure facilitate (or hamper) project execution, timely resolution of issues, and contribute to the achievement of project objectives? ● To what extent was the project able to adapt to changes in conditions (such as delays, COVID-19)?
EQ 5: How did FAO's project ensure sustainability at community and institutional level?	● Are the changes achieved likely to be sustainable? What factors enhanced the sustainability or may inhibit the sustainability of benefits? ● To what extent did the project improve the enabling environment (strengthen systems, institutions, capacities and policies) to better support future development? ● To what extent was a project exit strategy devised and implemented, ensuring the continuation of its positive effects (including capacity considerations)?
EQ 6: How did FAO's project ensure inclusiveness in the design and implementation stages of the project?	● How was the project implemented in a manner that ensured gender-equitable participation? To what extent did women benefit from the project? What changes did the project promote in their lives? ● How did the project help to address the needs of vulnerable populations (youth, minorities, people with disabilities)? What were the barriers faced?

Key question	Subquestions
EQ 7: To what extent were FAO's stakeholders, partnerships and coordination appropriate and effective in achieving the intended results?	● To what extent did the project sustain and expand linkages and partnerships with civil society, government, development partners, and other stakeholders at country, regional and global level?
EQ 8: Was there an M&E and learning plan in place? If so, was it practical and sufficient?	● Was the information from the M&E system used appropriately to make timely decisions and foster learning during project implementation? ● Given the amount of information generated, how is the project assessing, documenting, and sharing its results, lessons learned and experiences?

Source: Authors' own elaboration

1.4 Methodology

9. The evaluation took place between April 2023 and February 2024. It was managed by the FAO Office of Evaluation through a consultative and transparent approach with internal and external stakeholders. The evaluation was conducted in three different stages: i) a preparatory/scoping phase (March–April 2023); ii) a data-collection and assessment phase (May–July 2023); and iii) report writing and dissemination (August 2023–February 2024).

10. The Evaluation Team further developed the main evaluation questions and subquestions to capture specific features of project implementation at country level, taking into consideration certain aspects of the fisheries sector and project workplan in each of the targeted countries. To answer the key evaluation questions, the team developed an evaluation matrix to detail subquestions, indicators, sources of information to monitor said indicators, and the methods and instruments to be used.

11. The following methods and sources were used to collect primary and secondary data:

    i. a desk review of project-related documents and reports, including i) data from the project monitoring system; ii) project/programme information platform; iii) semi-annual and country progress reports; iv) project implementation reports; v) national strategic documents; vi) documents by regional/local governments and organizations and institutions involved in specific aspects of coastal and marine fisheries; vii) technical reports and reports from FAO support missions; and viii) other documentation identified in the course of the evaluation;

    ii. semi-structured interviews (in person and remotely) with key informants, stakeholders and participants at the regional, national and local level, from the public and private sectors, based on interview protocols developed by the Evaluation Team;

    iii. focus-group discussions with project participants and stakeholders, including local communities, also supported by interview protocols; and

    iv. direct observation during field visits.

12. Protocols for focus-group discussions and individual interviews were developed according to the type of actor to be interviewed and the topic to be addressed. Special attention was paid to ensuring that women and disadvantaged groups were consulted. In terms of gender analysis, the Evaluation Team assessed the project's contribution to the objectives set out in the FAO Policy on Gender Equality.

13. To answer the question on sustainability, four main criteria were assessed: i) beneficiaries' ownership of project results; ii) the availability of resources; iii) whether the capacity of the actors

involved was sufficient; and iv) whether there was a conducive institutional and social environment.

14. Approximately 330 people (104 of which women) were consulted in focus-group discussions in the four countries visited by the Evaluation Team. They included FAO and other United Nations (UN) personnel, project personnel, government at central and local level, marine protected areas (MPA) managers, NGOs and community-based organizations, donors and a large group of local fisherfolk beneficiaries.

15. The main preliminary findings were presented to a group of invited stakeholders – FAO personnel, project personnel and government representatives – and suggestions were made. The draft of the report was circulated among the most interested parties, followed by a matrix of comments and responses.

1.5 Limitations

16. Because of the resources and time available, the Evaluation Team visited all targeted countries apart from Seychelles, where the project started quite late in the cycle. Although some elements of the project in Seychelles have been analysed and presented in this report, the Evaluation Team did not have a full view of what was implemented or achieved in terms of results.

17. Some FAO personnel could not be reached during the evaluation, as they were very busy with the implementation of project activities, particularly in Kenya, Madagascar and Mauritius. There were also isolated cases of unavailability among other stakeholders, but in general, governments, NGOs, local associations and, most importantly, local communities were keen to meet with the Evaluation Team and share their experiences. Unfortunately, in Mauritius, the visit was hampered by the limited involvement of local stakeholders. Only a small number of stakeholders were directly involved, and those only tangentially involved lacked comprehensive information on the operations. To counter this, the Evaluation Team gathered additional information from reports and other secondary sources to prepare this report.

1.6 Structure of the report

18. Following this introduction, section 2 presents the background and context of the project. Section 3 presents the main findings for each evaluation question, followed by conclusions and lessons learned in section 4. The report includes the following appendices: Appendix 1: People interviewed; Appendix 2: Evaluation matrix, Appendix 3: Logical framework matrix evaluated.

2. Background and context of the project

Box 1. Basic project information

- Project title: Project for Enhancing Livelihoods, Food Security and Maritime Safety through Increased Resilience of Fishing Communities Dependent on Coral Reef Fisheries in the African Coastal Countries of the Indian Ocean (REEFFISH)
- Project symbol: GCP/RAF/520/JPN
- Funding agency: Japan International Cooperation Agency (JICA)
- Recipient countries: The Comoros, Kenya, Madagascar, Mauritius and Seychelles, represented by the countries' respective ministries of fisheries
- Implementing agency: Food and Agriculture Organization of the United Nations FAO
- Expected start date: 1 November 2019
- Expected end date: 31 October 2022 (no-cost extension to June 2023)
- Total budget: USD 4 400 000

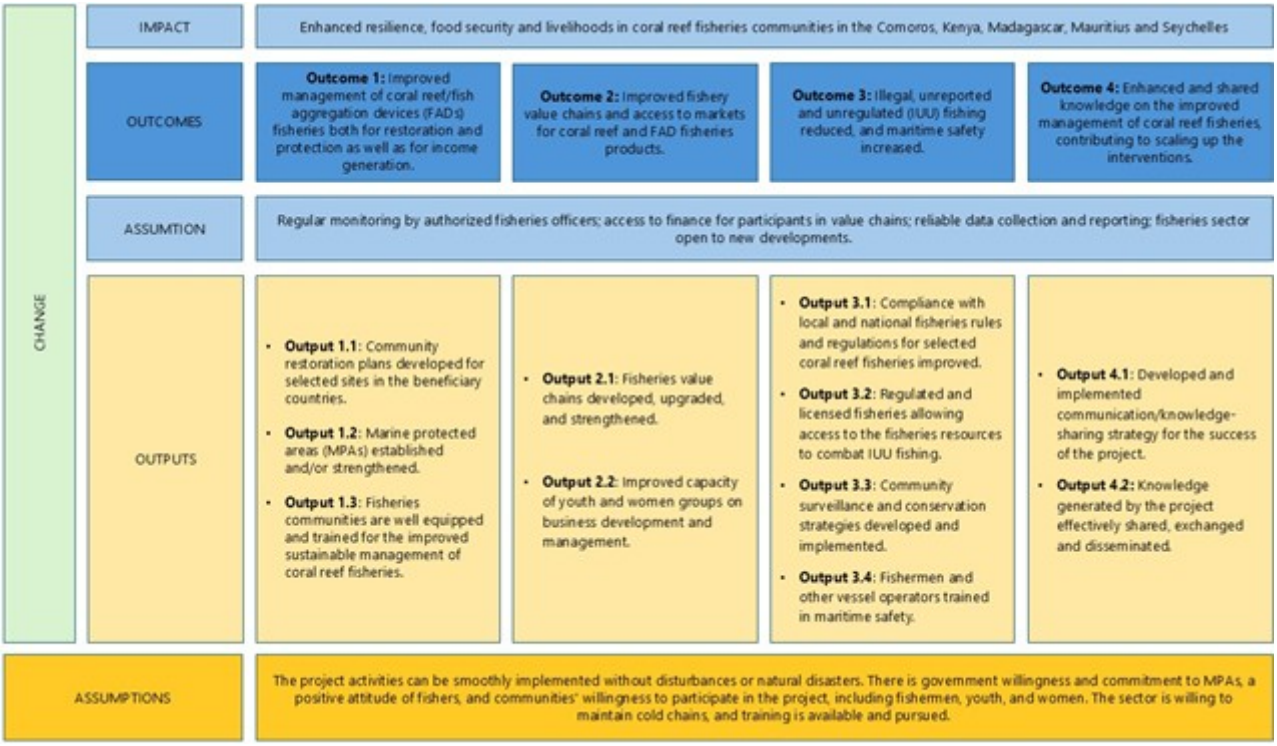
Source: Authors' own elaboration.

19. The REEFFISH project aligns with a decision by the Government of Japan to support the blue economy in Africa, in particular, the western Indian Ocean countries (Ministry of Foreign Affairs of Japan, 2019). FAO designed the project in consultation with the donor and the countries in question. It implemented the project as the grant recipient over the agreed period (from 2019 to 2022) and received a six-month extension from 1 January 2023 to 30 June 2023 due to unavoidable delays that affected the timing of project implementation.

20. The Small Island Developing States (SIDS) and coastal "mainland" countries of the western Indian Ocean in Africa are endowed with extensive coral reefs. Climate change, including ocean acidification and coral bleaching, is affecting coral reef fisheries in all the countries of the target area. The Blue Growth Initiative (FAO, 2017) provides a framework, tools, and approaches for improving their fisheries and fostering sustainability along the value chain in a bid to meet production needs while enhancing livelihoods, food security, and maritime safety.

21. The objective of this project was to improve coral reef fisheries production for food security by restoring fragile ecosystems and assisting fishing communities in better managing their coral reef resources in the Comoros, Kenya, Madagascar, Mauritius and Seychelles. The intended overall impact of the project was to forge resilient coral reef fisheries communities through the following outcomes: i) improved management of coral reef fisheries for both restoration and protection, as well as for income generation; ii) improved fishery value chains and access to markets for coral reef fisheries products; iii) a reduction in IUU fishing and an increase in maritime safety; and iv) enhanced and shared knowledge on the improved management of coral reef fisheries contributing to a scaling up of the interventions. The project's results chain includes activities that generate outputs, in turn leading to specific outcomes, ultimately contributing to overall impact. The causality in this chain is established by identifying assumptions at both the output and outcome stages. These can be seen in Figure 1. A comprehensive logical framework matrix is provided in Appendix 3.

Figure 1. Project theory of change



Source: Authors' own elaboration

22. The principal stakeholders were the fisheries professionals (fisherfolk, seafood collectors, women processors and fishmongers, among others) who target reef fisheries resources (fish, crustaceans, molluscs, and the like) as well as reef-dwelling small pelagic fish species. Certain fishers were provided with legal fishing equipment in exchange for their unregulated gear. The project targeted young people with a view to involving them in data collection and MPA surveillance, as cold-chain operators and fish aggregation device (FAD) manufacturers, and in other ocean-related income-generating activities (tourism and awareness raising, among others). The project targeted women fish processors and fishmongers to reduce post-harvest losses and improve marketing. Governmental fisheries institutions were to benefit from the project through improved data collection and analysis, as well as strengthened fishing technology and fish processing.

23. The line ministries responsible for fisheries actively participated and benefited from project implementation. These included ministries of agriculture, ministries of defence, which oversee the coastguard, and ministries responsible for maritime affairs. Ministries of immigration and ministries of planning and finance were also among the project's stakeholders. The five participating countries conducted stakeholder consultations on the management of coral reef fisheries, safety at sea, and combating IUU fishing, while simultaneously aiming to improve selected value chains for better income for fisheries professionals. The results of the national consultations were harmonized at the regional level to develop a regional collaboration to increase safety at sea and establish a regional approach to overcome various threats.

24. An important stakeholder was the Japan International Cooperation Agency (JICA), which had vast experience in the region's fisheries sector.

3. Findings

3.1 Relevance

EQ 1: To what extent is the project relevant to country priorities and FAO strategies for sustainable fisheries management?

Finding 1. While the project aligned with key country priorities outlined in the Country Programming Framework (CPFs), the project's ambitious scope of activities and broad geographic targets, coupled with limited implementation time and resources, affected its ability to effectively customize activities to specific target areas within each country.

25. The REEFFISH project is in alignment with and contributes to the achievement of the outcomes outlined in the CPFs for each targeted country. Below is a detailed list of the specific outcomes under the CPFs for each of the countries involved in the project.

Table 2. Project outcomes

CPFs period by country	Relevant CPF outcomes narrative
The Comoros CPF (2014–2019)	i. Increased producer incomes, including those of young farmers (fishers), and greater food and nutritional security, especially for the most vulnerable; ii. reliable statistical data to aid the government in steering the agricultural sector (including fisheries); and iii. regular evaluation of the performance of agricultural programmes and projects (including fisheries) and the status of food security.
Kenya CPF (2014–2017)	i. Agricultural-based livelihoods and sectors (including fisheries) are supported by an enabling policy, strategy and investment environment that promotes equality and inclusivity; ii. the productivity of medium- and small-scale agricultural producers (including fishers) is increased, diversified and aligned to market; iii. the management of land, water and other natural resources is improved for enhanced food security and socioeconomic development at national, county and community level; iv. the livelihood resilience of targeted, vulnerable populations is improved; and v. access to and use of information, innovation, a global pool of knowledge and expertise drives holistic growth in the agricultural sector (including fisheries).
Madagascar CPF (2018–2021)	i. The availability of up-to-date/comprehensive information and statistical data in order to make informed decisions; ii. an incentivizing environment for the integration of women and youth in agricultural entrepreneurship; iii. strengthening the capacities of beneficiaries and key actors to prevent and mitigate the impacts of hazards; iv. strengthening risk and threat monitoring mechanisms that could affect agricultural sectors, including fisheries and aquaculture, and the mechanisms for post-hazard evaluation and monitoring of food security and nutrition in vulnerable areas; v. strengthening stakeholder capacity in the management and good governance of natural resources while reconciling the aspects of conservation and food and nutritional security; and vi. effectively implementing the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security.
Mauritius CPF (2014–2017)	i. The strengthening of enabling framework – strategies, legal and management frameworks and institutional capacities in support of agribusiness development for selected strategic value chains; ii. a more enabling institutional environment – land-use management, an early warning system for animal and plant diseases and pests, and agricultural statistics for better evidence-based decision making; and

CPFs period by country	Relevant CPF outcomes narrative
	iii. an improved enabling environment in terms of policies, legal frameworks and institutional capacity for the promotion of sustainable aquaculture and off-lagoon fisheries.
Seychelles CPF (2014–2017)	i. The government adopts policies, investment plans and legal frameworks to improve food security and nutrition; ii. the capacities of government institutions such as the Seychelles Fishing Authority and the Seychelles National Parks Authority are strengthened in terms of planning and management of agricultural and natural resources to support the transition to sustainable agricultural production systems through monitoring, statistics, assessment and analysis; and iii. conducive and enabling policies and a regulatory environment are created for increased market and business opportunities that link tourism and agriculture.

Source: Authors' own elaboration.

26. The project's design was influenced by the donor, the Government of Japan, and its priorities for the blue economy and the western Indian Ocean region under its Grant Aid programme, drawing on FAO's knowledge of and position in the region. The Grant Aid programme mostly tends to fund short-term infrastructure projects. However, the REEFFISH project had four outcomes and 11 outputs, with many activities (see the table in Figure 2 and the logical framework matrix in Appendix 3) spread over five countries that had substantive differences in terms of level of governance and development. The Evaluation Team found that, in general, the project could have achieved more robust and consistent results had it focused on a smaller geographical area and/or fewer deliverables. Most countries expressed their concern about the short implementation period (which was later impacted by the COVID-19 pandemic) and the limited resources available to implement everything that was planned.

27. Government representatives and beneficiaries met by the team, though they welcomed the project, expressed concern about the contextual differences between the targeted countries, which included coastal and island nations. These differences included diverse languages, different stages of legal and institutional development, and varying levels of economic development. In Madagascar, the local project team appreciated the project's contribution, given the local needs and challenges. However, the project was designed before the target area was selected, which meant that some activities were not well suited to the context. For instance, the implementation of a vessel monitoring system (VMS) was deemed unfeasible for small canoes, which are common in artisanal fisheries in the MPA. A VMS uses transponders, which need to be installed in boats under certain conditions, with a source of energy that is not available in a small canoe. In addition, a planned review of Madagascar's law on octopus fisheries was irrelevant, as there is minimal octopus fishing in the area. Moreover, the management of protected areas and conservation of key ecosystems are already key priorities in the *Schéma Régional d'Aménagement du Territoire Diego, Ambilobe, Nosy Be, Ambanja region* (SRAT DIANA), so the project did not need to contribute to the development of a management plan. Some key informants believed the project aimed to add to an existing development system in the region, parts of which were needed. However, stakeholders were insufficiently prepared and, hence, unable to capitalize on achievements and ensure the sustainability of results. They lamented that the project's implementation timeline was too short, at just three years, to build meaningful momentum and results. The Government of the Comoros, represented by the National Directorate for Aquatic Resources (DGRH), welcomed and appreciated the project, although it believed the project's timeframe and resources were insufficient for so many countries, activities, and challenges. At the local level, beneficiaries expressed the need for more substantive support, as there were so many people involved – for example, there were not enough life jackets for all fishers. In both Kenya and the Comoros, time limitations were a challenge. For example, it took too long to deploy the

FADs and the cold stores. Indeed, they were only being deployed as the project ended and there is a risk of users' experience not being documented.

Finding 2. The project was found to be in line with relevant FAO strategies and guidelines, such as the Voluntary Guidelines for Sustainable Small-scale Fisheries, the Ecosystem Approach to Fisheries, and the Blue Growth Initiative. However, there may have been a conflict with best practice prescribed by the FAO Code of Conduct for Responsible Fisheries when it came to the use of FADs.

28. The project aligns with the Voluntary Guidelines for Securing Small-Scale Fisheries in the Context of Food Security and Poverty Eradication, thanks to its emphasis on inclusion (FAO, 2015). This was demonstrated by the active participation of the fishing community in discussions aimed at setting needs and priorities. The project took the FAO Code of Conduct for Responsible Fisheries (FAO, 1995) into consideration in its efforts to improve the management of fisheries and boost both restoration and protection. The Ecosystem Approach to Fisheries (Garcia and Cochrane, 2005) was also taken into account, as the project concerned the productivity and limitations of coral reef fisheries and the need to diversify fisheries to other areas, fishing equipment and target species.

29. In Mauritius, the project design aligned with the FAO Code of Conduct for Responsible Fisheries, following the prescribed approach to development and taking a more general Ecosystem Approach to Fisheries (Garcia and Cochrane, 2005), as indicated in the project objectives. The use of FADs was a potential area of conflict with best practice prescribed by the FAO Code of Conduct for Responsible Fisheries. FADs attract juvenile yellowfin tuna, stocks of which are currently under threat in the western Indian Ocean (Davies, Mees and Milner-Gulland, 2014). The intervention was required due to an urgent need to move fishers away from the lagoon, but this should be closely monitored in subsequent and other initiatives, such as the Blue Growth Initiative, which is also focused on the development of off-lagoon fisheries and in promoting an enhanced return on investment for small-scale fishers (FAO, 2017).[2]

3.2 Coherence

EQ 2: To what extent were the project's interventions implemented in synergy and complementarity with existing interventions, as well as global, regional and national initiatives and FAO policies?

Finding 3. The REEFFISH project demonstrated good complementarity with (and continuation of) other projects in the region and simultaneously promoted synergies with other projects in the different countries.

30. The Government of Kenya implemented the Kenya Marine Fisheries and Socio-Economic Development project (KEMFSED), funded by the World Bank (KEMFSED, 2025), which supports the country in its efforts to leverage emerging opportunities in the blue economy. The project runs from 2020 to 2025, with funding of KSH 10 billion (about USD 62 million). Its development objective is to improve the management of priority fisheries and mariculture and increase access to complementary livelihood activities in coastal communities. The KEMFSED project covers five coastal counties on the Indian Ocean – Kwale, Mombasa, Kilifi, Tana River and Lamu – as it focuses on improving marine fisheries. It aims to strengthen the management of fisheries that are priorities for coastal livelihoods through interventions to secure stocks at sustainable levels. Kwale

[2] The goals of the Blue Growth Initiative are to maximize economic and social benefits while minimizing environmental degradation from these sectors. These goals are closely aligned with the Sustainable Development Goals (SDGs) of the 2030 Agenda.

and Kilifi are the two beneficiary counties of the REEFFISH project, so it is the county councils and the local government that coordinate synergies between the projects.

31. FAO projects in Kenya include:

i. TCP/KEN/3502 – "Support the implementation of mariculture in Kenya within an ecosystem approach" – from 2015 to 2017, which assisted coastal farmers and fisherfolk with several livelihood and development interventions. Key among them was mariculture development, which resulted in the promotion of algae production and links to markets. Parts of the Beach Management Unit (BMU) targeted by this project were later beneficiaries of the REEFFISH project.

ii. Project FMM/GLO/112/MUL – BABY04 – "Blue Growth Initiative in Support of Food Nutrition Security, Poverty Alleviation and Healthy Oceans" – aimed to improve knowledge on coral reef systems, to build the capacity of BMU members in mangrove development, and to develop a mariculture strategy. The project supported diverse livelihood activities, including better fish processing methods.

iii. In the Vanga BMU, the local communities were introduced to Jikos – ovens used for cooking fish that save firewood – through another technical cooperation programme, "Marine Fisheries Promotion Advisory Work for Blue Economy Development". This project, funded by JICA and implemented by the Government of Kenya in partnership with JICA, introduced the Jikos in an experimental format. The communities recognized the value of the ovens and, when they were contacted by the REEFFISH project, chose to have Jikos delivered. The ovens are crucial for processing fish, particularly in periods of high yield (typically from May to July), when small pelagics are caught in large quantities. Cooking and drying the fish is the most effective way of preserving it. The initiative proved to be a successful pilot activity and may be up scaled.

32. FAO projects in the Comoros include:

i. The "Comoros Coastal Resources Co-Management for Sustainable Livelihood" project was approved in December 2010 and ended in April 2017. The World Bank lent the Comoros around USD 2.7 million to create and implement a coastal management plan. Fishing activities account for a large part of employment and income in many rural areas in the Comoros. According to the World Bank, the project increased credit to many fishing villages, decreasing poverty and increasing employment opportunities (Rabemananoro, 2016). For example, as of the end of December 2015, close to 6 000 fishers had received training in sustainable fishing techniques, while five resource co-management plans to prevent overfishing had been approved by all 29 targeted villages. The co-management measures included a ban on gillnets, bed nets, dynamite fishing and the use of fish poison (tephrosia). The success of the project prompted the Government of the Comoros to expand the approach with the "South West Indian Ocean Fisheries Governance and Shared Growth (SWIOFish1)" project, investing USD 9.5 million in International Development Association funding and USD 3.5 million in Global Environment Facility funding to further the sustainable development of the sector. Project activities revolved around global, regional and national policies for the protection of the reef coastal environment.

ii. SWIOFish1 has since been implemented and closed.[3] This project provided significant support for fisheries monitoring, surveillance and control, and building the *Centre*

[3] The project ran from 2015 to 2021.

National de Contrôle et de Surveillance de Pêche (CNCSP). The centre was used to host REEFFISH personnel and equipment and benefited from the project's IUU activities. Indeed, the transponder pilot (part of the VMS, whereby adapted gadgets were allocated to artisanal fishing boats) undertaken during the SWIOFish1 was later recommended for use in beneficiary boats of the REEFFISH project.

iii. One project is still running, funded by the International Labour Organization (ILO), which supports some value-chain initiatives in the same target areas as the REEFFISH project. There was a collaboration between ILO and FAO in this purpose. ILO selected REEFFISH project sites in accordance with internal discussions between FAO and ILO and in order to improve the impacts on value chain. This ILO project contributes to activities related to the structuring of fishers' groups, supporting them through awareness-raising training and the provision of processing equipment, such as dryers, baskets and cleaning utensils, for the benefit of women.

iv. Dahari, a local NGO, also funds small initiatives with fishers, including a study on the resources of the island of Anjouan. The REEFFISH, ILO and Dahari projects decided to join forces. By operating at the same site (Moya, on Anjouan), the aim was to be as consistent as possible in executing complementary tasks, agreeing on the activities each project should support. These would include the provision of dryers for women, joint participation in the management of octopus closures, joint operation on capacity building, all in a way that avoided overlap and repetition. Moreover, Dahari is expected to continue to support similar activities after the end of the REEFFISH project. In addition, Moya City Hall has been involved in managing the project by facilitating the implementation of management measures for local closures and octopus fisheries.

v. At Parc National de Moheli, collaboration was done to ensure that the activities are known by the organization after the project ends.

vi. There was involvement of the European Union in the IUU fishing workshop and discussions on the project results, as the European Union was interested with the activities related to co-management and value chain, which were to be considered in an upcoming European Union project (Pacte Vert et Bleu).

33. In Mauritius, as mentioned, FAO´s work is in line with the objectives of the REEFFISH project. With no FAO involvement, JICA is funding other marine-related projects in the country, notably the "Project for the Development of Integrated Coastal Ecosystem Management System" (JICA, n.d.), which is being implemented by the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping, and will end in 2027. Interviews confirmed that JICA's priority objectives in this project include stock assessments, post-harvest conservation support, and suitable sustainable fishing gear and are generally in line with the current REEFFISH project. The ECOFISH-United Nations Development Programme (UNDP) project "Support to the Artisanal Fishing Community for the Sustainable Management of Coastal Fisheries and to Improve Their Economic Situation'' was launched about the same time as the REEFFISH project and has similar deliverables (ECOFISH, n.d.). These include the installation of FADs, the promotion of best fishing practices, diverse training events and capacity building, infrastructure development and communications. Interviews with key stakeholders confirmed that there had been discussions between ECOFISH and SWIOFish3 to ensure the cohesiveness of interventions and to minimize overlap between the two projects. This included selecting different sites and a particular type of buoy for FADs.

34. In Madagascar, the REEFFISH target area, Ankarea MPA, is also part of the SWIOFish2 priority area. As this governmental project is embedded in the Fisheries Directorate and its branches, the REEFFISH project focal point (government contact for the project, coordinating the implementation of activities in the project area) and the SWIOFish2 coordinator (person within

the government responsible for project implementation) for the target area are the same person. In addition, the REEFFISH project leads (members of the project steering committee [PSC]) looked at the contribution of Wildlife Conservation Society (WCS) and tried to fill gaps or reinforce activities wherever possible. WCS and the Ankarea Association are the co-managing entities of the Ankarea MPA, where REEFFISH has focused its activities. They are the project's primary partners, working in the same intervention area. The existence of a local governance arrangement through the Ankarea Association and the Dina (local by-law) fulfilled a precondition to project implementation. The coherence of project interventions with the existing governance system was, therefore, very strong. WCS and the Ankarea Association were more focused on conservation, while the REEFFISH project focuses more on sustainable fisheries development. All seek the sustainable use of natural resources. For example, while WCS has funded work on catch per unit effort (CPUE) data collection and surveillance efforts (making a boat available to the Community Control and Surveillance committee [CCS]) SWIOFish2 has supported the professionalization of fishers and efforts to build maritime security. To assist with the latter, the REEFFISH project supported the establishment of a green stripe card for fishers. Only fishers with this card will be allowed to fish in the MPA, which is crucial to controlling the effects of migration and limiting fishing. This regulation is not yet operational, as the related procedure is still being discussed at the ministerial level.

3.3 Effectiveness

EQ 3: To what extent were the project's interventions effective in achieving the expected results?

3.3.1 Outcome 1: Improved management of coral reef/fish aggregation devices fisheries for restoration, protection and income generation

Outcome 1 was divided into three outputs and eight activities. The strategy developed to implement this outcome was: i) to organize the baseline studies, data collection, stakeholder workshops, and awareness-raising on project objectives, which involved 871 people; ii) to confirm the project sites in concert with government – eight project sites were selected in existing MPAs and four in co-managed areas – and to strengthen the management plans and strategy for coral reef protection; iii) to identify the need for nursery and spawning grounds; and iv) to assess the specific need for FADs, buoys, and destructive fishing gear reduction, and to provide equipment and training to support the development of alternative fishing practices and reduce fishing pressure around the coral reefs.

Finding 4. Baseline studies of the status of coral reefs and related fisheries at target sites took place and endline surveys were supposed to be conducted to show the project's impact. However, the monitoring process experienced serious delays, meaning final baseline reports were still being produced as the project was ending and no second survey took place during the project.

35. According to Output 1.1 (community restoration plans developed and implemented for selected sites), scoping and evaluation studies were to take place at the beginning of the project to produce baselines status reports on the coral reefs in the targeted areas. This would be followed by further monitoring to record the project's impacts. Moreover, the project reported that "Five stakeholder's workshops were organized with 322 participants including beneficiaries, government representatives and stakeholders. Sensitization on project objectives and coral reef protection was done in the project sites with 549 participants." NGOs carried out environmental studies on coral reef areas in the Comoros, Kenya, Madagascar and Seychelles. In Mauritius, coral reef monitoring is undertaken by the government, so REEFFISH did not need to support this activity. However, protocol harmonization recommendations were developed at a technical workshop in January 2022, led by Coastal Ocean Research and Development in the Indian Ocean (CORDIO), with guidelines from the Global Coral Reef Monitoring Network (GCRMN). At the time of the final evaluation, the baseline reports for Kenya were still being produced. The situation was different in Madagascar and Mauritius, as explained below.

36. In Kenya, CORDIO signed a letter of agreement with the REEFFISH project to carry out the baseline survey of the coral reefs (which was conducted while this evaluation was taking place). Some of the REEFFISH targeted sites were already part of CORDIO's regular monitoring process, with information shared regularly with GCRMN. However, some of the project sites were an addition to CORDIO's network, which the NGO cited as a positive thing. Interestingly, most of the project's sites are fishing areas outside of any type of MPA and, as indicated by the results of the baseline survey, all reefs are being overfished, except one, which had no coral.

37. In the Comoros, two organizations signed a letter of agreement with the REEFFISH project to carry out a baseline survey on one of the three islands. These organizations included the *Association d'Intervention pour le Développement et l'Environnement* (AIDE) and the National Park of Moheli on the islands of Grande Comore and Moheli respectively. AIDE also played a leading role in compiling all information in one report. The project filled a significant data gap on coral reefs and related fisheries. At each site, the institution carrying out the baseline survey established four monitoring stations. In the case of the reef of Malé, two of the stations were in the reef flats and two were in the slopes. At this site, as previously recorded data was available for the reef flats from one of the reef flats stations, the baseline registered a decline due to fishing "on foot" and trampling for octopus. The data collected at the other station showed that it had remained unchanged, probably because it is only exposed during extremely low tide, making access by walking fishers quite difficult. On the slopes, one station showed good coral cover (more than 50 percent), while the other showed more sand. However, the coral reef baseline reports were completed relatively late in the project. AIDE is still in the process of combining the reports from the three islands as the project concludes, meaning no further monitoring will occur. Consequently, there will be no endline survey to record the impact of project interventions in terms of improved management or restoration.

38. In Mauritius, there was a decision *not* to select sites in the study areas for the collection of baseline data. The reasoning was that the baseline information on coral reef health was collected by an independent government initiative as part of a long-term programme at several predetermined sites, which were not directly located in the project's targeted areas but were close by and provided a general indication of coral health in the area. No data were collected in Rodrigues, as the project was only initiated there towards the end of the period. Interviews with project leaders in Mauritius and Rodrigues confirmed that no baseline information on catch and effort were collected during the project.

39. In Madagascar, the REEFFISH site is an island that forms part of the Ankarea MPA, which is managed by WCS who carries out coral reef monitoring in the area every two years. With the extra support available from the REEFFISH project, experts recommended that coral reef monitoring be done at least once a year. After the regional technical workshop that harmonized survey protocols in 2022, some changes were introduced to the routine WCS surveys, for example, the introduction of coral reef ecological monitoring every two years and the focusing of monitoring parameters on corals, fish and macroinvertebrates. These are linked to protocols recommended by GCRMN: GCRMN level 2 – to identify the corals based on their morphology (massive, submissive, crust-forming, leaf-like, branched, tabular) and GCRMN level 3 – to identify the corals based on both their morphology and their taxonomy, genus level. The results of the monitoring conducted by WCS, which took into account the above changes, were shared with stakeholders and the REEFFISH project team. To accommodate the changes, WCS and the REEFFISH project negotiated a new letter of agreement to support further monitoring. However, this was validated by WCS headquarters very late in the project's final trimester and could not be implemented. While the letter was approved by REEFFISH, WCS did not validate it due to issues related to data ownership.

40. In the Seychelles, REEFFISH supported the Marine Conservation Society Seychelles (MCSS) NGO with the collection of data in several sites of Anse Royale, with the data to be used as a baseline for further monitoring. MCSS harmonized the data-collection methodology with that used by another NGO in Seychelles, the Island Conservation Society (ICS), which already undertakes annual coral reef monitoring of Silhouette Island.

Finding 5. The project's initial focus – the creation or strengthening and management of MPAs in the targeted countries – shifted towards work in areas with diverse management approaches and links to MPA authorities, including co-management areas and locally managed marine areas (LMMAs).

41. According to Output 1.2, MPAs were to be established and/or strengthened. The output further established that "Existing MPAs will be reviewed and strengthened in Kenya and Seychelles, while new MPAs will be established in [the] Comoros, Madagascar and Mauritius" (FAO, 2019). The final report of the project mentions that "Eight MPAs and four co-managed areas have been selected for the project implementation, while the strategy to strengthen the MPAs was defined in each country with the governments" (FAO, 2023). While the project did not contribute to the creation of any new MPAs, it did help to strengthen one MPA in Madagascar and two in the Comoros. In Mauritius, the project sites were adjacent to MPAs or fishing reserves. In Kenya and the Comoros, the REEFFISH project worked with community-based fisheries management institutions and promoted co-management plans, while in Seychelles, the project focused on two MPAs with Curieuse as a secondary site.

42. In the Comoros, the REEFFISH project worked inside the marine parks of Coelacanthe (in Grande Comore) and Moheli (on Moheli Island). The project worked with the Parks Authority, which reports to the Ministry of Agriculture, Fisheries, Environment, Tourism and Handicraft. On Grande Comore, the *Parc National de Coelacanthe* (PNC) was one project target and the principal site, Malé, was right inside the park. It should be mentioned, however, that both parks have very little infrastructure and human resource capacity. Collaboration between the REEFFISH project and the parks included the training of trainees and involving park personnel in the training of fishers. Park personnel were involved as much as possible in co-management discussions and agreements with fishers in their areas. The priority site, Barakani, which is inside the Moheli National Park, has no infrastructure. The REEFFISH project also supported the design, signing and implementation of two co-management plans in the two MPAs on the sites of Malé and Barakani. To this end, it worked with the Association des Pêcheurs de Jambé in Malé.[4] The association, together with the local fisheries authority, the parks authority and the mayor of Malé, signed a co-management plan with the participation of most fisherfolk. The co-management plan sets out rules for fishing in the area (where to fish, what fishing gear to use, how much to catch, seasons, and so on) and, as one of its components, promotes closed seasons. Closed seasons are short periods of time when fishing is outlawed to allow a certain species or group of species to reproduce or grow undisturbed to improve CPUE. Indeed, the authorities have already closed areas of the rocky plateau at the front of the beach (the ideal place for octopus) on a rotating basis and have seen increased yields, especially for octopus. Another co-management plan was signed in Barakani.

43. In Kenya, ties with MPAs were not as close. The project initially approached Kenya Wildlife Services, but as it already had the equipment FAO was offering (communication, safety at sea and so on), it advised the project to work with the communities and BMUs, as this would lend support to the MPAs. There was only one LMMA in the area covered by the Mkwiro BMU, close to the Kisite-Mpunguty MPA on the island of Wasin, one of the beneficiaries of REEFFISH. The LMMA was established prior to the project, and it asked REEFFISH to support the design of a co-

[4] This appears to be a very well-organized association, with good leadership. Women make up 30 percent of the 256 members.

management plan. This process was initiated but not finalized. The draft proposal for the co-management plan was supposed to be submitted to local and central authorities, followed by discussions. At the time of this evaluation, REEFFISH was no longer supporting the process and the Evaluation Team was told that it had been discontinued. According to the BMU, the plan's design process began in December 2022, with an envisaged timeline of three months. At the end of the REEFFISH project, the BMU was sceptical that it would ever be finalized, as three steps were still needed: i) approval by the BMU assembly, ii) approval by the Kenya Fisheries Service (KFS) and iii) approval by the Secretary of State.

44. In Madagascar, the Ankarea MPA, with its main island of Nosy Mitsio, was the principal site of the REEFFISH project. Secondary sites were Port Saint Louis (the principal landing site of Nosy Mitsio) and Ambilobe (the main marketplace for the area and principal town of the DIANA region). Land grabbing, anarchic occupations and IUU fishing are the biggest threats to this MPA and surrounding areas. Ambilobe is also just at 135 km by road to Antsiranana (Diego), which is the capital of the DIANA region. The REEFFISH project provided most of its support to the MPA through WCS and to the Ambilobe district to improve the value chain and the fish market. No action was taken to draw up a community restoration or management plan, as outlined in the project's logical framework. The project team ensured that there was no need for such a plan, as an MPA management plan was already in place before the project started.

45. The sites chosen in Mauritius are not directly within MPAs, but close to some form of protection. For example, Poste de Flacq (on the island of Mauritius) is located around a fishing reserve, while Trou-aux-Biches (also on the island of Mauritius) is located around a fishing reserve and marine park. The Pointe Monnier site is on Rodrigues, with no other form of protection. In total, these areas were estimated to have around 11 fish landing stations and more than 468 fishers. The REEFFISH project worked with selected fishers around these sites on all aspects of the project. This included interviews for the selection of priorities, information-gathering sessions, training on several issues, including safety at sea, and supply-chain workshops.

46. In Seychelles, the government proposed that the project focus on one MPA as a priority site. (Two other sites – Silhouette and Anse Royale – which are not MPAs, were also chosen as priorities in order to strengthen management.) It was also chosen because it was a site with coral reefs that could be better protected and in addition, it was under substantial pressure from small-scale fisheries. Curieuse MPA was chosen as a project secondary site.

Finding 6. FADs were designed and built for deployment in open sea in all countries, with the aim of reducing pressure on inner and outer reefs and diversifying fisheries. However, it was not possible to assess their impact, as deployment was delayed due to flawed processes.

47. Also, as part of Output 1.2, the project was expected to produce and deploy at least 100 FADs to attract fish and prevent reef fishing in the MPAs. It also aimed to install 50 sets of buoys and signs for MPAs, which would facilitate environmentally friendly reef fishing. REEFFISH further intended to identify fish and crustacean spawning and nursery grounds (two per country) in the MPAs. According to the REEFFISH final report, "54 FADs and 25 sets of buoys were installed in the project countries per the context, and some countries did not request for the buoys (Kenya, Mauritius) as the MPAs were already bounded" (FAO, 2023).

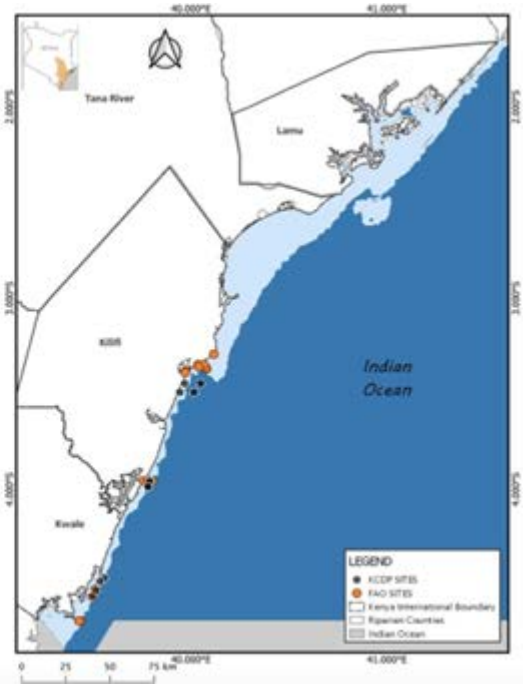
48. The design of the FADs for this project was assigned to two consultants from Mauritius, as the country has long experience with such devices, and one consultant from the Comoros. The design was done in a manner that suited the context of each country, and it was based on the experience from previous projects in each country, discussions with fishers, and a manual developed by the Pacific Community (Sokimi *et al.,* 2020). In Kenya, there were two types of FADs: ten FADs to be

submersed (mostly placed closer to the shore) and ten artisanal FADs to be on the surface, both attached to the sea bottom with weights. Some were at very low depths (22–30 m), which raises a question as to their usefulness.

Figure 2. Location and depth of fish aggregation devices on the coast of Kenya

Results

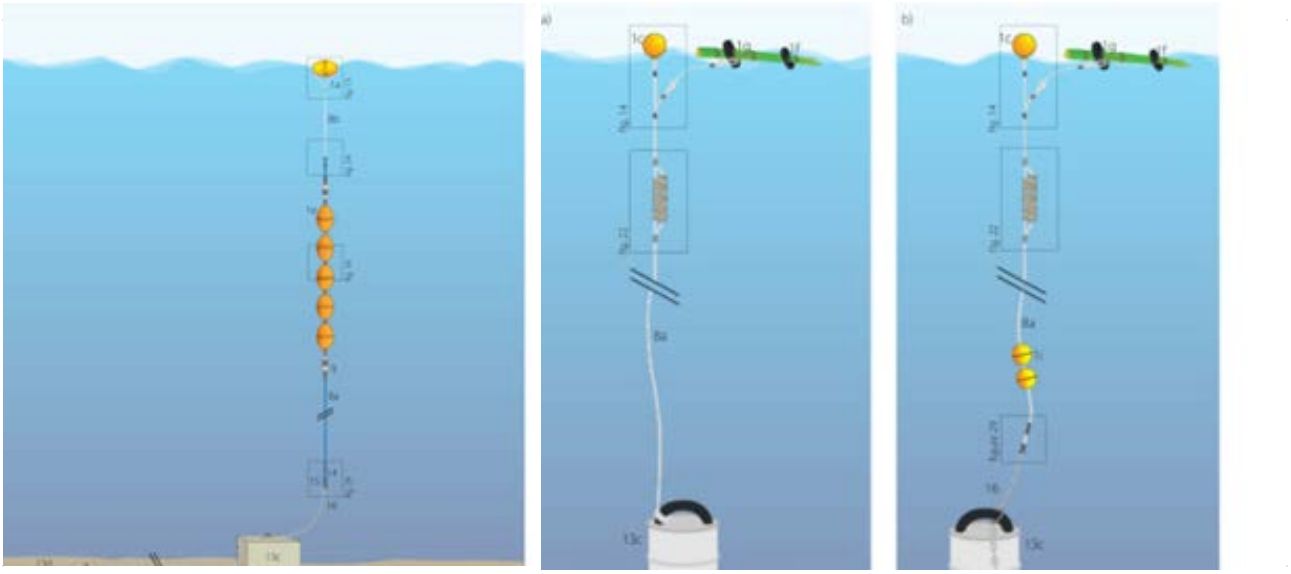
location name	latitude	longitude	ACTIVITY	Depth	Sea Bed
Mayungu deep north	-3.36971	40.08028	FAO	52.7	Pebbles
Mayungu deep south	-3.36075	40.0758	FAO	120	Pebbles
Mayungu shallow north	-3.3469	40.0659	FAO	22	Sandy
Mayungu shallow south	-3.35941	40.03934	FAO	23	Pebbles
MDN	-3.95653	39.78789	FAO	65.8	Coral, Sand, Rubbles
MDN 2	-3.95389	39.79022	FAO	100	Coral, Sand, Rubbles
MDS	-3.96031	39.78919	FAO	135	Coral, Sand, Rubbles
MSN	-3.95213	39.78517	FAO	25.5	Coral, Sand, Rubbles
MSS	-3.95872	39.78176	FAO	28.5	sandy
Munje deep	-4.55885	39.50139	FAO	100	Coral, Sand, Rubbles
Munje Shallow	-4.55913	39.4935	FAO	24	Sand rubbles
Nyuli_D	-4.68827	39.43706	FAO	120	Coral, Sand, Rubbles
Nyuli_S	-4.68774	39.4287	FAO	23.6	Coral, Sand, Rubbles



Note : Refer to the disclaimer on copyright page for the names and boundaries used in this map.

Source: Senedhun, V. 2023. *Personal communication*. Rome.

Figure 3. Designs of simple, low-cost fish aggregation devices, showing the differences between submerged (left) and artisanal fish aggregation devices



Source: Senedhun, V. 2023. *Personal communication*. Rome.

49. In Kenya there were also challenges related to the nature of weights used to attach the FAD to the sea bottom. The team also needed to consider how to deploy them without using forklifts or other heavy and sophisticated equipment, with larger boats not always available on site. Initially, the project procured sandbags, but when these were not available locally, the consultant

suggested cement slabs or blocks. Indeed, the project acquired cement blocks so that it was then possible to use smaller boats to deploy them. The deployment took place at the exact time of the final evaluation. However, circumstances delayed most of the FAD deployment and the activity was suspended. All the equipment was handed over to the Fisheries Department to follow up on the action. In the end, only five out of 20 FADs were deployed, and one had already been removed by the end of June 2023. In further investigating the situation, the Evaluation Team concluded that no proper preparation had been done prior to the provision of FADs to beneficiary BMUs. Apparently, there were disagreements between fishers and the BMUs, the result of a longstanding conflict between MPAs and fishers. It seems that not enough work was done by the BMUs to ensure that the FADs were not perceived as demarcation buoys or any kind of restriction/exclusion. These factors could have been anticipated because, according to FAO Kenya, it was not the first time that FADs were used and there was a history of failure. According to key informants,[5] there had been three attempts by other projects to deploy FADs in Kenya prior to REEFFISH, and all had failed. The reasons for the failure were largely strong waves, theft and vandalism. The Evaluation Team does not understand why the project insisted on deploying FADs on the coast of Kenya when they were known to be prone to failure.

50. In the Comoros, the project was still deploying the first FADs on Anjouan Island at the time of this evaluation, so there was little information about how it went. Other FADs are expected to be deployed on the islands of Grande Comore and Moheli. FADs are not new to the country. However, constraints include theft, breakage by bigger boats and waves, a lack of knowledge about good maintenance, the fact that most materials are imported and not locally available (to replace parts), and a lack of capacity among fisheries authorities to supervise and monitor. Many FADs are maintained by the fishers themselves. In an attempt at mitigation, the REEFFISH project provided training to fishers, not only to educate them about the advantages of FADs, but also to promote some diversification of fisheries. There is also a sustainability concern. In the 1960s, FADs were made with banana trees and rope made of coconut fibre; nowadays, FADs are made of plastic floaters and polypropylene. This may be problematic when FADs are lost and float to distant places, becoming "ghost gear", trapping and killing marine wildlife, and taking a long time to decompose. However, according to experts, if the upper part is well maintained, it is difficult to get lost. It appears that this was an activity that was pre-designed and implemented without taking into account local environmental concerns and knowledge.

51. In Madagascar, eight FADs were installed – four artisanal and four submerged. Some equipment was available for their maintenance. However, by the end of the project, a management mechanism and benefit-sharing scheme for the FADs and associated nets had neither been established nor agreed upon. The location of the submerged FADs, reportedly discussed with the fishing community, was said to require motorized boats for access, with distances estimated to range from 5 to 7 km offshore. Concerns were expressed by certain fishers about the challenges posed by these distances, particularly the need for larger and stronger boats to operate effectively. Additionally, fishers were required to wait after installation before using the FADs to allow for biological colonization. By the end of June 2023, the FADs were not yet operational, making it difficult to assess their effectiveness.

52. The Seychelles suggested sinking old boats to create artificial reefs, with the project providing support for cleaning and sinking. However, the decision-making process was influenced by a change in the project team. Initially, the project team did not favour the inclusion of FADs, resulting in their exclusion from the project. Subsequently, the new project team revisited this decision, advocating for the inclusion of FADs. By the time of the final evaluation, ten FADs had

[5] At the Malindi Workshop in May 2023.

yet to be built and deployed and the Seychelles authorities were eager to learn best practices from other regional projects, such as those in Mauritius and the Comoros. In addition, mooring buoys were en route for installation on the island of Curieuse.

53. In Mauritius, the chosen design was an innovative model that included satellite communications, which had already been tested by the government. FADs have long been used by fishers in Mauritius and are supported by the fisheries authorities. More sophisticated ones are deployed in the waters of the main island. Thus, there was no clear evidence from the project of knowledge gained by contributing to the scaling up of such activities. It was also unclear how the deployment of equipment would directly translate into less fishing pressure in lagoon areas. Fisheries are quite regulated and fishing licences are needed and well controlled. Interviews confirmed the potential for better communication of fisheries information between FADs and fishers, as evidenced by the types of FAD selected for this project. For example, FADs have been delivered to both Mauritius and Rodrigues, but are not yet deployed. There is a delay in Mauritius, as the deployment vessel is in drydock. Rodrigues has no government-owned vessel capable of deploying the FADs, so it needs to hire one. This is not practical for emergency FAD maintenance (for example, the FAD breaking off its mooring), as there is an extended period involved in completing the necessary paperwork for hiring a vessel.

54. There are differences from country to country when it comes to the ownership and management of the FADs. Mauritius was the only country where the government expressed a commitment to keeping and maintaining the FADs. In the Comoros, the government expressed no such commitment, and fishers may not be able to maintain them (at least, they did not commit to doing so). In Kenya, as noted, the deployment of the FADs is not without challenges. In Madagascar, the FADs may be maintained by the MPA and WCS. When it comes to access to the FADs, the picture is similar. While only licensed fishers can fish in Mauritius, it is also true that unlicensed fishers operate, particularly in Rodrigues. In Kenya, fishers need a licence issued by the Fisheries Services on the advice of the BMUs. However, there are no limits on the number of licences issued, and as any FADs will be in the open sea, access will also be open. In the Comoros, there seems to be far fewer efforts at licensing, and as there is little government commitment to maintaining the FADs, it is possible that they will also be open access.

55. In addition, there is no evidence that the project reduced pressure on the reefs or lagoons. Moreover, experience demonstrates that, as more people go offshore, that is, outside the lagoon and closer to the FADs, more people will replace them fishing in the lagoon and the reefs, especially in Kenya and the Comoros. Sea fishing is still an open-access resource for small-scale fisheries and there are no limits on licensing. Furthermore, there is little clarity on the positioning of the FADs in terms of distance to the shore and depth. For some specialists, the further away they are from the coast (beyond 2.5 km), the better, and the only FADs that should be positioned closer to shore are those aimed at catching small pelagic fish for bait. Some fishers consulted prefer the FADs be positioned closer to the shore, so that they can be reached with non-motorized boats.

Finding 7. The project distributed fishing gear to fishers to reduce the pressure on reefs and to eliminate illegal and destructive fishing equipment. There is a lack of evidence to suggest that these outcomes were or will be achieved. Moreover, some of the equipment distributed was inappropriate or did not meet specific needs.

56. Output 1.3 (fisheries communities are well equipped and trained for the improved sustainable management of coral reef fisheries) stated that "Four hundred units of fishing gear will be provided to fishery communities to replace old and illegal gear, which damage coral reefs. Fishery communities will be trained in fishing gear technology and their knowledge will be increased on

different fishing gear and methods." According to the REEFFISH terminal report, "Five hundred and seventy-eight units of fishing gear were delivered to replace illegal fishing nets and provide longlines and fishing materials to replace old fishing gear and provide technical solutions to fish around the FADs. Around 576 fishers were trained for the use of the fishing gear and to fish around the FADs."

57. At all project sites, illegal and destructive fishing gear (mosquito nets, poison, dynamite) are still being used, according to the fishers themselves, local government, fisheries officers and licensing authorities. It is extremely difficult to expunge these practices, as the main reasons for the use of such gear are poverty (no resources to buy better), access (women are more often fishing along the beach) and exhausted resources (the smaller the fish, the smaller the mesh size). When providing alternative fishing gear, as in the case of this project, there is no guarantee that people will abandon the old, damaging and illegal fishing gear. It is almost certain that when a person gets new fishing gear, the old fishing gear will be passed on to a family or community member. The Evaluation Team saw no evidence of old and illegal fishing gear being taken in exchange for new gear. According to FAO, "It is not our role to do that; it is the role of the government." The Evaluation Team also saw no evidence of reduced pressure on closer reefs, and this was confirmed by fisheries officers.

58. In the Comoros, hooks and longlines (to fish around the FADs) were provided to fishers, but most of the gear was still in warehouses when the Evaluation Team visited.

59. In Madagascar, only fishers who attended the training sessions received fishing lines and accessories (such as hooks, reels, cords, and pliers). No old or illegal gear has been withdrawn to date, but project personnel and the Head of Fisheries say this will be done. Nets (2.5 cm mesh size) are still in the Ankarea Community Association office awaiting distribution to women. Each village grouping will get ten nets. The MPA Ankarea area comprises several village clusters or sectors, the project is currently focused on five specific villages where WCS is implementing its activities. In the end, there will be barely any impact on reef resources, reefs closer to coast, fringing reefs and reef plateaus, however, as there will be little change to current behaviour, even if it is positive. What will change is that more people will be able to fish, and the value chain will improve, perhaps even see a reduction in post-harvest losses. However, whether communities can sustain the new *status quo* is questionable, largely because some of the equipment is expensive and sophisticated.

60. In Kenya, as the project is working through the BMUs to implement activities on the ground, the distribution of gear was undertaken by these community organizations. Fishers received the gear and are using it. Furthermore, since longlines are to be provided to three boats donated by the World Bank-funded KEMFSED project and the government, REEFFISH has filled a gap there. However, there is no indication that less effort is being put into fishing over the reefs or that any damaging/illegal fishing gear is being removed. BMUs are an extended arm of the government, but do not have the power to exclude any fishers or take away fishing gear. They can only report such cases to the authorities. The fisheries officer (attached to the BMU) confirmed that recent trends have seen an increase in effort and a decrease in fisheries yields. At some of the landing sites, the fish being caught were clearly quite small.

61. In the Comoros, 40 traps were provided, 20 for Malé and 20 for Barkani. The model was developed by a specialist in fisheries based on the traditional model used in the Comoros and it was presented and discussed with the fishers before implementation. These traps are put on the ground during low tide and are supposed to trap fish when the tide comes in. The beneficiaries were mostly women, although there are also men that fish "on foot". Women who were

interviewed complained about the quality of some of the equipment provided – the traps are made of iron (which rusts in saltwater) and polyethylene net. They do not seem to catch anything, according to the women, even when bait is left inside. Five traps have been left in the sea permanently since their deployment (about four months ago) and by the time the Evaluation Team visited, nothing had been caught (or what had been caught had escaped). Women questioned why the project did not use traditional traps made of bamboo, which they deemed a more efficient model. The women also asked why the project did not provide them with the money or materials to build more locally adaptable and efficient traps instead of something that is not functional. The same happened in Barakani. Fishers say the REEFFISH project could have simply promoted the efficient local *marema* cage, which is used not only in the Comoros but also in many mainland countries such as Kenya, Mozambique and the United Republic of Tanzania, and island countries such as Seychelles. The below photographs shows the type of trap provided by the project and the type of the *marema* trap used throughout the region.

Note: Traps provided by the project in the Comoros (left) and the marema traps (right) used throughout the region.

62. In Mauritius, the project delivered longlines and lobster traps for 110 fishers in 2022. Although the Evaluation Team could observe and confirm the delivery was made, it also noted that part of the equipment (longlines, drop lines, hooks, swivels) delivered did not meet the expectations of project implementers, and will have to be replaced. The Evaluation Team requested the exact details of the equipment received (specifications and number) but had not received them by the time this report had been completed.

3.3.2 Outcome 2. Improved fishery value chains and access to markets for coral reef and FAD fisheries products

Outcome 2 was divided into two outputs and six activities. The strategy was to: i) assess the need for value-chain improvements at project sites, according to products targeted by stakeholders and FAD fishing; ii) define the technical specifications of value-chain equipment in concert with fisher communities and install them; and iii) train the fisher communities and build the capacity of women and youth, in particular, to improve benefits and access to market.

Finding 8. The project successfully undertook value-chain assessments in all the targeted countries using different approaches adapted to the local context.

63. According to the REEFFISH draft final report, value-chain assessments were conducted in the Comoros, Kenya and Madagascar and were already available in Mauritius and Seychelles. For Mauritius and Rodrigues, FAO undertook assessments in 2012 with the support of the European Union and the Indian Ocean Commission (Sweenarain, 2012a, 2012b). Advance Africa was contracted by the Seychelles Ministry of Finance, Trade and Economic Planning to conduct a

value-chain study to guide investment in the fish processing and services sector, as part of the World Bank-funded SWIOFish3 (Advance Africa, 2023).

64. In Madagascar, a value-chain study was undertaken in June 2021, which assessed the types of training needed by fishers and where to set up the infrastructure and equipment. WCS will provide support in the management of equipment and infrastructure. Related fieldwork conducted by the FAO expert on value chains and the national project coordinator of the Ministry of Fisheries and Blue Economy also facilitated deep understanding of fisheries socioeconomics and dynamics in the MPA area and associated places in the value chain. The study further enabled the project team to decide on the type of support to be provided to fishers to improve fishery value chains. The study provided information on fishing methods used, the most fished species, the quantity of ice needed, the price of fish products, catch levels and so on. The project bought good-quality equipment, but the main value-chain equipment and infrastructure were only delivered in May 2023. Consequently, the management mechanism for the equipment and infrastructure was not yet functional at the end of June 2023.

65. In Mauritius, a value-chain assessment of artisanal fisheries in Mauritius and Rodrigues was undertaken by the SmartFish programme in 2012 (Sweenarain, 2012a, 2012b). Issues identified for Mauritius included open access, obsoleteness of fisheries infrastructure, over-investment in fishing operations, and an absence of food safety and quality standards for fresh fish on local markets. In addition, for Rodrigues, it was noted that intensive fishing and overcapitalization in the lagoon had led to the depletion of sedentary fish stocks and damage to marine ecosystems, but that there were significant untapped fish stocks in off-lagoon and deep-sea areas. These observations aligned with the objectives of the REEFFISH project. The United Nations Department of Economic and Social Affairs is currently running a project to review existing policies, legal and institutional frameworks for the sustainable use and development of marine fisheries resources in Mauritius, with a view to assisting with a new fisheries bill. Interviews confirmed that the new bill is in the final stages of preparation. There were some baseline data for fishery value chains that were relevant to project outcomes for Mauritius and Rodrigues in terms of areas targeted. Workshops organized by the project in Mauritius provided only a first step in understanding the value chain, with a few suggested interventions. The meetings, therefore, concentrated on getting participants to understand the concept of a value chain and providing some "tips and tricks" that fishers could use immediately. For example, techniques such as *Ikejime* and fish bleeding were discussed and explained.[6] Species targeted for discussion were pelagic fish, oysters and octopus. Value-chain surveys were carried out on 21 and 24 February 2023 at Trou-aux-Biches and Poste de Flacq, respectively, with 29 fishers attending.

66. In Kenya, the assessment of value-chain needs was conducted by the project team (the coordinator and focal point), while in the Comoros, the assessment was carried out by an external FAO consultant. In both countries, there were participatory consultations on project sites (involving fishers, local authorities, processors and associations), during which attendees were asked about their priorities. Reports were produced that supported the REEFFISH decision-making process to select types of support and equipment/materials. During Evaluation Team visits, beneficiaries spoke quite positively about what they had received.

[6] According to meeting reports on value-chain surveys with fishers in Poste de Flacq and Trou-aux-Biches, February 2023, GCP/RAF/520/JPN.

Finding 9. The project provided cold-chain equipment to all countries, to be managed at a local level, although questions remained over ownership and management at the time of the final evaluation.

67. In Madagascar, fisherfolk were very thankful for the project. However, they were disappointed that the project had provided only one ice machine, two cold stores, three improved FAO Altona fish smokers/kilns, and 14 solar dryers for the entire MPA island of Nosy Mitsio. They consider these items to be the most important types of equipment – and the most difficult to acquire – for enhancing the fisheries value chain. They felt that what they received was not sufficient to make a difference. For instance, fishers from Marimbe village, which only received a smoker and a drying stall, must walk for three hours to Bevaoko, (which hosts the only ice machine on the MPA island) if they want to get ice. Therefore, they must rely on their former practices to conserve and sell most of their products. At the time of the Evaluation Team visit, there was no information on the management of fish processing equipment. It was also not clear whether the equipment had been used yet. As reported by project implementers, it is important to note that the general assembly chose to send an ice machine to Bevaoko as it is the most productive village in terms of fish catches. Furthermore, ice can be stored in the cold store even if it is produced in Bevaoko. Since the area has no electricity, no water, few financial resources for maintenance, and is a remote area with no access to spare parts, it is difficult to use and maintain an ice machine. The value-chain assessment did not recommend establishing several of them. The first ice machine was planned to be implemented in Port Saint Louis for access on fish landing sites, but the General Assembly of the MPA recommended to have one on the island. Apart from the equipment provided by the project, drying was done on the ground and smoking was done by using an old process in rudimentary houses made with leaves.

68. In Kenya, the REEFFISH project will supply three cold storage units and ice-flaking machines powered by solar energy – one in Mayungu, one in Mtwapa and one in Vanga, all under BMU responsibility. The BMU of Mayungu was consulted about what it wanted and, through the REEFFISH project, received equipment for keeping fish – a solar-powered cold store and an ice-flaking machine (500 kg/day). This means that it will soon be able to export new, good-quality products. The solar system it received is quite sophisticated, with a hybrid system that can shift from solar to Electricity Kenya, or turn into the generator, with two durable, good-quality lithium batteries. When the Evaluation Team visited the BMUs due to receive the same kind of equipment, it was discovered that the ice machines were the wrong type (producing cubes instead of flaked ice), the cold stores were failing to reach the temperatures needed for freezing (-22° C), and some of the cold-store panels and covers were of low quality. The good news was that the supplier was going to replace everything, and FAO assured the Evaluation Team that final payments would only be made after these replacements were made. Moreover, all the equipment comes with a warranty. The BMUs will manage the systems, as they will be training fishers on how to maintain them. They may also charge a fee for processing ice and storage. Npwata BMU confirmed that it was approached by REEFFISH initially, participated in consultations and asked for cold stores and fishing gear (longline and gill net), as it had a boat from a "fish replacing programme" (KEMFSED). It was given a solar-powered cold store and ice machine and is in the process of getting training on how to manage the equipment. It said it really wanted to add value to its fishery products and reach new markets. According to the BMUs, when the equipment is officially handed over to them, they will have a memorandum of understanding with local government, and maintenance and sustainability will be considered. Although the local councils said they will support the BMUs on managing this equipment, at the time of the final evaluation, the Evaluation Team saw no sign of a draft agreement or maintenance plan. The REEFFISH project is going to ensure that equipment is only handed over in line with agreements and have the warranties attached.

69. In Mauritius, the field visit confirmed that ice-making machines had recently been delivered to the country but were not yet on site and that site preparation had not yet been completed.

Interviews confirmed that some challenges persisted when it came to planning for the deployment of equipment and detailed plans for operation and maintenance. The exact operational and maintenance procedures are still unclear. In Seychelles, ice machines for the Glacis District and ice boxes for fishers had yet to be delivered by the time of the final evaluation and will be given to the Fisheries Association. In the Comoros, two cold stores and two ice-flaking machines were to be placed in Malé and Moya, along with two freezers (270 litres) in Barakani. By the time of the final evaluation, the equipment had not yet been installed and there had been no discussion about management or maintenance.

Finding 10. Less sophisticated and durable types of equipment and construction, such as markets, drying racks, sardine processing ovens, and smokers, were provided and were already being used.

70. The REEFFISH project provided other sorts of equipment for cooking, slating, smoking, and drying, according to discussions at the local level. In Kenya**,** the REEFFISH project provided four sardine ovens to the Vanga BMU and six units to the Jimbo BMU. The sardine ovens (*jikos*) were deployed and were fairly popular. The beneficiaries were trained on how to use them and consider themselves the owners of the equipment. The ovens seem very robust and have been used, mostly by women, who tend to be in charge of fish processing. One woman is responsible for the care of each pair of ovens, while all women use the oven free of charge. No fees are charged for now, but they are thinking it might be necessary in the future in order to maintain them. Women say the oven saves a lot of firewood, uses less energy, produces less smoke and conserves heat so well that it takes only 5 to 10 minutes to cook an entire 50-litre pot. After cooking the sardines in water with salt, they spread them on the ground to dry. The drying is currently done on a cement floor and the product is exposed to rain. The fish is brittle, falls apart and there is a lot of loss. This has a lot to do with the low quality of the fish before cooking, and the cooking does not help. When, in the future, more ice and cooling boxes are available (the Vanga BMU received an ice-making machine), the cooked fish is expected to be of better quality, leading to fewer post-harvest losses. Cooking and drying small pelagic fish seems to be a good source of income for women, though. The landing site in the Vanga BMU also seems to have been a good choice for this project as there is quite a variety of fish species and fishing gear (longline, line, gill net, ring net) and, according to the local fisheries officer, there are days when 5 to 10 tonnes of fish land at the site.

71. In Madagascar, the training of 100 fisherfolk (both men and women) on product transformation (drying, smoking, salting), related hygiene and cold-chain management was undertaken on the main MPA island. Twenty fishers per village received drying racks and smoking kilns. The fishers interviewed for the evaluation noted the problem of rusty metal on the drying stalls. The supplier failed to provide the expected quality in this case. From what the Evaluation Team could gather, FAO has already asked the supplier to rectify this.

72. Also in Madagascar, the project built a covered, open-sided local market in Ambilobe, the closest main town, where seafood from the project area is largely sold. However, its design was subject to criticism by interviewees. They said there was little space for buyers to move around in the lateral side aisles and that buyers could also fall from the narrow aisles, as there was no safety anister (see photograph below). The Evaluation Team is of the opinion that it was, indeed, poorly designed, with little space for buyers and some risk for people walking on the narrow platforms. Interviews suggested that REEFFISH had decided on location and design with little consultation.

Note: Photo of the market the project built in Ambilobe, showing the narrow side aisle

Finding 11. Building the capacity of women and youth in business development and management – a specific project target – was achieved in some communities in Kenya, Madagascar, and Mauritius.

73. In line with Output 2.2 (improved capacity of youth and women's groups on business development and management) and based on the value-chain assessments undertaken, specific interventions for women and youth in fishing communities could be identified. The REEFFISH terminal report observes that "332 people and 134 women and youth were trained on the fish processing and conservation. The participants in the trainings were trained and sensitized on the market access and associations were strengthen or created to promote entrepreneurship and improve market access."

74. In Madagascar, the training of women focused on fish product transformation. No effort was made in terms of business development and management. The project team explained that the entrepreneurship aspect must be viewed as a long-term goal and is now being piloted by WCS. The Ministry of Fisheries and Blue Economy will also provide recommendations to underpin and catalyse an initiative in that regard.

75. In Mauritius, the women's oyster collector's association (Queen of Shell) were contacted by the REEFFISH project, and two meetings and individual discussions were held to establish primary contact with members of the association and to gain a better understanding of its function and benefits to members. These were initial interactions, and further work is expected to take place.

76. In Kenya, in the BMU of Kilifi Central, Pweza ("octopus" in Kiswahili) Women´s Group started in 2019 as a "Mary Goes Round" (what saving groups are called locally) and mostly comprise *Mamma Karanga* (women fish sellers). It currently has 30 members. The women are members of the BMU, and one woman is part of the Secretariat. Since its creation, it has evolved substantially, opening a bank account, lobbying the local member of parliament and finally getting a boat. It allocated a male crew to the boat and shares the catch. It received further support from the local county for fishing gear and fish processing (drying, deep frying and so on). It met with the REEFFISH project in 2022, told them what it wanted, and received two solar-powered 270-litre freezers (in place since February 2023). Members say their life has changed since then: "No matter how much fish they catch now, they can keep it frozen." It used to be quite difficult to keep fish fresh and it

had to be sold immediately, sometimes at lower prices. The collective also asked the REEFFISH project to provide further support in the form of a cutting machine and training in processing, so that they could add even more value to the fish.

77. In Seychelles, the training needs assessment for these specific groups was carried out by other projects, while in the Comoros, the assessment was done through a collaboration with ILO, and the resulting training focused on the post-harvest sector. ILO was involved in supplying drying racks and smokers to groups of women and youth.

3.3.3 Outcome 3. IUU fishing reduced and maritime safety increased

Outcome 3 was divided into four outputs and 12 activities. The strategy used to achieve this outcome was to: i) provide five patrol boats, a VMS for artisanal fishery and a smartphone for electronic data collection and electronic licensing; ii) train government agents and communities on electronic data collection, IUU fishing and safety-at-sea aspects; iii) raise awareness among stakeholder communities of IUU fishing, community surveillance, safety at sea and the implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication; and d) review the regulations when necessary to reduce IUU fishing. The terminal report of the project states that "The review or formulation of a national fisheries management plan was not done under the project, as the governments' calendars did not correspond with the project timeframe and the project was dedicated to project sites and not national governance. However, strategies and action plans to fight against IUU fishing were developed. Five patrol boats were delivered to the countries and 45 agents were trained. The agents were trained on IUU fishing aspects."

Finding 12. The project provided for a patrol boat for each country and was to hand them over to a government institution in each. Kenya has yet to decide which institution will be responsible for its vessel.

78. In Seychelles, the patrol boat is to be deployed in MPAs and the choice of the boat was considered good. The Fisheries Authority in Seychelles will manage the boat and will use it for training and coastal patrolling.

79. In Madagascar, the new boat –with two 40 horsepower engines – is parked in Nosy Be Port, where the Fisheries Department is responsible for it. The boat has been officially registered as the property of the Ministry of Fisheries and Blue Economy. It will be based in the MPA but had yet to be delivered at the time of the Evaluation Team's visit. The issue of managing the craft and covering its fuel costs when used by the local communities is a pending question. There seems to be consensus on the contribution of infraction penalties to these costs. The project team said FAO is considering assisting them in this regard, but there was no evidence to support this. The project contracted an NGO, Stop Illegal Fishing, to help identify the most suitable mechanism and management model for craft use and operation. A draft summary and key recommendations were produced, and, at the time of writing, the project team was still checking whether the NGO had sent a final report (their contract had already ended).

80. The vessel delivered to Mauritius will be deployed by the coastguard, and deployment and maintenance operations are unclear. Regrettably, no vessel was included for Rodrigues. The vessel provided for Mauritius is useful for the ongoing monitoring of the target areas.

81. Kenya has yet to decide which institution will handle its boat. According to FAO, the boat is in the Port of Mombasa and, as of the time of the final evaluation, a decision had yet to be made on which institution would have guardianship. There was the possibility that it could be used by the KFS and the coastguard in joint patrolling operations or be handed over to the counties (Kilifi and Kwale) for patrolling by the BMUs, as this is part of their task. There is also a possibility that the boat could be used for fishing, "to contribute to its sustainability".

82. In the Comoros the boat was delivered and is to be managed by the CNCSP.

Finding 13. One of the most innovative features of the project was the development and implementation of data collection on fisheries, including the storage of digital information in real time and the distribution of gadgets and an app to fisheries officers to collect data at landing sites.

83. According to Output 3.2, "innovative electronic licensing and registration mechanisms will be introduced to combat IUU fishing". To this end, 100 smartphones and/or tablets will be provided to the national authorities to receive "smart money" or ''mobile money'' from fishery communities, to grant licences and to register them. Furthermore, global system for mobile communications (GSM)-based VMS technology will be developed, installed and maintained. Together with 500 smart phones and/or tablets to be provided to national authorities, countries will be able to monitor the movements of certain categories of craft so that they can more easily identify IUU fishing (velocity/speed of boats and so on). Per Output 3.3, "community surveillance mechanisms will be established and/or enhanced for control of MPAs to reduce IUU fishing. Innovative data collection and analysis with electronic devices will be promoted to eradicate IUU fishing by providing, for example, 500 smartphones and/or tablets to national authorities, which helps the authority to report all the relevant fishing activities."

84. In Kenya, 100 smartphones had been distributed, KFS personnel had received training and data were already being collected in real time and localized in a global positioning system (GPS). Fisheries officers are based in the BMUs and three of them demonstrated to the Evaluation Team how the system works. Using an app on a tablet or smartphone, the data collected include information such as the day the fish harvest landed, the estimated size of the catch, the type of sampling undertaken by the fisheries officer, the composition of the fish and crustacean species, size, weight, length, type of boat and engine, number of crew, and types of fishing gear. The type of data to be collected was established by the KFS beforehand, as the system has been running for quite some time, only on paper. The data are then gathered centrally in the KFS database and annual reports are issued on the status of fisheries. In principle, such data are to support the fisheries authorities in formulating management regulations.

85. In Madagascar, WCS had established a system for monitoring fisheries production before the existence of the REEFFISH project, and this was still coordinated and implemented together with fishers (CPUE agents) over the course of the project. The REEFFISH project reinforced this endeavour by providing 20 smartphones through the Ministry of Fisheries and Blue Economy. According to project personnel, three of those were used by the ministry and 17 were destined for the MPA to be used by CPUE agents to register catch data. However, during the Evaluation Teams' field visit, eight unallocated smartphones remained in the Ankaread Association office. CPUE agents said they were using only three smartphones (that is, 17 – (3+8) = 6) were being used at other sites in Nosy Be where fish catches from the MPA are also landing. The project received a synthesis of monitoring results from WCS, which it shared with the Circonscription de la Pêche et de l'Economie Bleue (the fisheries and blue economy administration for the jurisdiction, in this case, the DIANA region) and the local communities.

86. In Mauritius, the procurement of tablets for enumerators to assist with electronic licensing was in progress in 2022, but not yet implemented. Twenty smartphones had been delivered for electronic licensing and some recommendations had been made about establishing an electronic licensing system. The licensing will be introduced without a "smart money" feature, as licensing fees for artisanal fishers are purely symbolic. No other information was available to the Evaluation Team. The terminal report of the REEFFISH project notes that "for other countries, this activity was not implemented as advised by the government counterparts, as artisanal fishers are classed as vulnerable groups in the different countries and therefore do not pay (or minimal amounts) for licences. The artisanal fishers do have professional licences, but the problems related to licences come generally from the migrant fishers from other regions or border countries, and their

registration and control of entrance in the MPAs through licences was difficult to address during the project timeframe." The Evaluation Team could not agree more. As mentioned, countries continue to have a policy of "open access" to fisheries resources, particularly for small-scale, artisanal and subsistence fisheries, which makes it very difficult to manage access to areas of coral reefs and vulnerable areas such as nurseries, hampering the role of MPAs.

Finding 14. Introducing GSM-based VMS technology was deemed inadequate in some areas, while the support provided to some countries arrived fairly late in the process.

87. According to the REEFFISH terminal report, at a regional online meeting in 2021, the project countries asked Seychelles to share knowledge about the VMS for artisanal fisheries, as the Seychelles system was deemed efficient. At the national steering committees (NSC) meeting in Seychelles in 2021, members confirmed that the country would provide technical support for this activity. However, due to turnover in the Seychelles technical team in 2022, this support was delayed, and the project had to hire a consultant to conduct this activity at the end of 2022, close to project end. It was agreed with the governments that made the request (the Comoros, Kenya and Mauritius) that the project would provide the VMS and that the follow-up and data analysis would be conducted by the government after project end. The project procured 150 VMS transponders for pilots in the Comoros, Kenya and Mauritius.

88. The Comoros is expecting about 50 transponders (*balises*) for small-scale fishers. These transponders have solar batteries and were trialled in the SWIOFish1 project. The REEFFISH project is paying for the transponders and one year of licencing. The CNCSP is the institution hosting the VMS and welcomes the project's contribution. However, when asked about future sources of funding, the CNCSP was unsure, unless a subsequent project came about that targeted the same kinds of activity. It should be noted that at the time of the REEFFISH project evaluation, an FAO project (TCP/COI/3903) was being developed in this regard.

89. In Madagascar, according to the project progress report, the government deemed electronic licencing inappropriate, as artisanal fishers are categorized as vulnerable groups, so do not pay (or just pay token amounts) for licences. This was confirmed in stakeholder interviews. Because there is an issue of migrant fishers coming from other regions, the project, in collaboration with WCS and the Ministry of Fisheries and Blue Economy, made an effort to renew specific licences for entrance to the Madagascar MPA (the green stripe card). As the related procedures to enforce this are still under review at Ministry of Fisheries and Blue Economy level, the licencing mechanism has not yet been put into practice. Activities surrounding the introduction of GSM-based VMS technology to monitor movements of certain categories of craft to combat IUU fishing and increase maritime safety and security have been dropped, as the level of technology used by the fishers in the project area does not allow for their implementation. Moreover, the VMS technology would require the regular payment of fees, which none of the stakeholders and institutions involved could guarantee. This is an issue specific to Madagascar.

90. In Kenya, the KFS has been using a VMS since it was procured in 2017 and it is operated through the French company CLS Group.[7] The system can integrate information for the VMS, the automatic information system and satellite radar. The KFS VMS administrator in Mombasa asked the REEFFISH project to support the adaptation of the VMS to small-scale fisheries, though power capacity would be a major challenge. Due to limited battery capacity, the system could not be used on small fishing boats that went more than 12 km from shore, as the mobile phone network was out of range. The VMS office suggested that the REEFFISH project use a hybrid transponder that could access information in three forms – GMS, the automatic information system, and

[7] See https://www.cls.fr/en/cls-group/ for more details.

satellite or antenna – which could adjust according to distance from the coast. This would allow the VMS to support small-scale fisheries (the objective of the REEFFISH project). By the time of the Evaluation Team visit, the VMS administrator did not know what system was being tendered and expected a pilot to ensue. It is not clear whether this will be followed up.

91. In Mauritius, interviews confirmed that no VMS interventions had been put in place by the time of the final evaluation and that no information was available on how these would be implemented after the end of the project.

Finding 15. Training on safety and the provision of some safety equipment and materials were among the more substantive investments of the REEFFISH project, with around 90 trainers and 1 800 trainees involved across the five countries.

92. According to Output 3.4 (fishers and other vessel operators trained in maritime safety), the REEFFISH project intended to invest in "training of fishers, park rangers, and interested vessel operators in safety-at-sea aspects". According to the terminal REEFFISH report, this component received substantial support. Ninety-one trainers from coastal regions, even people outside the project areas, were trained on safety-at-sea aspects. The Fish Safety Foundation, the NGO in charge of training, managed a dedicated training website for the East African countries for two years. EARFISH, another NGO involved in safety at sea for artisanal fishers in East Africa, participated in the training, drawing on project synergies to expand the training offering. After the training of trainers (TOT) safety-at-sea course, around 1 800 fishers were trained in the five countries. Governments are expected to extend the training, using trainers from different areas to target 15 000 fisher communities.

93. In Mauritius, following the delivery of the patrol boat, a handling and maintenance training course was conducted by the Indian Ocean Maritime Training Centre on 14 and 15 March 2023. Ten people participated, all of them certified skippers and fisheries officers. The safety-at-sea training course in Mauritius was held on 2–5 May 2023 at the Mauritius Maritime Training Academy, attended by 60 small-scale fishers from the two project sites (Poste de Flacq and Trou-aux-Biches), as well as interested fishers from other areas of the island. The successful training sessions have the potential to provide a platform for ongoing and expanded training, which could be undertaken through existing government training programmes. Interviews confirmed this was the intention. There were 283 potential beneficiaries in the village of Poudre d'Or and another 185 in Trou d'Eau Douce. For Rodrigues, no number was given. Training-of-trainers sessions and courses on safety at sea were successfully delivered in both Mauritius and Rodrigues. Twenty trainers attended the training-of-trainer course, including one representative from the Rodrigues Regional Assembly. Feedback from the interviewees was overwhelmingly positive in both locations, with interviews of key stakeholders providing a firm mandate to continue training.

94. In Madagascar, the project organized workshops on IUU in 2021 and 2022 and awareness-raising campaigns with related posters through field missions in villages inside the MPA and through a partnership workshop in 2021 in Ambilobe. These activities were important to reinforce the legitimacy of the CCS committee agents established by WCS prior to the project to ensure surveillance and control of the marine side of the MPA. Indeed, the project provided training on IUU fishing to all CCS committee agents. The Ankarea Dina is the local by-law on tackling IUU fishing. It focuses solely on the MPA area. The Ankarea Association and WCS are still improving it and an amendment will be made soon. One interviewee said the Dina (traditional law) also needs to apply to local mangroves to ensure the harmonization of law enforcement in the wider area. The training of skippers was one of the purposes of exchange visits and study tours. Standard training courses are carried out by WCS and the Fisheries Department. Synergic activities were also established with the United Nations Office on Drugs and Crime. Twenty people from the

Ministry of Fisheries and Blue Economy and other partners in all coastal regions have benefited from the training-of-trainer sessions at the national level. At the local level, maritime safety has been one of the modules included in various courses for local fishers. Not much detail was available on whether vessel operators attended these courses. And the training developed by REEFFISH was also conducted by a trainer trained under the project in South Madagascar for another FAO project.

95. In the Comoros, CNCSP officers attended training-of-trainers sessions and they, in turn, are training other government and MPA personnel, and local fisherfolk. As part of the training, the REEFFISH project also provided some safety equipment and materials. While this was appreciated in general, the choice of equipment got mixed reviews in different countries. In Seychelles, when 80 life jackets arrived, they were found to be too large, although specifications were validated by the project team. In Mauritius, the delivered life jackets featured a slimmer design than those received by other projects, and they are based on gas technology. The gas technology allows for a slimmer design compared to traditional foam-filled life jackets, providing greater freedom of movement and comfort. Not all countries have chosen to adopt these types of life jackets due to potential challenges associated with refilling the gas. In Madagascar, 20 GPS devices, eight CPUE smartphones, 50 life jackets, other maritime safety and IUU fighting kits (trumpets, flashlights) were provided by REEFFISH and were appreciated. The SWIOFish2 project will also donate more than 100 life jackets to the Nosy Mitsio community. In the Comoros, the number of life jackets was not sufficient to distribute to all the fishers, so the associations in each of the islands made the decision to use the life jackets only for demonstration and training, keeping them in storage. In Kenya, the life jackets were being used as seen during the visits to the different locations.

3.3.4 Outcome 4. Enhanced and shared knowledge on the improved management of coral reef fisheries is contributing to a scaling up of interventions

Output 4.1 was about developing and implementing a communications/knowledge-sharing strategy to boost project success by enhancing visibility through websites, social media, brochures, videos, radio programmes and so on, as well as effective monitoring and reporting, including success stories and lessons learned. Under Output 4.2, the knowledge generated by the project was to be effectively shared, exchanged and disseminated. According to the project's terminal report, "Project visibility was enhanced with approximately 60 publications on FAO and government websites and social networks (Facebook, Twitter, website) and media during the project implementation." In addition, the project promoted many regional and national meetings and exchange visits.

Finding 16. The project promoted opportunities for stakeholders to meet and share knowledge by creating a regional steering committees (RSC), which served as a stakeholder knowledge-sharing platform, and by encouraging exchange visits between the target countries.

96. Experience sharing was carried out at a regional level, with the RSC conducting sessions to share lessons and experiences. Several interviewees said they would have liked to meet more often, as they found this kind of meeting very useful in advancing the agenda of small-scale fisheries in their countries.

97. In terms of exchange visits, one female fisher was selected from Madagascar to go to Kenya in 2023 to share the Ankarea MPA experience on fisheries and product transformation, while a few fisherfolk travelled between the Comoros islands.

98. This kind of regional learning sharing and intercountry exchange was probably affected by the COVID-19 pandemic but was highlighted as being very empowering for local communities.

Finding 17. Project information sharing focused more on the project's visual identity, visibility, and institutional communications and less on knowledge.

99. The project was highly present on Twitter (now X), Facebook and LinkedIn. Videos were produced for the five countries. A profusion of communications materials was produced and distributed, such as banners, rollups, pop-ups, flyers and memorabilia. On the technical side, a boat-driving manual will be produced. At the end of June 2023, an international communications agency was still under contract to produce photos and videos.

100. Efforts were made to ensure good project visibility to donors, governments and partners, to explain why the project had been created and what its objectives and activities were. However, the project paid insufficient attention to the pedagogical and awareness-raising aspects among the wider virtual community on project themes (IUU, sustainable practices for small-scale fisheries, related markets and the value chain).

3.4 Efficiency

EQ 4: To what extent was the project implemented efficiently and was management able to adapt to any changes in conditions to improve the efficiency of project implementation?

Finding 18. Aside from delays due to external circumstances (mostly related to COVID-19) and lengthy internal procurement processes, the project managed its budget efficiently.

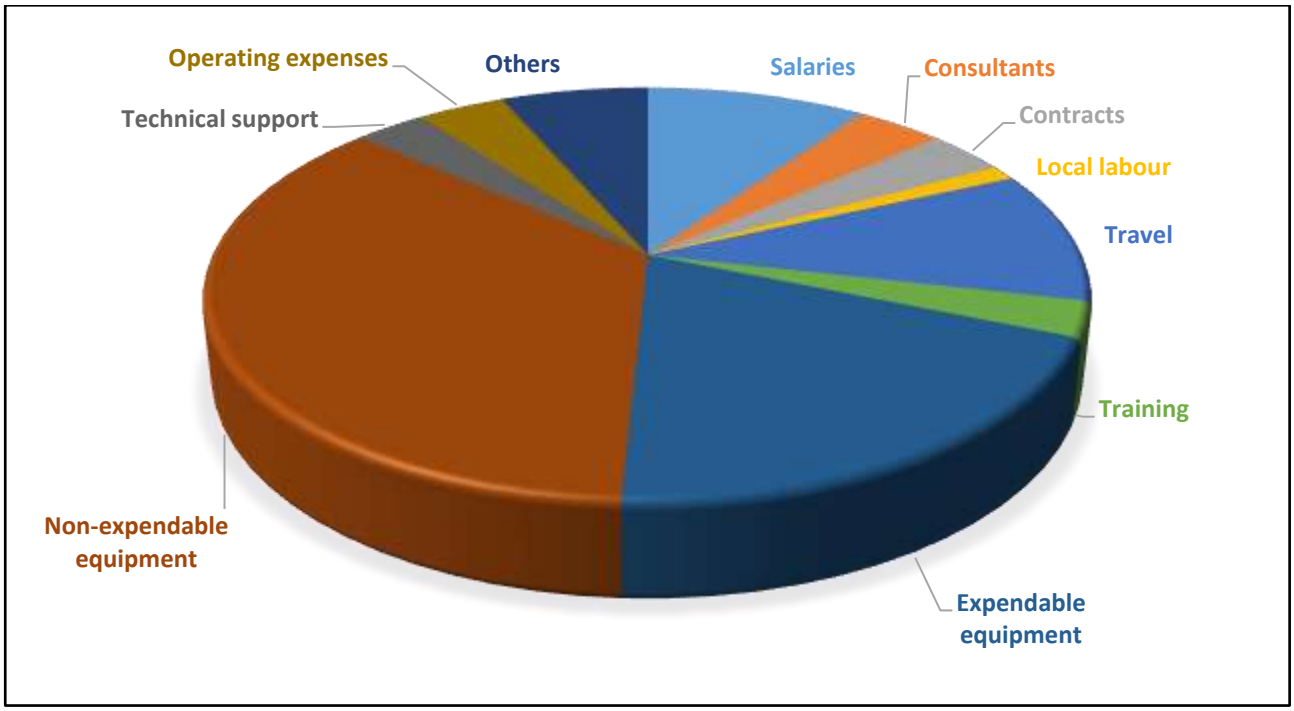
101. This was a project of short duration, with a substantial part of the budget to be invested in expendable and non-expendable equipment. This poses its own challenges, namely, the need for smooth and efficient procurement processes. Further challenges arise when the project covers a large geographical area comprising different countries under different FAO jurisdictions. Given these circumstances, the project was, to all intents and purposes, implemented efficiently in a reduced 1.5-year period.

102. An initial delay in project implementation was linked to the recruitment of the regional coordinator, which took almost a year. The project was then impacted by the COVID-19 pandemic, which constrained the implementation of some activities. In Seychelles, the delay was mostly due to the late appointment of a focal point, which only took place in 2022.

103. The COVID-19 pandemic had a strong impact on a project that already had a short timeframe (three years). Government restrictions on travel and places of work hindered the project's ability to hold training sessions, conduct consultation work, carry out visits by technical support consultants and so on. However, the project did not consider asking for a longer no-cost extension (only one six-month extension was requested), as this would have affected its ability to keep the technical team. The option was to implement as much as possible in the short time available. The consequence is that the project is ending with many activities still ongoing or unfinished, and equipment being handed over in a rush. There is a risk that some equipment will not have proper ownership and maintenance guarantees.

104. As mentioned, 53 percent of the total project budget went to expendable and non-expendable items, which was a challenge, as procurement processes can be quite cumbersome and lengthy at FAO. One no-cost extension was requested and authorized quite late in the project. Other delays came about because it was decided at the FAO Regional Office for Africa level to order and contract in bulk, as different countries needed the same kind of equipment and materials, creating greater value for money. In some cases, FAO headquarters needed to be involved in the procurement process, as the FAO Regional Office for Africa could approve only purchases below USD 100 000. This added to the delays.

Figure 4. Relative weight of budget items, including expendable and non-expendable equipment



Source: FAO. 2024. *Enhancing Livelihoods, Food Security and Maritime Safety through Increased Resilience of Fishing Communities Dependent on Coral Reef Fisheries in the African Coastal Countries of the Indian Ocean – Financial Report*. Rome. Internal document.

105. Two budget revisions were allowed during the project: one in March 2022 and one closer to the end of the project, with the authorization of the no-cost extension. Even with all the challenges, by the time the project was due to close in June 2023, about 60 percent of the budget was given over to "hard commitments", with around 96 percent in "actual and hard commitments". This means the project may end up spending close to 100 percent of its budget after the final contracts are delivered.

106. The oil spill in Mauritian waters in July 2020 hampered the implementation of project activities. Certain activities had to be prioritized, including the diversification of fishing methods and gear, maritime safety, and awareness-raising among fishing communities. Also, in Seychelles, some activities were cancelled or delayed "due to a high turnover in the Seychelles team" (FAO, 2023).

Finding 19. In terms of governance, the project established fora at regional and country level and provided for local coordinators and focal points. The set-up in each country varied according to circumstances, and this certainly contributed to the results the project achieved.

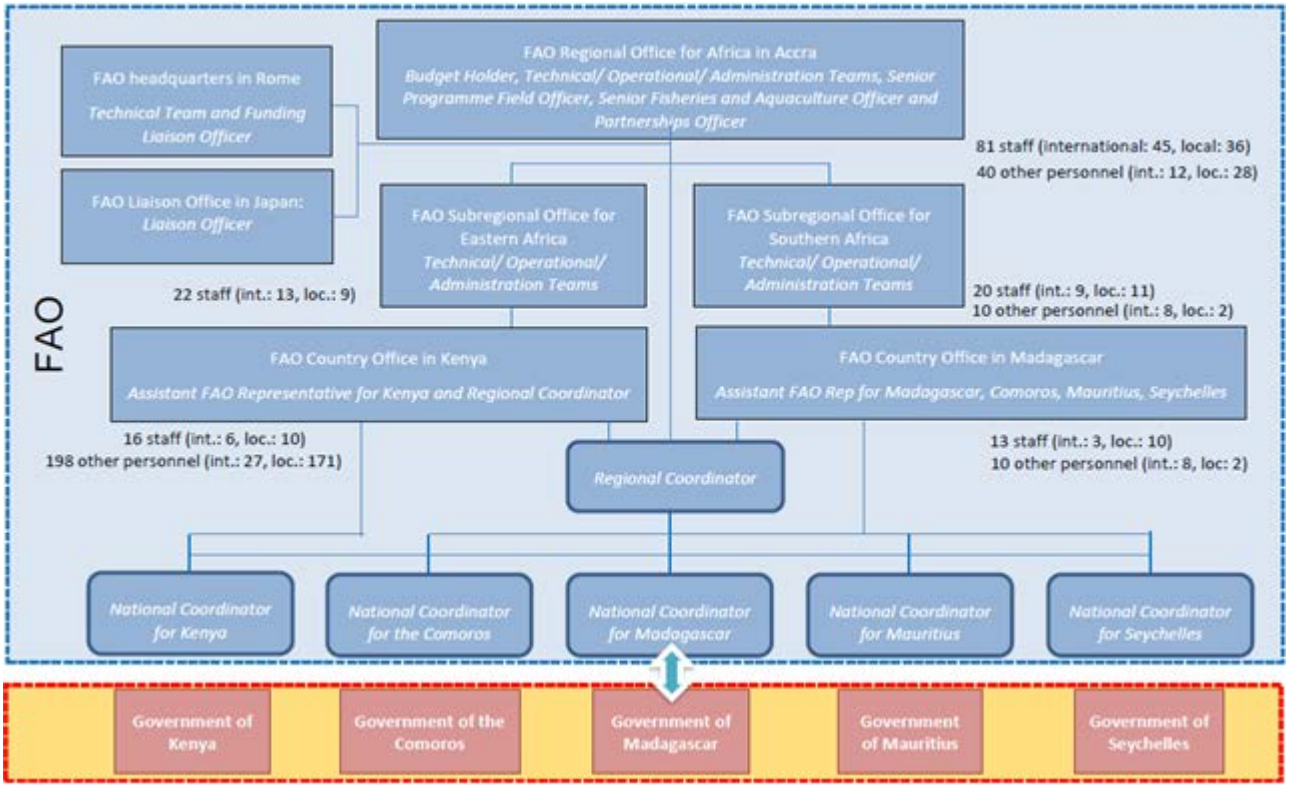
107. The project's governance mechanism was set up bearing in mind that it was a regional project covering coastal countries as well as SIDS. A regional PSC was established, representing relevant authorities, selected fishing communities, NGOs, international organizations and civil society organizations. The regional coordinator assisted the PSC in preparing annual workplans and budgets for approval by the PSC. A national project coordinator (NPC) was appointed in each project country. Sometimes, an NPC and a focal point were appointed. In the case of the Comoros, which is made up of three islands, three focal points were appointed. At the national level, NSCs were also formed, comprising representatives of all stakeholders, to supervise and advise on the execution of project activities. The NSC reported to the regional PSC on a regular basis. In principle, the NSC was to meet every six months, while the regional PSC was to meet on an annual basis. The regional coordinator acted as secretary to the PSC meetings and reported to the budget holder (the FAO Regional Office for Africa), which, in turn, reported to the resource partner. In

practice, after countries established an NSC, they met two or three times during the lifetime of the project.

108. Due to delays in the project, there were fewer meetings than planned. Throughout the entire duration of the REEFFISH project, there were two NSC meetings in each country, four PSC meetings and four regional technical meetings, some of them back-to-back with PSC meetings.

109. The budget holder and the project implementing unit was the FAO Regional Office for Africa, supported by the Subregional Offices for Eastern Africa and Southern Africa and the FAO Representatives in Kenya and Madagascar, the latter also covering the Comoros, Mauritius and Seychelles. The FAO Regional Office for Africa also played a coordinating/facilitating role, with support from its regional and technical personnel. The Subregional Office for Eastern Africa Fishery and Aquaculture Officer acted as lead technical officer, ensuring the provision of direct technical supervision and backstopping to project activities. The fisheries management officer appointed in Rome acted as headquarters technical officer.

Figure 5. Project implementation structure



Note: The FAO Country Office in Madagascar oversees three countries where there are FAO Liaison Officers: the Comoros, Mauritius and Seychelles. The proposed project plans to recruit and place five National Coordinators in the five targeted countries (one per country).
Source: FAO. 2019. *Enhancing Livelihoods, Food Security and Maritime Safety through Increased Resilience of Fishing Communities Dependent on Coral Reef Fisheries in the African Coastal Countries of the Indian Ocean – Project document*. Rome. Internal document.

110. In the inception phase, the local focal points were added. By the end, there were NPCs (one in each country), focal points (one in each country, except for the Comoros, where there were three), and technical focal points. For example, in Kenya, the NPC was more of a liaison person between the Ministry of Fisheries and FAO/REEFFISH, while the focal point was more of a technical person, knowledgeable about marine habitats and fisheries. Both were from the same ministry, however, the State Department of Blue Economy and Fisheries. These were in addition to the focal point in the FAO offices. In the Comoros, there was an NPC in the Fisheries Department and three focal points (one for each island, Grande Comore, Moheli and Anjouan).

111. In Mauritius, there was a lack of communication between the islands of Mauritius and Rodrigues in the project inception phase, and few NSC meetings were conducted during project implementation. Interviews suggest Rodrigues was unaware of the project and only attended the first steering committee meeting in June 2022. The establishment of an additional site in Rodrigues only took place in 2022. Throughout the interview process, key stakeholders constantly requested more regular steering committee meetings to streamline responses to challenges and find mechanisms to overcome them. The first NSC meeting recommended "that regular internal meetings be held at the level of the Fisheries Division for the smooth implementation of the project and that the national steering committee be held every three months" (minutes of NSC meeting, Mauritius). In fact, only two meetings of the NSC were held in Mauritius. Interviews confirmed a delay in appointing a focal point in Mauritius and once appointed, they had challenges in both meeting the requirements of the project and their duties as a member of the Mauritian government. Key interviews found that, irrespective of remuneration, this hampered progress on meeting deliverables. The focal point in Rodrigues was only appointed in 2022.

112. In Madagascar, the Ministry of Fisheries, the community of fishers and the various FAO units provided satisfactory project support. The project NPC/focal point goes to the MPA area twice a month, on average. Sometimes, he goes there for missions under the SWIOFish2 project and sometimes in his role as the head of fisheries for the area. When the focal point is head of fisheries, it is inevitable that mission objectives will be combined or expanded. Other factors did not favour the achievement of intended results, however. As the project national coordinator and the focal point were both from the Ministry of Fisheries (as in the Comoros and Kenya), support from this department was very good and the Ministry was fully involved. However, those Ministry of Fisheries and Blue Economy personnel also had other responsibilities and were not entirely dedicated to the project. This led to several complaints as regards how planned project activities and subactivities were communicated to the stakeholders concerned. Often, they were informed of key activities and actions at very short notice. Internal coordination and communications between primary field partners (such as WCS, the Ankarea Association and project focal point) were also thought to be poor. Some interviewees suggested that it would be far more efficient and effective to dedicate a full-time technical coordinator to assist the national focal point.

113. In Kenya, the FAO office was more active in supervising and monitoring/implementing activities in the field, and the work was far more decentralized, with a lot of effort going into BMUs and coordination with local government, represented by the county councils.

114. In the Comoros, the project only started in September 2020, when a national coordinator was appointed. The official launch of the project was held on 22 October 2020, when the first NSC meeting took place. The focal points, one for each island, were only appointed about a year later and the second NSC meeting took place in January 2022. The project took some time to gather pace. Although it has run for about two years and nine months, thanks to the no-cost extension of six months, most activities only started during the last year of the project. The Government of the Comoros is organized at national and local level as follows: each of the three islands has a local governor, represented at local level by a delegate who supervises different sectors, including fisheries. The Ministry of Agriculture, Fisheries, Environment, Tourism and Handicraft appoints a Regional Director of Fisheries (DRP), who works together with the delegate. In terms of hierarchy, however, the delegate has more power. Complicating matters for the project was the fact that the central and regional governments sit in the capital, Moroni, on the island of Grande Comore, and sometimes regional and local governments resent the fact that many projects deal directly with the national government, bypassing them. However, the REEFFISH team made substantive efforts to involve them. Further adding to the complications, on the other islands, the DRP holds more power, as they represent the central government, and the delegate represents the local

government. Apparently, the DRPs on the other islands (Moheli and Anjouan) knew very little about the project and did not have much to say to the Evaluation Team, as the NPC was from the central government.

3.5 Sustainability

EQ 5: How did FAO's project ensure sustainability at community and institutional level?

Finding 20. The project was short-lived, had a large intervention area with many targets and did not have an exit strategy.

115. The project did not develop an exit strategy for post-project sustainability. However, the Evaluation Team identified major concerns that needed to be addressed to determine the sustainability of the project's results, including maintenance, tenure, acquisition of spare parts and the running of equipment and materials, ranging from cold stores, freezers and ice-flaking machines to batteries, ovens, gadgets, FADs and life jackets. Complicating things further, some of the equipment is quite sophisticated and will require specialized technical assistance and training. The Evaluation Team saw no evidence of memoranda of understanding, other agreements or written commitments by governments or other partners on taking responsibility for supervision or maintenance. Also, as mentioned, the ownership of much equipment – such as FADs – is not clear.

116. One positive aspect as regards sustainability was that all equipment procured by FAO had a warranty period, which could help stabilize equipment that is already running. Also, as part of the package of acquisitions, some suppliers (cold stores, solar-powered equipment, ice machines) will train users on equipment operation and maintenance.

117. Local communities will be able to monetize some of the equipment by selling ice, letting cold storage, letting boats and so on to earn funds for maintenance and spare parts. For example, the Mkwiro BMU in Wasin Island, Kenya, for example, may charge KES 5 (around USD 0.034) per kg of fish stored (1 kg of fish can be worth KES 250 [around USD 1.7]) and sell ice at KES 10 (USD 0.068) per 1.5-litre frozen bottle in low season for fish selling. These are among other suggestions provided to the Evaluation Team.

118. The project's focus on capacity development by training trainers, a recurrent activity, as well as other types of training, has impacted numerous people and could contribute to the long-term sustainability of certain activities.

119. Lastly, the idea of having NPCs and focal points in government is a practical way of encouraging the involvement of national actors in ongoing interventions and gaining support for various activities that were planned but were not able to be completed. Furthermore, increasing state engagement by designating government personnel among project personnel could be interpreted as increasing national ownership of project results, thus supporting a certain degree of sustainability.

Finding 21. Government and other institutions may step up to ensure the continuity and sustainability of parts of the project.

120. Key stakeholder interviews confirmed that Mauritius has the capacity to achieve project objectives even after the project ends, but they expressed concern over the limited manpower available to successfully deploy and maintain the equipment. The Government of Mauritius was the only government to say it would take care of the FADs. The same may happen in Seychelles, according

to the people the Evaluation Team had a chance to interview at the last regional meeting held in Malindi, Kenya, at the end of the project.

121. In Madagascar, according to the project team (who are representatives of the Ministry of Fisheries), the Ministry of Fisheries plans to ensure the continuity of project achievements. Most stakeholders interviewed voiced concern over the future of the project's achievements and main equipment: "Everyone hopes that we will quickly find the needed resources to support the MPA co-managers in ensuring the setting up of good management mechanisms for the equipment and infrastructures," one stakeholder said. The stakeholders hope that WCS will step up and provide significant help in sustaining the project's achievements, as the NGO is the most involved in the area. However, they recognized that sustainability would require the contribution of all concerned.

122. In Kenya, the counties of Kilifi and Kwale have expressed their willingness to support the BMUs, as they are the recipients of most equipment. Other projects are being planned and, at central level, the State Department of Fisheries is in a good position to ensure the continuity of important research on fisheries and coral, maintaining the fisheries monitoring process and the installed MCS/VMS systems, and continuing other activities.

123. In the Comoros, it was confirmed that the country alone could not possibly sustain certain activities, but that other projects may cover the current needs of the REEFFISH transition, including support from other organizations such as the European Union, UNDP and FAO itself. A new FAO project (TCP 3803) has been implemented since March 2023 and the REEFFISH NPC for the Comoros is the new national consultant for that project. It is expected that this project will contribute to the follow-up of some REEFFISH activities.

124. In Seychelles, the Seychelles Marine Academy and the Seychelles Fishing Authority will build on the baseline established by the REEFFISH project.

3.6 Inclusiveness

EQ 6: How did FAO's project ensure inclusiveness in the design and implementation stages of the project?

Finding 22. The project ensured some level of gender-equitable participation (and equitable participation for other vulnerable groups) and, overall, this was viewed positively. However, the small-scale fisheries sector in this region is a male-dominated activity, so in some contexts, gender balance is more difficult.

125. The only reference the project document made to gender equality was to say that the project was "not a gender-specific one but all efforts will promote the involvement of qualified women at the institutional level in organizational development efforts and capacity building across all project output areas and activities, which will be designed to facilitate and enable women's participation in order to ensure that both female and male beneficiaries will equally receive the benefits of the project" (FAO, 2019). The terminal report cites the various efforts the project included:

> "Women in particular for the value-chain sector, the priorities have been met in the Comoros, the women were targeted for the association creation and training on fish processing (synergy between FAO/ILO) in Madagascar, the value chain training has focused the women, the delivery of equipment also (ice boxes) with consideration of equity, in Mauritius, the women who are involved in particular in the oyster fishery sector were considered during the value chain trainings, in Kenya, the women were targeted for octopus value-chain, fish catches processing (ovens). The project further ensured that the workshops have all included the women to get their opinion and

> consider them for all aspects. Youth were also considered for community surveillance, exchange knowledge, workshop, equipment delivery. More than 339 women were involved in trainings and sensitizations. The project acknowledges that in some instances, women were not involved" (FAO, 2023).

126. In the western Indian Ocean region (which includes coastal East Africa and the island states), fishing in open sea is an activity confined mostly to men, while women focus more on processing and trading, or fishing "on foot", collecting seafood on the beach or using small-mesh nets close to the beach. Consequently, women and other stakeholders perceived that men benefit most from the project.

127. Nevertheless, in Kenya and Mauritius, the project made efforts to involve and support women's associations involved in fishing and fish processing. Women are business owners, leaders in their own communities, form associations, and even own fishing boats with male crews. In Madagascar, the value-chain study explored the needs of women and youth. They benefited substantially from project activities (mostly training on fish processing) and donations of equipment (processing tools, drying racks and smokers). The training largely involved women, particularly when it came to smoking, drying and salting fish, both in Madagascar and the Comoros. In Madagascar, women were to be the main recipients of nets in a bid to reduce their use of destructive small-mesh nets. However, the nets (and other equipment) have not yet been distributed to beneficiaries and are being stored in the Ankarea Association office, awaiting instruction from WCS or FAO.

128. Women were also beneficiaries of some exchange visits. For example, female fishers and other women involved in fish processing travelled from Madagascar to Kenya to learn from BMUs and women's associations. In the Comoros, one exchange visit took two women and one man involved in fisheries to other islands to learn about co-management and the value chain. It was clear that women were more involved in leading and implementing the project, with the REEFFISH regional coordinator a woman, as well as the FAO focal points.

129. However, in some other instances, women felt disenfranchised, as they were not the major project beneficiaries. In the Comoros, the women consulted were largely dissatisfied with the fact that the project provided equipment – longlines, handline and hooks – for fishing done mostly from boats, by men. They also resented that what was provided to them, without much consultation, were traps/cages for fishing "on foot" on the beach. As previously mentioned, the cages were not fit for purpose. They were inefficient and did not trap many fish. Women also complained that the fishing closures put in place through co-management plans (three-month closure periods for octopus fisheries) did more harm than good. They say alternative activities were not considered. The same issue of fewer benefits for women during agreed closure periods also seems to have arisen on the second island in the Comoros, Moheli. The spokesperson for women believes the co-management agreement of Barakani will be very difficult to sustain in future if alternative activities are not planned to support women during the three-month fishing moratorium. The Evaluation Team believes the matter should have been dealt with more carefully, given FAO's policies on gender. In the case of the Comoros – and, indeed, more generally – the participation of women seems to have been very weak, both in terms of leadership and activity levels. According to the women consulted, they are not represented on the association's (Djambé Association, Malé) executive board.

130. In terms of other vulnerable groups, less seems to have been done. In Madagascar, there was no mention or inclusion of youth in training on community surveillance, or most other activities, in the project report. Yet, young people account for 27 percent of the Ankarea MPA population. This means that project beneficiaries were chosen more organically than by design. This was an aspect the Evaluation Team felt was lacking in project field activities and awareness-raising exercises, and

even during other activities involving local fishers outside the MPA area. However, local interviewees reported that youth benefited significantly from training courses and project materials and participated significantly in project activities. The REEFFISH project identified youth groups in Mauritius, as mentioned previously. In Kenya and the Comoros, youth were not identified as a separate group *per se*, and would only identify themselves as youth when, in group discussions, the evaluators asked who was less than 30 years of age. This means they were treated throughout the project as part of the general target groups, such as fishers, traders, women, processors and so on. There was no information available on groups such as people living with disabilities, other vulnerable groups or minorities.

3.7 Partnerships and coordination

EQ 7: To what extent were FAO's stakeholders, partnerships and coordination appropriate and effective in achieving the intended results?

Finding 23. There were several approaches to stakeholder involvement in this project (regional and national) and some worked better than others, given the different contexts and very short timeframe. It was certainly key to producing results.

131. As mentioned, the REEFFISH project promoted regional collaboration as well as national-level collaboration. Several regional PSC meetings took place, sometimes back-to-back with technical/knowledge-sharing meetings, along with several regional exchange visits. Some regional meetings were virtual. For a project affected by delays and the COVID-19 pandemic, this was the least that could have been done. Stakeholders interviewed regretted that there were not more exchange visits and knowledge sharing, suggesting that these were appreciated. NSC meetings took place at least twice per country.

132. In Madagascar, many categories of partner and stakeholder were involved in the NSC meetings, particularly on the first day, when all aspects and progressions of the project were presented to everyone. Stakeholders could be categorized as: local communities and fishers' representatives, collectors, wholesalers, civil society organizations, central and decentralized government departments, local and traditional authorities, NGOs and large projects (such as SWIOFish2). Many interviewees had hoped for more frequent PSC meetings throughout the project to ensure that good momentum was maintained in the Ankarea MPA and its fisheries. Later, involvement and participation, especially at local level, started to wane as the end of the project approached and the focus was more on moving all the expendable and non-expendable equipment that needed to be moved.

133. In Mauritius, there were only two NSC meetings. Mauritian participants in the regional PSC meeting and knowledge exchange in Malindi, Kenya in May 2023 felt the knowledge exchange was limited and would have preferred more time on this activity. There was little communication between institutions during the project and between Mauritius and Rodrigues in the project inception phase. Interviewees from different agencies within Mauritius found that, in many cases, officials were unaware of the project or of detailed objectives. Rodrigues was not involved during the inception phase. Key stakeholders in Rodrigues expressed disappointment that a vessel was not made available to the island authorities, as this was a pressing need in the area.

134. In the Comoros, the NSC comprised several stakeholders, including the Secretary General of the Ministry of Agriculture, Fisheries, Environment, Tourism and Handicraft and representatives from the DGRH, the General Directorate for Environment and Forestry, the Ministry of Finance and Budget, FAO, the National Strategic Directorate for Agriculture and Livestock, Japan, CNCSP and fisheries syndicates. The Comoros did involve several local and international NGOs in project

implementation on the three islands. Local coordination with different stakeholders was viewed very positively, with very few exceptions. The mayors of the targeted villages took a very active part in implementing project activities by supporting formal meetings, as in Moya. The mayors played their role in the design, discussion, approval and signing of the co-management plans. However, there were comments at community level about women's participation – which could have been better – and a lack of communication between project personnel and communities and project personnel and regional governments, mostly regarding involvement and participation. For instance, local associations would be informed at night that a visit or training course would take place the next morning.

135. In Seychelles, there were efforts to involve stakeholders (such as the fisher's associations, fishers, academic institutions, representatives of government ministries, the Seychelles Parks and Garden Authority [in charge of MPAs], NGOs [such as MCSS and ICS] and members of parliament) and develop partnerships using a bottom-up approach. The NSC, although it met quite late in the project, comprised the Permanent Secretary for the Department of Fisheries, fishing associations, the Seychelles Fishing Authority, government agencies, civil society organizations, the Seychelles Maritime Academy and the Island Development Company.

136. In Kenya, stakeholders' involvement was mostly at the local level, through the BMUs and their local links with county councillors and members of parliament representing the areas in question. BMUs and associations facilitated strong links between project personnel/FAO and local fisherfolk.

137. WCS and other civil society organizations involved in the project expressed some concern about not being informed of field activities undertaken by the project. When they were informed, it was sometimes at very short notice. The most powerful civil society organization in the DIANA region, FUP-BATAN, said it was not involved in project implementation on the ground, only in PSC discussions. Some interviewees said the its platform was still under review, and this is why the project did not collaborate much with it. It is worth noting that FUP-BATAN is well anchored in the area and could have facilitated many of the project activities while ensuring sustainability and an exit strategy. Furthermore, REEFFISH's target area is included in the fisheries management plan for the Batan region. Some interviewees said the project was not well aligned with other actors' strategies or timelines in the area and that it should have consulted more widely with actors in the DIANA region from the design stage (local authorities and decentralized government were emphasized here, in particular). Local communities complained about this aspect as well. For instance, the Andavakabiby communities said they would have liked to have been informed when the project came to install the buoys for the core area close to their village. They were worried when they saw foreign boats operating in their marine territory and wondered what it was about.

3.8 Monitoring and evaluation

EQ 8: Was there an M&E and learning plan in place? If so, was it practical and sufficient?

Finding 24. The project did not have a M&E unit in place to support decision making, adaptation and learning.

138. The project document indicated that performance assessment would be conducted by an M&E unit that would collect and assess information on progress towards indicator targets. However, no such a unit was formed; the project team informed the evaluators that they worked on a dashboard with the M&E team at FAO Madagascar for which they were involved in the conception. Apart from reporting at regular times (i.e., country reports and regional reports were produced and shared, with workplans based on the "results chain" and project results tracking to follow up on activities or changes), the project was expected to have a midterm review, which could not be done.

139. Because there was no M&E unit nor mid-term review, adaptation was in the hands of the regional project coordinator, who decided what activities to drop and what activities to pursue given the limited timeframe and other constraints.

4. Lessons learned

Lesson 1. The project became overly ambitious due to the multitude of objectives and the short implementation timeframe. This meant that completing all the planned activities became challenging. This underscores the importance of setting realistic and manageable objectives, particularly when dealing with complex issues such as natural resource management and behavioural change. It is crucial to ensure that the number and variety of objectives align with the time and resources available. This insight highlights the need for careful planning, realistic goal setting and efficient resource management in project design and implementation.

Lesson 2. This evaluation report noted some successful instances of synergy between REEFFISH and other projects by different donors. For example, fish boilers in Kenya were piloted during the implementation of another technical assistance project supported by JICA. SWIOFish supported monitoring, surveillance and control measures in Kenya and the Comoros, which were followed up with, while ILO supported a project in the Comoros that financed smoking kilns, drying racks and market stands that are now being used by REEFFISH beneficiaries. Some of these may have been coincidental, others were complementary by design. However, this demonstrates that innovative and pilot ideas should be taken forward in the new design of projects. Lessons learned from other projects should also be used to avoid repeating the same mistakes.

Lesson 3. The fact that the project engaged several focal points in government and in local FAO offices was a very positive experience. It meant that when government focal points were too busy, the focal points in the FAO offices were ready to fill the gap. Project implementation could have been negatively affected had it not been for this set-up.

Lesson 4. The crucial lesson learned from the project's procurement delays is that the time required for procuring necessary equipment must be accurately estimated in the design phase. Furthermore, these activities should be given utmost priority during implementation to prevent delays, to ensure the smooth and efficient achievement of intended outputs and outcomes.

Lesson 5. Because of the project's short duration and the intensity of some activities towards the end of the implementation period, communication (sharing information, exchange visits, regional workshops on lessons learned) and visibility (materials published in grey literature or media) were not given sufficient investment, time or priority. In many instances, institutional representatives and individuals complained about the lack of information. In other cases, perceptions did not match the reality the project was trying to address. The project was addressing an extremely important issue for coastal communities and governments in the region: overfished coral reefs in the western Indian Ocean. Investing more in communications and visibility would have passed on those messages in a more meaningful way and generated more information that could have filtered through into new projects.

5. Conclusions and recommendations

5.1 Conclusions

Conclusion 1. Overall project implementation: The project was quite ambitious in its intended results over a short period and was further affected by late recruitment, the COVID-19 pandemic, other random events and lengthy procurement processes.

140. The project was spread over five countries in the western Indian Ocean, both coastal and island states, with different languages and different stages of development based on gross domestic product and status of governance (institutional, legal) of marine and coastal resources. For example, while some countries had had a developed system of MPAs for many years, some had only recently established a network of such areas.

141. In addition, for a project that was to be implemented over a period of three years, the objectives were highly ambitious, relating to how natural resources were used, associated changes in behaviour and the use of new technology.

142. The project was further affected by tardy recruitment and late starts, the COVID-19 pandemic and FAO procurement processes, which are lengthy and cumbersome. Even with all the limitations, the project succeeded in delivering most activities, though outcomes and impacts could not be observed.

Conclusion 2. Relevance and coherence: The project was highly appreciated by governments, local authorities and local communities.

143. The project's objectives, approaches and related work were consistent with national and local government policies, strategies and legislation, as well as FAO's CPFs for the targeted countries. The project was generally appreciated by beneficiaries at local level, primarily by fisherfolk.

144. The project also fit very well with the work that was done, or was still being done, by other programmes and projects financed by FAO, the World Bank, the European Union, and so on. Certain ongoing projects could benefit by picking up where some elements of the REEFFISH project left off.

145. In some places, it was the first time any support had been provided for the improvement of marine resource management.

Conclusion 3. Delivering components of the project: The project managed to deliver on most of its outcomes and outputs by the end of the permitted no-cost extension. It also managed to deliver most activities with speed and efficiency. However, some deliverables were of lower quality and some activities had yet to be finalized at the time of the evaluation.

146. Given the time allocated and the delays that hampered project implementation, the REEFFISH project did quite well. It needs to be said that about 50 percent of the budget was for expendable and non-expendable equipment, which means a great deal of effort was put into purchasing equipment and materials for distribution in different areas with distinct challenges. The equipment aimed to improve the value chain (fishing gear, including traps, solar-powered cold storage, freezers and ice-flaking machines, drying racks and so on), increase safety (training, life jackets) and combat IUU (boats, VMS and so on). There was also genuine effort on the part of FAO, governments, and other partners to move the project forward. Several examples underscore the

huge effort made by the project team to ensure that the project was implemented to the best standards possible, while striving to build on existing local initiatives and lessons learned.

147. That said, there were issues with the timing of studies and monitoring (baseline studies were only ready towards the end of the project), FAD deployment (some were not allowed to be installed, some had design flaws and there were question marks over ownership), the quality of fishing traps, the size of life jackets, and the ownership and sustainability of sophisticated equipment. These issues can only be addressed beyond the project timeframe.

148. Delays in the procurement of necessary equipment significantly hindered the timely implementation of crucial activities, such as capacity enhancement and the establishment of sustainability plans. These delays obstructed the achievement of some intended results.

Conclusion 4. Efficiency and internal processes: The project managed to deliver almost 100 percent of its budget expenditure, with two budget reviews and one no-cost extension. However, some processes could have been better given the short implementation period, such as integration, communication and participation.

149. Once the RSCs and NSCs had been established, they should have been better used for communication and decision-making. Issues were raised about insufficient communication of project-related decisions by small circles of implementers. There was also some lack of communication with countries at the design phase of the project and later, during the implementation phase, on certain country/community requests.

150. Participants were disappointed that more was not done to enhance learning between countries and communities, as there were few exchange visits and regional learning meetings.

151. The workload of the national coordinators and focal points varied from country to country, but some found it impossible to dedicate the time required to project implementation. This was evident in progress reports and key interviews and needs to be addressed in future projects.

Conclusion 5. Sustainability: There is a huge question mark over the sustainability of some activities. By the end of the project, many activities were still being finalized, and it will be up to central governments, local authorities, local communities and other beneficiaries (NGOs) to deliver on continuity.

152. Because of the project's short timeframe and the fact that some activities were still being finalized in the final weeks, it is very difficult to predict outcomes and impacts.

153. The project delivered most infrastructure and equipment in the last trimester. It would have been far more appropriate, perhaps, to have had at least six months before project end to assess the functioning and adequacy of the infrastructure and equipment, to test local management mechanisms and to observe the early programmatic results of their use.

154. The outlook for the future of the project´s investments was mixed, but there was cause for optimism. In Madagascar, WCS is supporting the MPA, and it is hoped that this will continue. The Governments of Mauritius and Seychelles will step in and continue some work. In Kenya, central government (Secretary of State) and local authorities (counties) are expected to provide support. In the Comoros, local authorities expect other projects to support follow-up.

Conclusion 6. Gender and inclusion: This aspect of the REEFFISH project was weak, either due to project design or the fact that the teams did not have the time they needed for certain processes. Fishing is an activity that is mostly undertaken by men, while women focus on processing and trading, or fishing "on

foot", collecting seafood directly on the beach or using small-mesh nets. Men were perceived to be the primary beneficiaries of the project.

155. Consequently, as the project aimed to promote fishing activities far from the coast and fringing reefs, it naturally benefited those men that went out to sea. This created a perception, particularly in the Comoros, that the project benefited mostly men. However, even in the Comoros, investments were made in the processing and storage of fish, an activity conducted more by women than men.

156. In sum, the picture on gender and inclusion is a mixed one, with some countries performing better than others, depending on leadership. While women in Kenya, Madagascar, Mauritius and Seychelles appeared to be in positions of leadership, in the Comoros, women seem to have a long way to go. It should be also noted that in terms of project staffing levels, steering committee and other leadership positions, the project did quite well when it came to gender diversity.

5.2 Recommendations

Recommendation 1. Prioritize realistic goal setting and resource allocation in project design.

157. Given the challenges faced due to the overly ambitious objectives and short implementation timeframe, future projects should prioritize setting realistic and manageable goals that are closely aligned with the available resources and timeframe. This includes conducting a thorough assessment during the design phase to ensure that the number and scope of objectives are feasible. By carefully planning and allocating resources, the project can avoid overextension and increase the likelihood of successfully completing all planned activities.

Recommendation 2. Enhance synergy and communication between complementary projects.

158. To capitalize on the successful synergies observed between REEFFISH and other projects and address the communication gaps identified, future projects should actively seek and formalize partnerships with other initiatives working in related areas. This includes integrating communication strategies that ensure regular information exchange, visibility, and coordinated efforts across projects. By fostering collaboration and ensuring consistent communication, projects can maximize their impact, avoid duplication of efforts, and build on the successes and lessons of complementary initiatives.

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Appendix 1. People interviewed

List of people met

Last name	First name	Institution/agency	Role
The Comoros			
Aba	Aboubacar	Syndicat Barakani, Moheli	Fisher
Abdalah	Djoumoi	Djambé Association, Malé	Fisher
Abdou	Dalya	Moya Cooperative, Anjouan	Fisher
Abdulhamid	Assoumani	Nagazid Governor	Delegate, Production
Aboulou	Youssouf	*Parc National de Coelacan* (PNC)	Agent/Representative
Ahamada	Fahardine	National Directorate for Aquatic Resources (DGRH)	Engineer
Ahamada	Mmadi	Association d'Intervention pour le Développement et l'Environnement (AIDE)	Chief Operations Officer
Ahamada	Nassur	AIDE	Secretary General
Ahamada	Rahamata	AIDE	Member
Ahamada	Saiol	AIDE	President
Ahamada	Said	Syndicat Barakani, Moheli	President
Ahamad	Rainati	Moheli National Park	Chargé de Mission Développement Local
Aldell	Mariama	Regional Director of Fisheries Ngazid	Fisheries Officer
Allaouiya	Hatubou	PNC	Eco-Guard
Allaoui	Said	Moya Cooperative, Anjouan	Notable
Ali	Youssouf	DGRH	Director
Asmali	Abasse	Djambé Association, Malé	Treasury
Bedja	Ediamine	FAO	Assistant FAO Representative
Chaohaili	Mohamed	Moya Cooperative, Anjouan	General Secretary
Fahade	Youssouf	Djambé Association, Malé	General Secretary
Handani	Fahadi	DRP, Anjouan	Director
Hassani	Mohamed	Djambé Association, Malé	President
Issa	Aboubacar	DGRH	Focal Point, REEFFISH
Ilah	Nourdine	AIDE	Chief Accountant
Islam	Mina	DRP Ngazid	Development Officer
Madé	Mouchtadi	Moheli National Park	Chargé de Mission Environnement Marin et Côtier
Misbahou		DAHARI, Anjouan	Co-Director
Mmadi	Amina	Djambé Association, Malé	Fisher
Mohamed	Kamal	CNCSP	TIC/VMS Officer
Mohamed	Mliva	Djambé Association, Malé	Spokesperson
Mohamed	Mikdachi	DRP, Moheli	Focal Point, REEFFISH
Nassim	Mohamed Aldor	Moya Municipality	Mayor
Nourdine	Mohamed	DGRH	Coordinator, REEFFISH
Nounou	Amil Alfane	DRP, Anjouan	Director
Mzimba	Azad	Djambé Association, Malé	Controller
Njessina	Fatoumia	AIDE	Treasury Assistant
Rachid	Mohamed	PNC	Eco-Guard
Sabrata	Mdoihoma	DRP Ngazid	Fisheries Officer
Saijullah	Mahamoud	DRP Ngazid	Regional Director
Salim	Yasida Allaoui	Moya Cooperative, Anjouan	Youth Organizer
Siti		DAHARI, Anjouan	Director, Programme Management

Appendix 1. People interviewed

Last name	First name	Institution/agency	Role
Youssouf	Birti	PNC	Eco-Guard
Kenya			
Abdaliah	Khadiha	Vanga BMU, Kwale	Member
Aboud	Swaleh	CORDIO	Scientist, Project Manager
Ali	Sofia	Vanga BMU, Kwale	Member
Bacha	Nadja Athman	Kenya Fisheries Service (KFS)	Fisheries Officer
Biruhusa	Mwanaisha	Vanga BMU, Kwale	Member
Fredrik	Bahati	Mayungu BMU, Kilifi	Executive
Garama	Kombe	Mayungu BMU, Kilifi	Treasury
Gora	Juliet	Mayungu BMU, Kilifi	Executive
Hamisi	Gharib	Mayungu BMU, Kilifi	Secretary
Hassan	Jafari	Mkwiru BMU, Kwale	Treasurer
Hindo	Saumu	Mtwapa BMU, Kilifi	Treasurer
Jesse	Alice	FAOKE	Focal Point
Juma	Rukia	Pweza Women Group, Kilifi	Chair
Kapeni	Gabriel	Kilifi County	Assistant Fisheries Director
Kahindi	Jane	Pweza Women Group, Kilifi	Treasury
Karani	Samuel	Mayungu BMU, Kilifi	Chair
Kimwele	Peter	State Department	Assistant Director
Kitaria	Eva	CORDIO	Finance Manager
Mbarok	Halima	Pweza Women Group, Kilifi	Secretary
Miraji	Mekombo	Vanga BMU, Kwale	Member
Mjahid	Nabil	Fisheries CGK, Kilifi	Fisheries Assistant
Mlewa	John	Mayungu BMU, Kilifi	Executive
Munga	Ndago	Mtwapa BMU, Kilifi	Secretary
Mohamed	Ali	Vanga BMU, Kwale	Secretary
Mohamed	Salma	Vanga BMU, Kwale	Member
Mohamed	Zainabi	Pweza Women Group, Kilifi	Vice Secretary
Mraufa	Chrispous	Mayungu BMU, Kilifi	Assistant Secretary
Omar	Ahmad	Mayungu BMU, Kilifi	Executive
Rashid	Rukia	Pweza Women Group, Kilifi	Member
Salim	Mishi	Kenya Fisheries Service	Head of Station
Senedhun	Vihushan	Ministry of Blue Economy and Fisheries, Mauritius	FAO FAD Consultant
Shame	Hatis Sharif	Mtwapa BMU, Kilifi	Controller
Tsuma	Eddy	KFS	VMS Administrator
Vidide	Sophy	Pweza Women Group, Kilifi	Member
Vuyha	Mwatewe Keya	Mkwiro BMU, Kwale	Secretary
Madagascar			
Andriamaharo	Tantely	Ministry of Fisheries and Blue Economy, Direction de la Pêche	Project National Coordinator
Antonjara	Moussa	Ankarea Association AG member, Ratapenjika	Association President, Fisher, Wholesaler, Hotel Manager, Representative of Lalà School
Aoda	Moussa	Ankarea Association AG, Ampanitsoha	KMD[8] Agent, Fisher
Aristide	Mariana	Ankarea Association AG, Marimbe	CPUE Agent, Fisherwoman
Beanjara	Tolifeno	Fokontany (local authority unit), Ankarea Association, Bevaoko	Vice-President Fokontany, Fisher, Farmer
Behivoke	Faustinato	FAO	Consultant in Marine Biodiversity and MPA

[8] KMD: local elected committee applying local resource management rules

Last name	First name	Institution/agency	Role
Bezafy	Armel	WCS, Nosy Be	Interim Regional Manager
Daomanana	Zainata Ali	TGRH Group, Port Saint Louis	Secretary, Fisher
Fanazava	Rijasoa	CSP, Antananarivo	National Director
Fenozandry	Nestorine	Civil society organization ROSEDA platform Ambilobe	Secretary
Fidison	Said	Ankarea Association AG, Andavakabiby	CPUE Agent, Fisher, Farmer
Francoise	Line	Ankarea Association, Andavakabiby	Rice Farmer
Germaine	n.a.	Ankarea Association AG, Ratapenjika	Fisher, Farmer, Artisan (handicraft)
H.E. Tsimiharo III	Issa	Kingdom of Ankarana, HQ in Ambilobe	King of Ankarana
Hassan	Kassim	Ankarea Association, Bevaoko	Elder, Fisher
Houmad	Paulin Gaston	Civil society organization ROSEDAplatform Ambilobe	Adviser
Ismael	n.a.	Ankarea Association AG, Andavakabiby	CPUE Agent, Fisher, Farmer
Janfary	Salimo	TGRH Group, Port Saint Louis	Adviser
Mamiharivelo	Victor	FAO	Programme Assistant
Marianic	n.a.	Taratra collectors' cooperative, Ambilobe	Seafood Collector
Mathieu	Guy	Civil society organization ROSEDAplatform Ambilobe	President
Mbôty	Juliana	Ankarea Association AG, Marimbe	Fisher
Moana	Roland	WCS, Andravorôgno	Socio-organizer
Rakotoarimanga	Andrisoa	Ministry of Fisheries and Blue Economy, fisheries surveillance centre (CSP) Nosy Be	Chief of Antenna
Rakotoniaina	Eric Oswald	FAO	Consultant in Civil Engineering
Ramahafinaritra	Anthony Weber	Ambilobe fish market association	President, Wholesaler
Ranaivoson	Ravaka	WCS, Antananarivo	Marine Conservation Director
Randrianoavy	Tojotiana	FAO	Chargée de Communication
Rasolomiarina	Friedel	Fisheries department in Nosy Be	Head of Department, SWIOFish2 Local Management Unit Coordinator
Razafindraibe	Menja	FAO	Head of Purchase Unit
Samsoudine	Idrissa	TGRH Group, Port Saint Louis	President of TGRH Group, CPUE Agent
Tchuidjang	Jobert	FAO	Consultant in Value Chains
Tombolaza	Fahardine	Ankarea Association AG, Andavakabiby	President of KMD Mitsio
Tombozara	Said	Ankarea Association AG, Bevaoko	Fisher, CPUE Agent
Velondrazana	Daniel	Fisheries department in Ambilobe	Project Focal Point, Head of Department, SWIOFish2 Local Management Unit Coordinator
Volatiana	Moana Rozona	TGRH Group, Port Saint Louis	Treasurer
Mauritius and Rodrigues			
Azie	Jean Hervé	Commission for Fisheries and Others	Rodrigues: Data Collector
Colin	Jean Paul	Commission for Agriculture, Fisheries, Food Production, Forestry, Plant and Animal Quarantine	Rodrigues: Responsible for all departments under the Commission for Agriculture, Fisheries, Food Production,

Appendix 1. People interviewed

Last name	First name	Institution/agency	Role
			Forestry, Plant and Animal Quarantine
Fakoo	Manoj	Albion Fisheries Research Centre	Agricultural Divisional Scientific Officer of the Laboratories Division of Albion Fisheries Research Centre (AFRC), responsible for pollution monitoring
Ishihara	Satomi	Government of Japan	First Secretary
Kawaguchi	Shuichiro	Government of Japan	Ambassador of Japan
Khadun	Satish	Fisheries Training Extension Centre	Assistant Director of Fisheries
Khurun	Poojanraj	FAO	National FAO Correspondent
Koonjal	Meera	Ministry of Fisheries	Director
Leckraz	Sanjeev	AFRC	Scientific Officer of the Marine Conservation Division, responsible for MPAs and coral farming project
Leopold	Viergine	Commission for Fisheries and Others	Rodrigues: Implementation of project under Marine Academy and Research Centre (MARC)
Mangar	Vijay	Albion Fisheries Research Centre	Divisional Scientific Officer of the Marine Science Division of AFRC, responsible for coral reef monitoring
Mohit	Ravi	Fisheries Training and Extension Centre	National Project Coordinator
Perrine	Joseph Rêne	Commission for Fisheries and Others	Rodrigues: Data Collector
Perrine	Joseph Stevenson	Commission for Fisheries and Others	Rodrigues: Data Collector
Perrine	Louis Ange	Commission for Agriculture, Fisheries, Food Production, Forestry, Plant and Animal Quarantine	Rodrigues: Commissioner
Perrine	Marie Jean Sylvio	Commission for Fisheries	Rodrigues: Mauritius ECOFISH Project
Ravanne	Archange	Commission for Fisheries and Others	Rodrigues: Implementation of Project Mauritius ECOFISH Project
Volbert	Jean Paul	Commission for Fisheries and Others	Rodrigues: data collector
Seychelles			
Nicole	Rodney	Fish Association, Seychelles	Fisher
Suleman	Faizal	Fish Association, Seychelles	Fisher
Victor	Betty	Seychelles Fishing Authority	Project Coordinator
Regional			
Dzifanu	Kwami	FAO Regional Office for Africa	Senior Project Officer
Fujiwara	Kazayuki	FAO Regional Office for Africa	Development & Resource Mobilization
Lansley	Jon	FAO Regional Office for Asia and the Pacific	Lead Technical Officer
MonjainMonjoin	Nissiat	FAO Regional Office for Africa	Project Coordinator
Okai	Reuben	FAO Regional Office for Africa	Operation Specialist

Last name	First name	Institution/agency	Role
Van der Knaap	Martin	Former FAO Regional Office for Africa	Former Lead Technical Officer
Vasco	Schmidt	FAO Subregional Office for Southern Africa	Lead Technical Officer

Participants in focus-group discussions

Association/beneficiaries' area	Number of women	Number of men
The Comoros		
Djambé Association, Malé	14	33
Moya Cooperative, Anjouan	10	9
Kenya		
Pweza Women's Group, Kilifi	19	-
Madagascar		
Ankarea Association AG	21	38
Mauritius		
Poste de Flacq	5	8
Trou-aux-Biches	-	10
Rodrigues	-	8

Appendix 2. Evaluation matrix

Subquestions	Indicators	Methods/Informants/Data Sources
1. Relevance: EQ 1: To what extent is the project relevant to country priorities and FAO strategies for sustainable fisheries management?		
Subquestion 1.1: How well does the project align with the FAO strategies, particularly in the context of promoting sustainable small-scale fisheries, ecosystem-based management, and the Blue Growth Initiative?	○ Level of alignment of project´s objectives with local plans and strategies, interests and needs of stakeholders, including local communities ○ Level of consultation before the project ○ Level of alignment with local priorities ○ Degree to which different country needs were taken into consideration at design level	○ Interviews with key informants: FAO Country Office personnel, government officials, national stakeholders, donors ○ Focus-group discussions with beneficiaries, key informant interviews at selected target sites
Subquestion 1.2: To what extent does the use of fish aggregating devices (FADs) align with the FAO Code of Conduct for Responsible Fisheries, considering the specific environmental and resource management challenges in the project areas?	○ Level of alignment with FAO's objectives in the region and countries ○ FAO CPFs, global and regional initiatives, that is, the Blue Growth Initiative, FAO's Code of Conduct for Responsible Fisheries, the Ecosystem Approach to Fisheries, and so on	○ Document analysis ○ Interview of FAO personnel ○ Interviews with government officials at regional, country and local level
2. Coherence: EQ 2: To what extent were the project's interventions coherent, that is, implemented in synergy and complementarity with existing interventions, as well as global, national and regional initiatives and FAO policies?		
Subquestion 2.1: To what extent was the project coherent with existing interventions in the same targeted areas (that is, similar projects recently implemented)?	○ Level of alignment/synergy with other projects at country and regional level ○ Level of consultation with FAO personnel implementing similar projects	○ Analysis of FAO documentation (project documents) ○ Interviews with FAO personnel
Subquestion 2.2: To what extent did the project's design take into consideration good practices and lessons learned from similar projects (implemented in the same geographical area or in other geographical areas with similar issues and characteristics)?	○ Level of consultation with FAO personnel involved in previous and ongoing projects ○ Level of uptake of recommendations from previous project documents and project evaluations ○ Participation in knowledge exchange/ workshops prior to and during the design phase of the project	○ Analysis of FAO documentation (including terminal reports of previous projects and previous evaluations) ○ Interviews with FAO personnel ○ Key informant interviews

Subquestions	Indicators	Methods/Informants/Data Sources
3. Effectiveness: EQ 3. To what extent were the project's interventions effective in achieving the expected results?		
Subquestion 3.1: To what extent did the project achieve its intended results effectively under Outcome 1 (improved management of coral reef fisheries for restoration, protection and income generation)?	○ Demonstrated evidence of baseline, collection of data, data analysis and demonstrable results of restoration, management and improvement in fisheries yields ○ Training provided ○ Extent to which beneficiaries changed their behaviours, adapted to more sustainable fishing techniques and increased awareness ○ Increase in the frequency of coral reef monitoring and protocols ○ Number of FADs delivered and deployed ○ Number of beneficiaries benefiting from the use of FADs	○ Baseline, research and monitoring, reports, semi-structured interviews, key informant interviews, focus-group discussions
Subquestion 3.2: To what extent did the project achieve its intended results effectively under Outcome 2 (improved fishery value chains and access to markets for coral reef fisheries products)?	○ Demonstrated evidence of improved value chains and access to market for improved or new products from coral reef fisheries ○ Number of beneficiaries who benefited from the delivered equipment ○ Number of beneficiaries trained on the use of the delivered equipment ○ Level of reduction in post-harvest losses ○ Increase in the quality and amount of catch ○ Reduction in the amount of by-catch	○ Baseline, research and monitoring, reports, semi-structured interviews, key informant interviews, focus-group discussions
Subquestion 3.3: To what extent did the project achieve its intended results effectively under Outcome 3 (reduction in IUU fishing and increase in maritime safety)?	○ Demonstrated evidence of reduction of cases of IUU and increased maritime safety ○ Number of beneficiaries who have benefited from the delivered equipment (for increased maritime safety) ○ Number of beneficiaries trained on the use of the delivered equipment	○ Baseline, research and monitoring, reports, semi-structured interviews, key informant interviews, focus-group discussions

Subquestions	Indicators	Methods/Informants/Data Sources
Subquestion 3.4: To what extent did the project achieve its intended results effectively under Outcome 4 (enhanced and shared knowledge on the improved management of coral reef fisheries contributing to a scaling up of the intervention)?	○ Demonstrated evidence that knowledge was packaged and presented in such a way that could be shared and used, and continues to be shared and used	○ Baseline, research and monitoring, reports, semi-structured interviews, key informant interviews, focus-group discussions
Subquestion 3.5: What were the internal or external factors that helped or hindered the achievements of its intended results?	○ Listing and analysis of factors	○ Reports, semi-structured interviews, key informant interviews, focus-group discussions
Subquestion 3.6: What were the positive and negative intended and unintended results of the project that either facilitated or constrained FAO's work on this initiative?	○ Listing and analysis of factors	○ Reports, semi-structured interviews, key informant interviews, focus-group discussions
Subquestion 3.7: What changes did this project have on the food security and livelihoods of communities in the targeted areas?	○ Evidence with level of changes, listing and analysis of evidence	○ Reports, semi-structured interviews, key informant interviews, focus-group discussions
4. Efficiency: EQ 4: To what extent was the project implemented <u>efficiently</u> and was management able to adapt to any changes in conditions?		
Subquestion 4.1: To what extent has the project followed the planned budget for the four components, activities and project management (planned budget versus expenditures)? Explain major factors behind any deviations.	○ Budget, expenditure reports and explanation of deviations	○ Project management, FAO
Subquestion 4.2: To what extent did the project governance structure facilitate or hamper project execution, and the timely resolution of issues during project implementation and did it contribute to project objectives?	○ Measure how governance worked ○ Existence of a functional structure	○ Minutes of meetings, lists of participants ○ Key informant interviews
Subquestion 4.3: To what extent was the project able to adapt to changing conditions (such as delays, COVID-19 and suggestions for improvement)?	○ Level of adaptation and adaptability in different/new circumstances, solutions found and implemented	○ Reports, semi-structured interviews, key informant interviews
5. Sustainability: EQ 5: How did FAO's project ensure <u>sustainability</u> at community and institutional level?		
Subquestion 5.1: Are the changes achieved likely to be sustainable? What factors enhanced the sustainability or may inhibit the sustainability of benefits?	○ Listing and analysis of factors ○ Existence of sustainability mechanisms ○ Existence of exit strategy	○ Reports, semi-structured interviews, key informant interviews, focus-group discussions

Subquestions	Indicators	Methods/Informants/Data Sources
Subquestion 5.2: To what extent did the project improve the enabling environment (strengthen systems, institutions, capacities and policies) to better support future development?	○ Listing and analysis of factors ○ Any evidence of new regulations, policies, systems	○ Reports, semi-structured interviews, key informant interviews, focus-group discussions
Subquestion 5.3: To what extent was a project exit strategy devised and implemented, ensuring the continuation of its positive effects (including capacity considerations)?	○ Listing and analysis of factors	○ Exit strategy, reports, semi-structured interviews, key informant interviews, focus-group discussions
6. Inclusiveness: EQ 6: How did FAO's project ensure inclusiveness in the design and implementation stages of the project?		
Subquestion 6.1: How was the project implemented in a manner that ensured gender-equitable participation? To what extent did women benefit from the project? What changes did the programme have on their lives?	○ Level of gender inclusion or a gender strategy ○ Women's participation and benefits ○ Level of changes in women's situation	○ Reports, semi-structured interviews, key informant interviews, focus-group discussions
Subquestion 6.2: How did the project help to address the needs of vulnerable populations (youth, minorities, people with disabilities)? What were the barriers faced?	○ Level of inclusion ○ Impact on different interest/ beneficiaries' groups ○ Existence of a social inclusion strategy or initiative	○ Reports, semi-structured interviews, key informant interviews, focus-group discussions
7. Partnerships: EQ 7: To what extent were FAO's stakeholders, partnerships and coordination appropriate and effective in achieving the intended results?		
Subquestion 7.1: To what extent did the programme sustain and expand linkages and partnerships with civil society, government, development partners and other stakeholders at country, regional and global level?	○ Level of promotion, development and securing of partnerships ○ Types of partnership ○ Networks and platforms established	○ Reports, semi-structured interviews, key informant interviews, focus-group discussions
8. Monitoring, evaluation and learning: EQ 8: Was there a monitoring, evaluation and learning plan in place? If so, was it practical and sufficient?		
Subquestion 8.1: Was the information from the M&E system used appropriately to make timely decisions and foster learning during project implementation?	○ Existence and use of an M&E system ○ Analysis of the M&E system	○ M&E system ○ Reports, semi-structured interviews, key informant interviews
Subquestion 8.2: Given the amount of information generated, how is the project assessing, documenting and sharing its results, lessons learned and experiences?	○ Level of knowledge management, use and how it is used for learning ○ Use of M&E for learning and feedback	○ Produced materials for public view, online viewing and so on ○ Papers produced ○ Reports, semi-structured interviews, key informant interviews

Appendix 3. Logical framework matrix evaluated

	Indicators			Evaluation team	
Results chain	**Value**	**Baseline**	**Target**	**Results by June 2023**	**Comments**
Impact: Enhanced resilience, food security and livelihoods in coral reef fisheries communities in the Comoros, Kenya, Madagascar, Mauritius and Seychelles		0	30 000 people that directly benefited	Impact could not be measured as the project was still finalizing activities at the end of June 2023.	Direct beneficiaries are estimated at around 2 150 people.
Outcome 1: Improved management of coral reef/FADs fisheries for restoration, protection and income generation	Percentage of sampling records with legal size, composition of catches in the targeted areas	0 (tbd)	80 percent	No data collected for Mauritius and Rodrigues. Madagascar: Value-chain study estimated production and catch levels and species. Kenya: Digital data on fisheries are being recorded in BMUs with Fisheries Department agents. The Comoros: No data are being collected on fisheries.	The evaluation team could not see evidence that fish or coral reefs were better off or that restoration took place.
Output 1.1: Community restoration plans developed for selected sites in the beneficiary countries	Number of plans	0	10	Not relevant to Mauritius and Rodrigues. Madagascar: MPA management plan already existed. Kenya: One co-management plan not finalized. The Comoros: three co-management plans done and agreed.	The success story was the Comoros. However, there were cases of weak execution that needed to be addressed later.
Output 1.2: MPAs established and/or strengthened	Number of MPAs	0	10	The Comoros declared a series of MPAs in 2022 because of a UNDP programme.	No new MPAs were created under this project in any of the countries.
Output 1.3: Fisheries communities are well equipped and trained for greater sustainable management of coral reef fisheries	Number of fishers equipped and trained	0	10 000	An estimated number of people were trained (more than 1 000) but equipment is still being distributed.	A lot of effort was focused on this component and rightly so. However, fishing material, for example, is still being distributed by the fisheries departments.
Outcome 2: Improved fishery value chains and access to markets for coral reef and FAD fisheries products	Number of enterprises or cooperatives in the fish trade	0	20	No new enterprises were recorded.	Support was given to existing associations or cooperatives, including women's associations.

	Indicators			Evaluation team	
Results chain	**Value**	**Baseline**	**Target**	**Results by June 2023**	**Comments**
Output 2.1: Fisheries value chains developed, upgraded and strengthened	Cold chains accessible	0	15	Huge investments were made in cold stores, freezers, ice plants, solar panels, drying and smoking, training.	Cold chains were still being installed and were welcomed.
Output 2.2 Improved capacity of youth and women's groups on business development and management	Number of youth and women	0	500	Mauritius: Women oyster collectors empowered. Madagascar: Ninety youth and women trained, but on product transformation. No characterization of youth, so difficult to estimate accurately. Kenya: One existing women's association supported.	Some investment and success in women's associations.
Outcome 3: IUU fishing reduced, and maritime safety increased	Number of MPAs with increased catch and reduced accidents	0	10	Madagascar: Not possible to monitor this for the time being. Mauritius: Not possible to measure. No processed data for Kenya and no data for the Comoros.	No data available for measurement.
Output 3.1: Greater compliance with local and national fisheries rules and regulations for selected coral reef fisheries	Number of MPAs with a reduction in illegal fishing gear	0	10	Madagascar: No illegal gear has been withdrawn yet; surveillance boat has not yet been delivered to the MPA. Mauritius: Vessel has been delivered and training undertaken, but no missions as yet. Kenya: BMUs are outside the MPAs. The Comoros: No evidence in the Comoros' two MPAs.	No data available for measurement.
Output 3.2: Regulated and licensed fisheries allowing access to fisheries resources to combat IUU fishing	Number of fishers licensed through the project	0	30 000	Mauritius: No new fishers licensed but training of fishers applying for registration undertaken and women oyster collectors recognized as a formal fisheries sector. Madagascar: e-licensing is inadequate; "green stripe card" procedure under ministerial review. Kenya: Licence is issued by the KFS after a positive note from the BMUs, independent of the REEFFISH project. The Comoros: No data available.	Mixed results: in some places, licensing is already regulated and ongoing.

	Indicators			Evaluation team	
Results chain	**Value**	**Baseline**	**Target**	**Results by June 2023**	**Comments**
Output 3.3: Community surveillance and conservation strategies developed and implemented	Number of surveillance exercises	0	150	Mauritius: No patrols. Madagascar: One joint patrol with state agents in June 2023. No boat yet available for surveillance exercises. No surveillance records in Kenya and the Comoros.	No records were accessible. However, this will improve with the deployment of five patrol boats.
Output 3.4: Fishers and other vessel operators trained in maritime safety	Number of trainers trained, and number of people (fishers and vessel operators) trained – through training-of-trainers approach	0	1 000 (trainers trained directly) 30 000 (trained by trainers)	Mauritius and Rodrigues: Around 140 people trained in training, maritime safety and patrol boat handling. Madagascar: 20 trainers trained, and 40 fishers trained on maritime safety. The Comoros: The trained personnel and fishers.	Huge investment and success in training in all countries.
Outcome 4: Enhanced and shared knowledge on the improved management of coral reef fisheries contributing to a scaling up of the interventions	Number of communications/ knowledge sharing strategies per MPA	0	10	Mauritius and Rodrigues: three progress reports. Madagascar: One communications strategy.	Progress reports done and shared. Publicity material produced. Social media used.
Output 4.1: Developed and implemented communications/ knowledge-sharing strategies for the success of the project	Number of communications/ knowledge-sharing strategies per MPA	0	10	Madagascar: Good visibility of the project's work, but pedagogical or awareness-raising aspects were insufficient in the wider virtual community on project themes.	Difficult to measure.
Output 4.2: Knowledge generated by the project effectively shared, exchanged and disseminated	Number of people reached by knowledge exchange or awareness raising	0	250 (number of people attending exchange programmes) 30 000 (20 000 through fish farmer field schools and 10 000 from Output 1.3)	Mauritius and Rodrigues: Two fishers exchanged information in Kenya. Meeting held with the Women's Oyster Collectors Association. In the region of 20 people at PSC meetings. Madagascar: One fisherwoman exchanged experience with other fishers in Kenya and all PSC members benefited from several exchanges. About 40 people attended PSC and partnership meetings. The Comoros: Three people visited other islands.	Number of exchange visits seemed limited due to COVID-19 and the short timeframe of the project. All meetings were used for an exchange of knowledge.

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