Food and Agriculture Organization of the United Nations

Evaluation of the project "Responsible use of fisheries and aquaculture resources for sustainable development"

Project Evaluation Series
17/2025

Project Evaluation Series
17/2025

Evaluation of the project "Responsible use of fisheries and aquaculture resources for sustainable development"

Project code: GCP/GLO/352/NOR

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 2025

Required citation:
FAO. 2025. *Evaluation of the project "Responsible use of fisheries and aquaculture resources for sustainable development" – Project code: GCP/GLO/352/NOR*. Project Evaluation Series, No. 17/2024. Rome. https://doi.org/10.4060/cd5974en

Abstract

This report presents the evaluation of the Food and Agriculture Organization of the United Nations (FAO) and the Norwegian Agency for Development Cooperation (Norad) project "Responsible use of fisheries and aquaculture resources for sustainable development" (2020–2024), conducted by the FAO Office of Evaluation with support from independent consultants. The project aimed to promote sustainable fisheries and aquaculture practices globally through six components: i) implementation of international fisheries agreements, ii) climate change adaptation, iii) aquatic biosecurity, iv) social protection, v) food loss and waste reduction and vi) area-based conservation measures.

The evaluation employed a mixed-methods approach, including desk reviews, interviews, expert consultations and analyses of the project's outputs, including its e-learning courses. Field data collection was conducted in Colombia and Sri Lanka. Each component was assessed against its intended outcomes, except Component 1, which is covered in a separate evaluation.

Key findings highlight that the project enhanced institutional capacities, introduced scalable climate adaptation technologies, developed regional aquatic health strategies and supported social protection policy reforms. It also produced national strategies to reduce food loss and waste and increased awareness of conservation measures. However, the evaluation noted that the project's ambitions exceeded the available time and resources, and many outcomes require continued follow-up to achieve lasting impact.

The primary audience includes FAO, Norad, national governments, fisheries and aquaculture stakeholders in the participating countries and development partners. The evaluation concludes that FAO's technical expertise and partnerships were critical to the project's success and represented a key value-added of FAO. It recommends continued technical support, strategic planning for scalability and broader dissemination of the project's knowledge products. The project's outputs have laid the groundwork for future climate finance and sustainable development initiatives.

Contents

Figures and tables

Acknowledgements

The Evaluation Team would like to thank all those who contributed to this evaluation, which was led by the Office of Evaluation of the Food and Agriculture Organization of the United Nations (FAO). The core Evaluation Team had three international consultants: Rod Cappell, Technical Lead Consultant on food loss and waste (FLW) and other effective area-based conservation measures (OECM) (Component 5 and Component 6); Seda Kojoyan on climate change adaptation (CCA) in fisheries (Component 2); and Alushe Hitula on biosecurity and social protection (Component 3 and Component 4). Additionally, national experts in Colombia and Sri Lanka – Vladimir Puentes and Gayathri Lokuge, respectively – provided crucial research and insights into on-the-ground project activities in these two countries. Luisa Belli and Clair Null from the FAO Office of Evaluation provided critical supervision and quality assurance during the evaluation process.

The evaluation was carried out with the invaluable assistance of FAO project staff. Their insight, knowledge, advice and comments made this review possible.

The review benefited from the inputs of many other stakeholders, including the participating countries' government officers, fisher organizations, staff from other United Nations agencies and external experts. Their contributions were critical to the Evaluation Team's work and are deeply appreciated.

Abbreviations

AABS	Asia–Africa BlueTech Superhighway
aFAD	anchored fish aggregating device
CBD	Convention on Biological Diversity
CCA	climate change adaptation
FAO	Food and Agriculture Organization of the United Nations
FLW	food loss and waste
GCF	Green Climate Fund
GFCM	General Fisheries Commission for the Mediterranean
GIPRO	Interinstitutional Group on Social Protection for Fisheries and Aquaculture (by its Spanish acronym)
ILO	International Labour Organization
Norad	Norwegian Agency for Development Cooperation
OECM	other effective area-based conservation measures
PMP/AB	Progressive Management Pathway for Improving Aquaculture Biosecurity
PSMA	Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
SIDS	Small Island Developing States
TOC	theory of change

Executive summary

Introduction

1. This report presents the evaluation results of the Food and Agriculture Organization of the United Nations (FAO) and the Norwegian Agency for Development Cooperation (Norad) project "Responsible use of fisheries and aquaculture resources for sustainable development" from 2020 to 2024. The FAO Office of Evaluation conducted the evaluation, which was supported by independent consultants. The main purposes of the evaluation are to provide accountability to the donor and project stakeholders, assess the project's achievements, and identify recommendations and lessons learned.

2. The project's goal was to contribute to the sustainable use and conservation of fisheries resources. This global project was comprised of the following components.

    i. Component 1. Improve developing states' implementation of the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (PSMA), and complementary international instruments.

    ii. Component 2. Assist partner countries and key stakeholders in adapting to climate change effectively and securing sustainable socioeconomic development.

    iii. Component 3. Enhance partner countries' and aquaculture stakeholders' capacities to improve the health of aquatic animals and plants through the Progressive Management Pathway for Improving Aquaculture Biosecurity (PMP/AB).

    iv. Component 4. Assist and enhance partner countries' institutional capacities to make available, implement and monitor social protection programmes.

    v. Component 5. Enhance the sustainable utilization of fisheries and aquaculture products, and their contribution to livelihoods and food security.

    vi. Component 6. Improve national and regional fishery authorities' awareness and expertise on other effective area-based conservation measures (OECM).

3. The evaluation covered the entire duration of the project and considered all participating countries.[1] Local consultants obtained data in two countries: Colombia and Sri Lanka. The evaluation assessed each component against its intended outcomes – except for Component 1, which will be addressed by the FAO Office of Evaluation in a separate evaluation of the PSMA.[2] The methodology combined qualitative and quantitative elements. It included common data collection and analysis tools for all components: a desk review; interviews; and expert consultations. It also gathered component-specific information: an analysis of statistics on knowledge products (from Components 3 to 6); and an analysis of statistics on OECM network development (Component 6). There are important limitations to the evaluation's results, which are outlined in the relevant section of the report.

4. The evaluation questions are presented together with the findings.

[1] This included: Argentina; Brazil; Colombia; Ethiopia; Grenada; Guinea; Honduras; India; Indonesia; Lao People's Democratic Republic; Mozambique; Paraguay; Peru; Philippines; Saudi Arabia; South Africa; Sri Lanka; United Republic of Tanzania; Thailand; and Tunisia.

[2] This is per the project's original results framework.

Main findings

5. The main findings are presented and grouped by evaluation question. There is a question relating to the specific objective of each component, plus general questions that were addressed in relation to every component. As mentioned, Component 1 is addressed through a separate, PSMA programmatic evaluation.

Component 2. Climate change adaptation

To what extent did the project support climate change adaptation (CCA) in fisheries or aquaculture in participating countries through: better institutional capacity; mainstreamed adaptation into policy planning and extension; and the introduction of appropriate and scalable CCA measures and technologies?

6. This component tested practical adaptation solutions based on findings from the Intergovernmental Panel on Climate Change. The activities included, for example: fuel-efficient vessel construction and demonstrations (Grenada, Sri Lanka); coral and mangrove nurseries (Grenada and the Philippines, respectively); anchored fish aggregating devices (aFADs) (Mozambique); and alternative livelihoods support (South Africa). The evaluation found that many of this Component's activities are replicable and scalable.

7. Stakeholders in Sri Lanka identified the pilot initiatives to: i) design and produce two climate-resilient, one-day fibre-reinforced plastic vessels; and ii) outfit a shipping boat with a bulbous bow as the most impactful two activities of the project. The evaluation found that the latter was more successful.

8. The targets in the logical framework for this component may have been achieved vis-à-vis the indicators, but these indicators were limited in scope. The evaluation recommends utilizing more robust measurements for future projects on CCA and resilience. The degree of achievement of the intended outcome – selected countries adapt to climate change effectively and secure sustainable socioeconomic development – would differ based on the measurement criteria used.

   The project performed many activities across six participating countries. These were all meant to support the intended outcomes but resulted in limited funding for any given activity. Factors beyond the project's control, such as exceptional weather events, also constrained what the project could achieve.

9. Through this component, the project enhanced institutional capacity and integrated CCA measures into policy planning. For instance, in Grenada, the Lao People's Democratic Republic and Sri Lanka, government staff participated in training courses on CCA. In the Philippines, local governments adopted climate-smart fisheries management plans.

10. Generally, the component's selected activities were demand driven and community led. In the Philippines and Sri Lanka, an assessment framework was tested to track CCA progress in fisheries and aquaculture.

11. This component delivered an important knowledge product: The Fisheries and Aquaculture Adaptation Finance Gap 2023 (FAO, 2024a).

Component 3. Aquatic biosecurity

To what extent and how did the project support competent authorities and aquaculture stakeholders to enhance their capacities in implementing the PMP/AB?

12. The PMP/AB is a strategic framework designed to improve biosecurity measures within aquaculture systems. This reduces risks associated with disease outbreaks and enhances overall sustainability. Component 3 strengthened the capacities of competent authorities and aquaculture stakeholders in multiple countries to field test the guidelines for application of the PMP/AB and newly developed toolkits to facilitate implementation. Four core toolkits were developed under this project, but only the cost-benefit analysis toolkit has been piloted to date.

13. Capacity building was further evidenced through e-learning courses, in-person training courses, national and regional in-person round table meetings, expert workshops, consultations, and virtual events (webinars). This component delivered numerous publications that were released in peer-reviewed journals and FAO publication series.

14. Guidelines for developing national and regional aquaculture organizational health strategies and toolkits were either completed or are under development. These relate to risk analysis in the aquaculture value chain, as well as emergency preparedness and contingency planning for mass mortality events in aquatic populations.

15. A significant project outcome at the regional level was the development of a Regional Aquatic Organism Health Strategy for the Network of Aquaculture Centres in Asia-Pacific, which is a network of 19 countries. This is the first regional-level strategy to be adopted. It is expected to be particularly impactful since the region accounts for over 90 percent of global aquaculture production.

16. The PMP/AB cost-benefit analysis toolkit concepts and principles were piloted in four countries. The toolkit presents a systematic approach to evaluate the economic feasibility and resource allocation efficiency of investing in biosecurity at the farm level. The results from the primary pilot countries are pending, and will be presented and disseminated in FAO publications. It was suggested that future, national-level work should focus on estimating farm economic losses due to diseases. This would enable a comparative analysis between these results and those of the cost-benefit analysis.

17. The component delivered its activities through a collaborative partnership with key local, regional and global institutions. This strengthened networks among stakeholders, enhanced implementation capacity through improved resource utilization, pooled skills and minimized the duplication of efforts.

18. At the national level, governments have taken on the responsibility to fund, drive and implement their national aquatic animal health strategies within the framework of the PMP/AB guidelines and toolkits. This demonstrates the adoption of sustainable aquaculture practices that align with biosecurity principles. Governments have also committed to domesticating surveillance programmes to inform improved policy decisions and actions.

Component 4. Social protection

To what extent did the project increase participating countries' institutional capacities for making available, implementing and monitoring social protection programmes, including shock-responsive and gender-sensitive social protection for fishers and fish workers?

19. Component 4 focused on widening access to social protection for fishers. National-level consultations with Colombia, Paraguay and Tunisia (the three focus countries) confirmed that the project had provided valuable support. This support enhanced capacities for governments and partner institutions to develop, implement and monitor social protection programmes for fishers. Socioeconomic impact assessments were undertaken to determine information and data gaps on

social protection and to inform responsive social protection policy reforms. Social protection policy changes were visible at the national and regional levels as a result of this component's interventions.

20. The topic of social protection in fisheries was considered a new perspective in the focus countries. Data and information that were collected through this component are considered important since the topic had never been addressed. Indeed, this establishes an important baseline upon which further social protection work can be based. The evaluation found that 95 percent of the targeted fishers in Colombia were not affiliated with an existing pension system. In fact, it emerged that fishers were not aware of the available social protection programmes. They had little or no information on the benefits and opportunities presented by the social protection programmes or how to access them.

21. National stakeholders and institutions also agreed that the project had facilitated valuable lessons from Brazil, which is considered the most advanced Latin American country in terms of social protection schemes. Brazil remains a front runner in social protection through its unemployment insurance programme for small-scale fishers, *Seguro Defeso*, which protects them during closed fishing seasons. Through programmes of this nature, revolving funds for fishers are considered a viable option to offer social protection. This component has yet to actively engage state and non-state actors in leveraging scale-up strategies that involve revolving funds for social protection (Output 4.3).

22. A global database on social protection was established to assess the availability of social protection schemes in the fisheries and aquaculture sector, with a special focus on the most vulnerable. The database focuses on social protection legislation and policies at the national and subnational levels that target or reach fishers and fish workers. This includes universal and sectoral schemes. Gender-disaggregated data were collected where possible. Currently, data collection has covered a total of 43 countries. For each country, there is an analysis of the coverage of various risks, the identification of gaps and barriers to access, and an overview that characterizes the fisheries sector and social protection frameworks. Included are key indicators such as economic, demographic, labour market and social metrics, which provide a holistic understanding of the context.

    This component also delivered e-learning courses and technical tools to support fishers: a manual for fishers in Colombia on how to access social protection programmes; guidelines for formalizing and strengthening small-scale fishing associations in Paraguay; brochures and flyers to support fishers in Tunisia in understanding procedures that can access social protection programmes; and an e-learning course on how to address the climate-poverty nexus through integrated approaches like social protection for fishers via tutored and self-paced versions for fishers and fisher organizations. Knowledge outputs generated by this component are considered fundamental to further drive social protection work in fisheries. Among these, various materials were prepared and distributed in-country and online such as flyers and a booklet on small-scale fisheries and aquaculture in Colombia.

23. FAO delivered country-level activities through collaborative partnerships with governments, partner countries, academia, and local, national, regional and international institutions. This component was delivered efficiently and empowered national representatives and participants during its implementation.

Component 5. Multidimensional solutions strategy for food loss and waste

To what extent did the project enhance the sustainable utilization of fisheries and aquaculture products and their contribution to livelihoods and food security (by utilizing the multidimensional solutions strategy to reduce food loss and waste [FLW] in fish value chains)?

24. Consultations with stakeholders in three countries – Colombia, Sri Lanka and the United Republic of Tanzania – confirm that their capacities were enhanced. National teams were trained in FLW assessment methodologies. These teams carried out the FLW assessments. This led to multidimensional solutions strategies for the three countries, which were published in 2024 and endorsed by the relevant governments and ministries (FAO, 2024b; 2024c; 2024d).

25. All project outcomes were achieved to enhance the FLW knowledge and national capacities. However, the recent finalization and adoption of the multidimensional solutions strategy means that it is too early to gauge the extent of the FLW reduction as a result of this component. Some implementation occurred during the project's timeframe, but most actions have yet to be implemented.

26. The scope of the national case studies differed between countries as these were selected by national working groups: a fishing port in Colombia (Tumaco); a fishery in Sri Lanka (multiday fishing vessels); and a fisheries product in the United Republic of Tanzania (dagaa [*Rastrineobola argentea*][3]).

27. In Colombia, the Interinstitutional Panel on Aquatic Food Losses and Waste was created. The catching sector at the Tumaco port was assessed. This involved traders of 57 fish products. Activities within the resulting multidimensional solutions strategy included: awareness raising on FLW among fishers; a seafood festival in Tumaco to showcase processed fish products that reduce food loss; the development of a TUMA.CO label; and business links, mainly with companies in Bogotá, to avoid illegal fish trade intermediaries.

28. In Sri Lanka, the training for and implementation of the FLW assessment was identified by stakeholders as the most impactful intervention of this component. The application of a multidimensional solutions strategy was partial during the project's life cycle. The completion of the FLW assessment was delayed, so the project's working group decided to focus on the biggest cause of loss: the fishing sector. This prevented some FLW improvements from progressing elsewhere in the supply chain, but a revision of the multidimensional solutions strategy is possible. A narrow focus on one aspect of the FLW risks inadequate consideration of the potential trade-offs with improved quality, which leads to market supply changes. Applying the multidimensional solutions strategy should enable the holistic view that is needed.

29. In the United Republic of Tanzania, staff at the Tanzania Fisheries Research Institute were trained in the FLW assessment. The staff then assessed the dagaa value chain, which led to a multidimensional solutions strategy that was adopted by the government. Factors identified as contributing to the successful application of the country's multidimensional solutions strategy include: the identification and participation of relevant stakeholders; the comprehensive assessment of a priority fisheries value chain for dagaa; and a strategy that involves multiple

[3] Dagaa are small fish caught in African lakes and coastal waters that are usually dried for preservation. They are an important source of protein for the human population and are used in animal feed.

components along the whole value chain – not just improved technology. However, additional resources will be required to implement the multidimensional solutions strategy in full.

30. The assessments in each country provided a new knowledge base. This was achieved through the delivery of the FLW assessment training for national researchers, who then conducted the assessments. The scope of the FLW assessment needed to be adequate for the scope of the case study. The broad scope of Sri Lanka's case study may have contributed to the delay in completing its FLW assessment.

31. The extent to which evidence-based knowledge products were disseminated to stakeholders beyond the project participants varied. Stakeholders suggested that more effort could be made to disseminate the findings and raise awareness on the causes of FLW to more stakeholders along the seafood value chain.

32. The extent to which the implementation of solutions enhanced the sustainable utilization of fisheries and aquaculture products and contributed to livelihoods and food security varied among the countries. With the time and resources available, it is unrealistic to expect that the FLW solutions would be applied and result in evidence of FLW reduction. Nevertheless, implementation of some FLW solutions in Colombia and Sri Lanka occurred during the project's life cycle.

Component 6. Other effective area-based conservation measures

To what extent did the project increase awareness and expertise among national and regional fisheries authorities (and stakeholder communities) on assessing, implementing and the timely reporting of OECM?

33. The project delivered the planned outputs: a series of workshops; and e-learning courses based on the primary output, that is, a handbook to identify, evaluate and report OECM in marine fisheries (FAO, 2022a). This delivery was achieved by a small yet well-organized project team with considerable experience in OECM through workshops and material that addressed a clear interest and need among members.

34. Nearly all workshop attendees that provided written feedback to the Evaluation Team stated that the workshops enhanced their understanding of OECM and criteria of the Convention on Biological Diversity (CBD). They felt that sufficient information was provided to apply such criteria.

Standard evaluation question across components: What value added aspects did FAO bring?

35. Stakeholders across components stated that FAO, as a trusted and impartial partner, brought technical expertise and assistance. They considered this to be the greatest value addition and differentiation in working with FAO. For Component 2, they also highlighted FAO's long-standing experience with the relevant country departments. For Component 3, strong collaborative partnerships added value. Stakeholders confirmed that FAO worked well with local agencies to deliver Component 5 efficiently.

36. Social protection in fisheries was considered relatively new in the Component 4 pilot countries. FAO added value under this component by: generating evidence-based knowledge; facilitating valuable knowledge sharing, including South–South and triangular cooperation; supporting policy reform and development; and providing interagency collaboration.

37. Following the CBD criteria, FAO's work over the years has made it the main source of technical knowledge related to fisheries and OECM. Its outputs remain the only sector-specific guidance. Most respondents who volunteered to provide feedback for the evaluation believe that FAO's added value in the project was its technical knowledge. Others noted additional benefits, such as

a unified understanding and communication of the technical knowledge of OECM, and connections with networks.

Standard evaluation question across components: Was gender equality and other equity issues mainstreamed into the project? Were gender equality considerations reflected in the component's objectives, design, implementation and management? Have gender relations and equality been or will be affected by the project?

38. The inclusion and participation of women in the project, as well as gender mainstreaming, varied across the Component 2 countries. The project demonstrated more positive results in Grenada and South Africa in terms of key project activities that targeted women. This aspect was more neutral in the Lao People's Democratic Republic and the Philippines, where the project engaged female beneficiaries and female staff members of the relevant government bodies. Gender equality was not given special consideration in Mozambique and Sri Lanka as in these countries, the project activities did not cover the subsectors that usually involve women. It appears that gender-disaggregated data were not uniformly and systematically collected as part of the project's monitoring and reporting efforts. Some of the countries made a conscious effort to target vulnerable social groups.

39. Component 3 interviewees confirmed that gender equity was considered during project implementation. This included workshops and events that were delivered across the project's intervention areas. Component 4 focused on ensuring that social protection programmes were inclusive, shock-responsive and gender-sensitive. This addressed the unique vulnerabilities that women face in fishing communities. Although women were considered some of the most important actors in the project and even the sector, they still did not have access to social protection information and programmes. This was a key challenge, so Component 4 designed information to target fishers and fish value chain actors.

40. For Component 5, gender issues were assessed in all countries. A gender-related assessment methodology facilitated this aspect, which depended on the case study. For example, the United Republic of Tanzania focused more on the dagaa fishery when compared to Sri Lanka and its male-dominated multiday fishery. There was no evidence of other equity considerations. Gender equality issues were not directly relevant with respect to Component 6 since it not directly relate to livelihoods. However, equal workshop participation among men and women was, for the most part, achieved.

Standard evaluation question across components: How will the project's outputs be used? How will the outcomes continue post-project, particularly at the national level?

41. Some of the project's gains under Component 2 have diminished due to factors beyond the project's control, such as floods in the Lao People's Democratic Republic and coral bleaching and loss in Grenada due to a heat wave and a hurricane. Nevertheless, there is a distinct potential for sustainability with select project activities, which will largely depend on securing additional funding and government sponsorship. In addition, the project introduced sustainability and catalytic dimensions by conducting climate finance workshops. The project applied lessons to the Green Climate Fund (GCF) proposals for Grenada and Sri Lanka.

42. Component 3 presented plans and actions by the Governments of India and Saudi Arabia to continue building on the project's interventions. Component 4 established social protection platforms and interinstitutional working groups with Chile, Colombia, Paraguay, Peru and Tunisia. National-level work is expected to continue through these established structures. This will ensure that the project's activities keep going after project closure. South–South and triangular

cooperation through workshops in Brazil supported lessons learned and knowledge exchanges across Brazil, Cabo Verde, Chile, Colombia, Ecuador, Paraguay, Peru and Tunisia on different social protection systems, specifically *Seguro Defeso*, or unemployment insurance for fishers during closed seasons.

43. Component 5 provided an essential evidence base that identified the FLW problems, then developed multidimensional solutions strategies that were adopted by the national governments. Certain low-cost aspects of the solutions, such as awareness raising, have progressed. There were also examples of new projects being informed by the outputs. For example, in the United Republic of Tanzania, some elements of the solutions were being implemented via the government and donor-funded projects. However, full implementation of the solutions was not evident, and several stakeholders noted the need for additional support to implement them at scale.

44. For Component 6, workshop participants reported a range of follow-up activities: continue awareness raising at the national level; and work on designating or validating OECM in relation to the CBD criteria. The project's outputs continue to inform these post-project activities. Additionally, the project team continues to respond to national queries on OECM and fisheries, and further disseminates outputs by translating the OECM handbook into Portuguese.

Conclusions

Conclusion 1. The overall outcome levels (as per the results framework) for the project's components were too ambitious considering the time and resources available for their execution. The project's full contributions to its intended outcomes are still not apparent as many of the activities and outputs were only completed recently. The short project timeframe means that, while some components created the necessary knowledge base and capacity, follow-up activities are needed to deliver impacts.

Conclusion 2. FAO added value in the context of this project. This involved providing technical knowledge and assistance, establishing relationships with relevant ministries and departments in the participating countries, and bringing actors together as neutral partners.

Conclusion 3. FAO leveraged its previous efforts, including Phase 1 of this project and other relevant initiatives. At the same time, the project acted as a catalyst for future endeavours.

Conclusion 4. The most promising project activities in terms of sustainability and impact potential increased the knowledge and capacity of national stakeholders. This brought together stakeholders who can then take ownership of the project's outputs.

Conclusion 5. Regarding Component 2 and Component 5, FAO opened the door to future climate financing for the participating countries. This was done through climate finance workshops and by building upon the project's pilots for future funding from the GCF.

Recommendations

Recommendation 1. *To FAO*. Continue to strategically plan engagement for similar projects. This includes planning to fund activities with higher chances of scaling up potential, and a good understanding of the funding and economic context for the participating countries.

Recommendation 2. *To FAO and the partner agencies*. Not all actions that are recommended for continuation need to be performed by FAO. However, FAO is in a good position to continue providing technical assistance.

The evaluation findings show that some activities have been planned to progress by both FAO and other partners. For example, this involves FAO, with the GCF funding in Grenada and Sri Lanka, and WorldFish in the United Republic of Tanzania. The evaluation concludes that FAO's technical offer is a distinguishing

factor. As a result, FAO should continue to contribute its technical assistance to the scaled-up project activities in the future.

Recommendation 3. *To FAO, the participating countries and the partner agencies.* Consider supporting the countries to share outputs and findings from key knowledge products, for example, publications and case studies that are still in progress.

Recommendation 4. *To FAO, the participating countries and Norad*. The project's successes can be replicated in additional countries. For the participating countries, these can also be extended to other regions.

1. Evaluation introduction and project background

1.1 Purpose of the evaluation and its intended users

1. The Food and Agriculture Organization of the United Nations (FAO) and the Norwegian Agency for Development Cooperation (Norad) project "Responsible use of fisheries and aquaculture resources for sustainable development" included a provision for a terminal evaluation organized by the FAO Office of Evaluation. No mid-term review or evaluation was carried out. The main purposes and intended users of this terminal evaluation are presented in Table 1.

Table 1. Main purposes and intended users of the evaluation

Purpose		**Intended users**
Accountability. Respond to the information needs and interests of FAO management, the participating governments, resource partners and other actors within a decision-making role.	Inform decision-making Provide accountability	FAO management FAO countries and participating country governments Donor (Norway)
Learning. Better understand the programme and its practices.	Contribute to knowledge	FAO Fisheries and Aquaculture Division
Improvement. Provide valuable information and recommendations for programme improvement.	Improve programme	FAO Fisheries and Aquaculture Division Operational partners Project taskforce, Project Management Unit and FAO Country Offices

Source: Elaborated by the Evaluation Team.

1.2 Context of the project

2. In a partnership between FAO and Norad, the project aimed to contribute to the sustainable use and conservation of fisheries resources. The project had an original budget of NOK 72 000 000 and a three-year implementation period from 1 December 2020 to 30 November 2023, which was then extended until 30 June 2024. In November 2021, the project underwent the following modifications: the addition of two new components; and the modification of one component to provide for project management and implementation support costs that were not directly attributable to the project´s development outcomes. The project's budget also rose accordingly to NOK 109 000 000 (approximately USD 10.2 million as of 30 June 2024).

3. The project built on previous initiatives and aligned with various international and national development strategies. It was initiated to continue and expand beyond FAO projects that had been funded by Norad, such as: GCP/INT/307/NOR (Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing [PSMA]); GCP/GLO/959/NOR (climate change adaptation [CCA] in fisheries); and GCP/GLO/979/NOR (biosecurity in aquaculture).

4. This global project had six distinct components.

   i. Component 1. Improve developing states' implementation of the PSMA and complementary international instruments.

   ii. Component 2. Assist partner countries and key stakeholders in adapting to climate change effectively and securing sustainable socioeconomic development.

iii. Component 3. Enhance partner countries’ and aquaculture stakeholders’ capacities to improve the health of aquatic animals and plants through the Progressive Management Pathway for Improving Aquaculture Biosecurity (PMP/AB).

iv. Component 4. Assist and enhance partner countries’ institutional capacities to make available, implement and monitor social protection programmes.

v. Component 5. Enhance the sustainable utilization of fisheries and aquaculture products and their contribution to livelihoods and food security.

vi. Component 6. Improve national and regional fishery authorities’ awareness and expertise on other effective area-based conservation measures (OECM).

5. Each component also had a specific outcome, as outlined in the project’s results chain.

i. Component 1 (PSMA). Developing states improve implementation of the PSMA and complementary international instruments.

ii. Component 2 (CCA). Selected countries (least developed countries and Small Island Developing States [SIDS]) adapt to climate change effectively and secure sustainable socioeconomic development.

iii. Component 3 (aquatic biosecurity). Countries’ competent authorities and aquaculture stakeholders enhance capacities to improve the health of aquatic animals and plants, reduce disease burden, and minimize the transboundary spread of diseases through the PMP/AB.

iv. Component 4 (social protection). Institutional capacities increase for making available, implementing and monitoring social protection programmes. This includes shock-responsive and gender-sensitive social protection for fishers, fish workers and fish farmers.

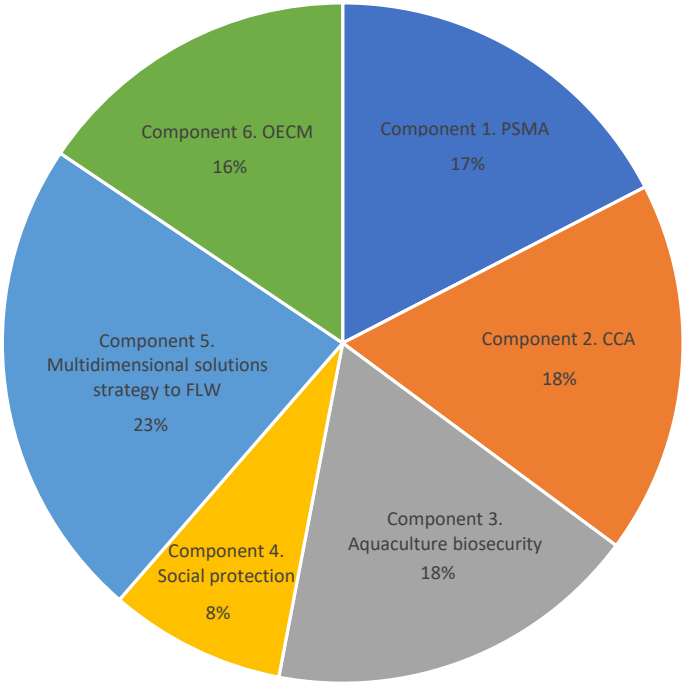
v. Component 5 (multidimensional solutions strategy to food loss and waste [FLW]). Enhance the sustainable utilization of fisheries and aquaculture products, and its contribution to livelihoods and food security.

vi. Component 6 (OECM). Awareness and expertise increase among national and regional fishery authorities and stakeholder communities on assessing, implementing and reporting OECM so that qualifying area-based fisheries management can be internationally recognized as a valuable pathway to biodiversity conservation.

1.3 Project structure and implementation arrangements

6. Figure 1 highlights the project's budget per component.

Figure 1. Project budget allocation per component



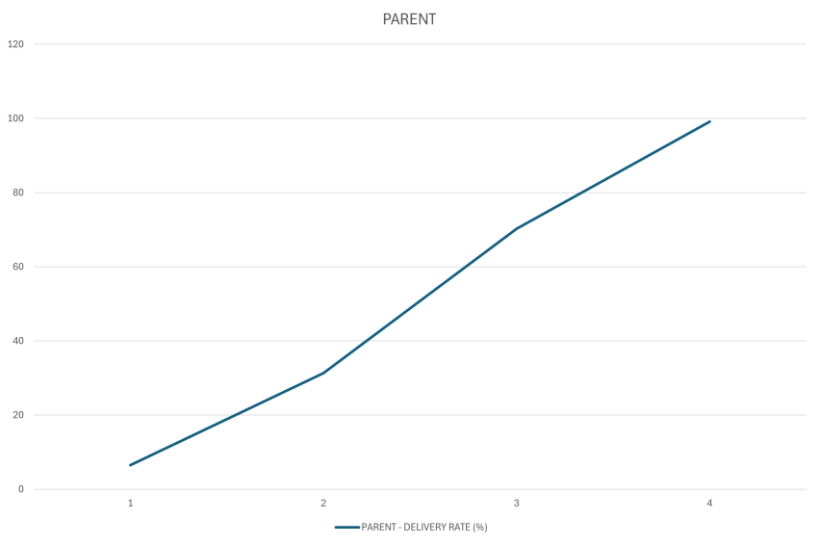
Source: Authors' own elaboration, based on the project's budget.

7. The scope of the different components in terms of both the variety of subcomponents and the number of countries engaged under each component varied widely, even though their budgets were similar. The project was global in nature. Participating countries included: Argentina; Brazil; Colombia; Ethiopia; Grenada; Guinea; Honduras; Indonesia; Lao People's Democratic Republic; Mozambique; Paraguay; Peru; Philippines; South Africa; Sri Lanka; United Republic of Tanzania; Thailand; and Tunisia.

8. According to the project document, the project taskforce, under the supervision of the Director of the FAO Fisheries and Aquaculture Division, was ultimately responsible for overall project management. Component taskforces provided component-specific management and operational support. They also facilitated consultation with national authorities and stakeholders, and supported in-country implementation. The latter also depended highly on the national focal points that were nominated or hired in the participating countries.

9. The project's budgetary delivery was slow in the beginning and steadily increased. By the project's end date, it reached 100 percent (commitment and actual).

Figure 2. Expenditure rate throughout project duration



Source: Authors' own elaboration, based on project's financial data.

1.4 Evaluation scope, objectives and questions

10. The evaluation aimed to provide accountability to the donor and partners. It assessed FAO's contribution to global- and country-level sustainable fisheries via the project. It also drew lessons from the implementation processes that can inform future decisions by both FAO and Norad on the formulation of future or follow-up interventions.

11. The intentions for this evaluation were clarified through a series of consultations with the donor and the project team in the spring of 2024. In setting the scope for the evaluation, it emerged that there was particular interest from the donor to see if the project's interventions had resulted in any structural changes at the country level. This involved the following aspects.[4]

    i. Assess FAO's comparative advantage and its added value as a partner in this and similar projects to the extent possible.

    ii. Look into the project's collaboration with other partners on the ground.

12. The evaluation framed its scope around these parameters. Specifically, the evaluation did not look at each project activity as there were many. Rather, it focused on these parameters. The evaluation assessed the project's entire implementation period. In principle, all of the participating countries[5] were considered examples of changes at the country-level or lack thereof. Based on the preliminary project mapping conducted by the FAO Office of Evaluation, Colombia and Sri Lanka had the greatest number of activities across components. Therefore, the evaluation focused on these two countries in particular. It is important to note that the Evaluation Team also studied other participating countries, where they also conducted interviews with relevant stakeholders.

[4] The donor also requested to capture and share the project's success stories. However, the project teams already had these on hand to share with the donor.

[5] This included: Argentina, Brazil, Colombia, Ethiopia, Grenada, Guinea, Honduras, Indonesia, Lao People's Democratic Republic, Mozambique, Paraguay, Peru, the Philippines, South Africa, Sri Lanka, the United Republic of Tanzania, Thailand and Tunisia.

13. During the start of this evaluation, it was decided and subsequently communicated to the project team and donor in May 2024 that Component 1 would be handled under a separate, broader evaluation of the PSMA by the FAO Office of Evaluation.[6]

14. The project's activities were numerous, and the evaluation could not cover them all. However, these were regarded in so far as they each contributed to answering the key evaluation questions and responding to the evaluation's objectives.

15. The main evaluation questions are outlined in the following points.

    i. Component 1. To what extent did the project contribute to improving developing states' implementation of the PSMA and complementary instruments?

    ii. Component 2. To what extent did the project support climate adaptation in fisheries or aquaculture in participating countries through: better institutional capacity; mainstreamed adaptation into policy planning; and the introduction of appropriate and scalable climate adaptation measures and technologies?

    iii. Component 3. To what extent and how did the project support competent authorities and aquaculture stakeholders to enhance their capacities in implementing the PMP/AB?

    iv. Component 4. To what extent did the project increase participating countries' institutional capacities for making available, implementing and monitoring social protection programmes, including shock-responsive and gender-sensitive social protection for fishers and fish workers?

    v. Component 5. To what extent did the project enhance the sustainable utilization of fisheries and aquaculture products and their contribution to livelihoods and food security (by utilizing the multidimensional solutions strategy to reduce FLW in fish value chains)?

    vi. Component 6. To what extent did the project increase awareness and expertise among national and regional fisheries authorities (and stakeholder communities) on assessing, implementing and the timely reporting of OECM?

16. The following standard evaluation questions were common across all components.

    i. Were the subcomponents appropriate for achieving the intended outcomes?

    ii. What added value did FAO bring?

    iii. Were gender equality and other equity issues mainstreamed into the project? Were gender equality considerations reflected into the component's objectives, design, implementation and management? Have gender relations and equality been or will be affected by the project?

    iv. How will the project's outputs be used? How will the outcomes continue post-project, particularly at the national level?

[6] The findings related to this component and other relevant information from the PSMA evaluation are to be included in the GCP/GLO/352/NOR project evaluation report retroactively. This is because the PSMA evaluation timeline ran later than the present project evaluation.

2. Evaluation methodology

17. The evaluation adopted a consultative and transparent approach with internal and external stakeholders throughout the evaluation process. It assessed each component against its intended outcomes, as per the project's results framework. To gain a better understanding of each component's intervention logic and assumptions, and to formulate the evaluation questions, the Evaluation Team reconstructed a component-specific theory of change (TOC) for those that had not been available. However, these were not explicitly used to assess the project's outcomes.

18. The triangulation of gathered evidence and information underpinned its validation and analysis and supported the conclusions and recommendations. This was presented to the project team prior to the release of the evaluation report. The evaluation adhered to the United Nations Evaluation Group guidelines (UNEG, 2020) and aligned with the FAO Office of Evaluation manuals and procedures, including evaluating interventions on capacity development (FAO, 2025a).

19. Considering the wide variety of the project's activities and scope, this evaluation had six evaluations, one per component, which shared a common donor, Norad. These components also shared the high-level aim of contributing to the project.

20. The Evaluation Team worked collectively to design the evaluation questions, which were a combination of component-specific questions and ones that were common across all components. This ensured a consistent approach across the evaluation, while recognizing the specific objectives and outputs of the different components. Due to the diversity across components, the Evaluation Team applied a generic methodology that was strengthened by a specific approach to project components.

21. The Evaluation Team had experts in specific technical areas that were relevant to the components. There were also two national consultants for Colombia and Sri Lanka, where additional stakeholder consultations were carried out to enable more detailed findings. The consultant in Colombia also covered data collection needs in other countries in the region where Spanish was necessary. These were used as inputs for responding to the evaluation questions on components where these countries had actively participated (from Components 2 to 5) and were in line with the activities in which the countries participated, namely:

    i. Component 2. Sri Lanka (develop climate-smart fishing boats and explore climate finance opportunities)
    ii. Component 3. Sri Lanka[7] (implement the PMP/AB and develop an aquatic organism health strategy)
    iii. Component 4. Colombia (various activities relating to social protection mechanisms)
    iv. Component 5. Colombia and Sri Lanka (develop capacity on and assess fish losses, and develop FLW knowledge products)

22. The following data collection tools were used:

    i. review of secondary data (component outputs, reporting and relevant research);

[7] This is in conjunction with GCP/GLO/086/ROK, the Smart Aquaculture Biosecurity Project, implemented by the Government of the Republic of Korea.

ii. key informant interviews with component staff, organizations associated with the components, and in-country and regional stakeholders that were not directly involved in the delivery of the components (for voluminous results, a thematic analysis of these data to identify recurring themes and patterns in interviews and focus group discussions);

iii. FAO publication and e-learning analysis involving translations, access to the e-learning courses (user distributions), downloads, and the Altimetric Attention Score;

iv. review of global monitoring on OECM uptake; and

v. expert consultations involving synthesized insights from expert key informant interviews to validate findings and gather additional perspectives.

23. Additional, component-specific methodological approaches are outlined in the following points.[8]

Component 2. Climate change adaptation

24. The evaluation undertook a qualitative analysis of this component's strategy and its achievements in each of the six project countries, with the most in-depth analysis in Sri Lanka. External factors outside of the project's control were accounted for based on the data sources and questionnaire results from stakeholders in Grenada (English), the Lao People's Democratic Republic (Lao) and Mozambique (Portuguese).

25. In some instances, and where appropriate, the draft toolkit from the Adaptation Fund for the ex post evaluation of CCA interventions was adapted to the final evaluation context and utilized. In a similar manner, this evaluation also utilized, as secondary research data, the project's own evidence-based reviews of activities implemented under Component 2 in the Philippines and Sri Lanka.

Component 3. Aquatic biosecurity

26. Consultations with component leads and national-level assessments were held to determine the extent to which this component supported national interventions to pilot, test or adopt the PMP/AB and various toolkits.

27. The evaluation also analysed key knowledge products, including e-learning courses, presentations, workshops, webinars, conferences and academic publications. For e-learning courses and training modules, multiple perspectives were considered. This involved conducting consultations with the course tutor, undertaking learning analytics to track user involvement and participation, and assessing completion rates, course certification awards or badges earned.

Component 4. Social protection

28. For Component 4, interviews were held with the project team and national key informants. There was a focus on consultations with FAO national staff who were responsible for the three focus countries: Colombia, Paraguay and Tunisia. Consultations were also held with key project partners and collaborators.

29. An analysis of key knowledge products that were supported through the component's interventions was undertaken: publications; a website; e-newsletters; various in-country studies, including socioeconomic evaluations; and training materials developed for the in-person course

[8] As noted, Component 1 was assessed as part of a different evaluation.

at the Latin American Faculty of Social Sciences in Paraguay, and e-learning (climate-poverty nexus) courses. In addition, an assessment of the Global Database on Social Protection in Fisheries, with a focus on SIDS, was conducted.

Component 5: Multidimensional solutions strategy for food loss and waste

30. Component 5 activities involved national-level assessments and engagement via stakeholder working groups in three countries – Colombia, Sri Lanka and the United Republic of Tanzania – as well as some knowledge products such as e-learning courses on the FLW assessment. The evaluation adopted a two-part approach in addition to consultations with component leads and other participating FAO colleagues.

a) National case studies: consultations with involved national FAO staff and other stakeholders in two of the three participating countries, Colombia and Sri Lanka, were conducted. These stakeholders were selected from working groups to ensure coverage across multiple stakeholder types from the public sector, the private sector and civil society.

b) Analysis of statistics on knowledge products: an analysis of available statistics on the e-learning courses (numbers accessing, downloading and completing the course) was conducted. This was further supported by consultations with stakeholders that had participated.

Component 6. Other effective area-based conservation measures

31. Component 6 activities involved the development of knowledge products and disseminating these via a series of regional workshops. In addition to consultations with component leads and other participating FAO colleagues, the evaluation involved the following:

a) online questionnaires;
b) an analysis of the statistics on published knowledge products (e-learning courses and guidelines); and
c) an analysis of the statistics on OECM network development (data from the Protected Planet database on OECM and mapping trends in the number of OECM reported, updated and verified per year against OECM workshops under Component 6).

2.2 Limitations

32. The project's broad scope and tapestry of intervention areas provided a rich potential for analysis, but also a limitation. Vis-à-vis the time and resources available, the evaluation focused on areas that were of interest to both FAO and Norad.

33. Most of the evaluation's interviews, except for selected work in Colombia and Sri Lanka, were performed remotely. Considering the project's global scope and spread of the participating countries, this was an acceptable mechanism to ensure broad coverage and the best use of the Evaluation Team's resources. However, and particularly relevant for evaluating Component 2, the evaluation's remote nature also meant that it was not possible to directly meet with and interview members of the fishing communities – except in Sri Lanka.[9]

[9] Although the Evaluation Team members tried to connect with these communities through alternative means, such as a phone messenger application in the Lao People's Democratic Republic, this was ultimately impossible due to technical reasons.

34. It may have been difficult to isolate project contributions. The country-specific benefits that emerged from FAO support to the component's focus countries was explored. However, there were also activities delivered at the national, regional and global levels, such as e-learning and further capacity building through meeting participation. This made it difficult to identify a counterfactual as many countries had received some assistance. In addition, it was at times difficult to disentangle contributions from the preceding FAO-Norad project and this project under evaluation.[10] The Evaluation Team focused solely on assessing the results of the present project.

35. For all components where legislative changes and capacity building were envisioned outcomes, these changes can take time to present themselves and may not be immediately apparent at the end of the project. One mitigating measure that the evaluation employed involved identifying and highlighting the potential for changes, as well as country-level activities with the highest potential for catalysing larger changes.

36. Additionally, external factors affected the impact of a given component in certain settings. This involved: political change; wider economic pressures; the extent and status of marine resources and the presence of foreign fleets (Component 1); changes in the market and resource availability; and weather events.

37. Component 3 aimed to support the capacities of competent authorities and aquaculture stakeholders in order to enhance their capacities to implement the PMP/AB. Being global in nature, this component succeeded in holding national- and regional-level capacity enhancement activities. However, information sharing in support of the evaluation was not timely. This resulted in insufficient time to thoroughly engage beneficiary stakeholders adequately.

38. Component 5 aimed to introduce a new approach to assess and reduce FLW, but it may be too early to see the impact. It can take time for new approaches to become established, especially when working across multiple government departments and agencies. Regardless, specific aquatic value chains were targeted, and one of the indicators in the logical framework involved evidence of FLW reduction and benefits to value chain actors.

2.3 Note on the project's theory of change

39. The project did not possess an overall TOC, but several components developed their own. The Evaluation Team validated these. For the missing TOC aspects, the Evaluation Team developed simplified TOC pathways for the purposes of the evaluation. This helped to better understand the potential, future contributions of FAO in the project's subject areas. The results framework is provided in Annex 1. The TOC elements per component are presented in Appendix 2. They are also discussed under the findings section for each component.

40. The evaluation did not reconstruct a full TOC for each component. Doing so would have had limited utility in terms of value for the effort. This means that such a process would have been more useful at the mid-term stage.

[10] At times, the project's own progress reports also included supporting information from the previous project results.

3. Findings

3.1 Component 2. Climate change adaptation

3.1.1 Key findings and takeaways

- The project had success at the output level. Many of the practical adaptation activities that had been introduced by the project were replicable and scalable. Others were not as successful as anticipated. The project also fostered institutional capacity and policy integration of the CCA measures.
- FAO's technical expertise and assistance, as well as its impartiality, were highly valued. Stakeholders praised the quality of innovative initiatives such as the bulbous bow design for fuel-efficient vessels.
- The evaluation was able to identify lessons learned under this component concerning boat interventions introduced in Sri Lanka, anchored fish aggregating devices (aFADs) in Mozambique and communications efforts.
- There is a distinct possibility for sustainability of the project's policy and institutional-level outputs. However, securing additional funding and government commitment will be crucial. The project directly contributed to concept notes for continued funding from the Green Climate Fund (GCF) in Grenada and Sri Lanka.

3.1.2 Component 2 introduction

41. The latest report from the Intergovernmental Panel on Climate Change highlighted that "adaptation in ocean and coastal ecosystems continues to be informed primarily by theory, as there is still limited evidence about implemented solutions" (IPCC, 2022). The project supported CCA in the fisheries and aquaculture subsectors across participating countries by enhancing institutional capacity, integrating CCA into policy planning and testing practical adaptation solutions (see Figure 3). The component also supported countries to develop, consider and adopt climate-smart fishery management plans.[11] The project also tested mitigation solutions to reflect needs and comply with the 2015 Paris Agreement's call for decarbonization.

42. Six countries participated in this component over varying durations. The Lao People's Democratic Republic and Sri Lanka signed the project agreements early, in May and August 2021, respectively. Grenada signed the project agreement in August 2022 at the end of the Climate Change Adaptation in the Eastern Caribbean Fisheries Sector project, and the Philippines signed in March 2022 after completion of the GCP/GLO/959/NOR project on climate change. Internal procedure delays in South Africa provided an opportunity for Mozambique to join the project. In the end, both Mozambique and South Africa joined in January 2023. In Mozambique, the activities built upon a 2002 assessment of the fisheries sector in Cabo Delgado.

43. The Evaluation Team prepared a matrix of the different activities conducted under the auspices of this component (see Figure 3). This mapping was informed by the project's documentation, particularly its progress and terminal reports, and triangulated with information from the interviews. This confirmed the products produced and supported by the component, namely local

[11] These were strategic frameworks designed to enhance the resilience and sustainability of fisheries in the face of climate change. These plans focused on integrating ecological, social and economic considerations to ensure that fisheries can adapt to changing conditions while providing food security and livelihoods.

planning documents and guidance notes. A more detailed version of the matrix is available in Annex 2.

Figure 3. Activities per country and theme, conducted as part of Component 2

	Grenada	Lao People's Democratic Republic	Mozambique	Philippines	South Africa	Sri Lanka
Development of the GCF concept note	✓			✓		✓
Training on CCA and climate finance	✓			✓	✓	✓
Introductory training course on developing adaptation roadmaps/strategies		✓		✓	✓	✓
Safety at sea in the face of climate change and extreme events	✓			✓		✓
Climate mitigating technologies	✓					✓
Practices and policies for CCA		✓	✓	✓	✓	✓
Emergency and resilience	✓	✓				
Ecosystem restoration	✓	✓		✓		
Vocational education	✓					

Source: Authors' own elaboration, with inputs from the project team.

Primary evaluation question for Component 2: To what extent did the project support CCA in fisheries or aquaculture in participating countries through: better institutional capacity; mainstreamed adaptation into policy planning and extension; and the introduction of appropriate and scalable CCA measures and technologies?

Finding 2.1. The project had limited ability to achieve the very ambitious outcome level. However, many of the practical adaptation activities introduced by the project are replicable and scalable.

44. The project reported against the logical framework. Outcome 2 stated that the selected countries adapt to climate change effectively and secure sustainable socioeconomic development, with an associated indicator where target groups become more resilient to climate change. The intermediate instruments, namely policies, roadmaps, working groups and trainings, were measured at the output levels (see Figure 4).

Figur 4. Snapshot of the Component 2 logical framework

Logical framework matrix	Indicators
Outcome 2 Selected countries adapt to climate change effectively and secure sustainable socioeconomic development	**Target groups are more resilient to climate change**
Output 2.1 Selected countries assess and consider their adaptation options and planning	1. Number of countries for which adaptation roadmaps have been developed in a participatory manner 2. Countries in which working groups are operational with key stakeholders represented (participation disaggregated by gender)
Output 2.2 Selected countries develop capacity to implement CCA actions	Trainings implemented as per roadmaps (participation disaggregated by gender) Training workshops held (participation disaggregated by gender)
Output 2.3 Selected countries strengthen their capacity to scale up adaptation actions (institutionalizing policies, regulations and management to strengthen enabling environments) in line with the Paris Agreement and national action plans	Number of recommendations replicated and/or scaled up
Output 2.4 Management, administration and implementation support for Outcome 2	Percentage of physical and financial progress against approved plans and budgets

Source: Authors' own elaboration, based on project documentation.

45. Given this component's budget share, it can be said that it achieved high engagement with six participating countries. Mozambique and South Africa, however, joined quite late. By design, many of the activities were smaller, pilot interventions. Certain events, especially those related to weather, were outside of the project's control. This resulted in serious setbacks for the project's outputs, such as in the integrated rice, aquaculture and vegetable fields in the Lao People's Democratic Republic and the coral nurseries in Grenada.

46. The targets may have been achieved vis-à-vis the indicators. However, these indicators were limited in scope. The evaluation recommends utilizing more robust measurements for future projects on CCA and climate resilience.

47. Notwithstanding the success of the project's activities, the scope of the problem of climate change overshadowed the scope of the logframe. Despite the project's successes at the output level, it only had a limited effect on its ambitious outcome level.

Finding 2.2. The project fostered some institutional capacity and policy integration of the CCA measures.

48. The project successfully improved institutional capacity by involving national and local governments in the CCA initiatives. In Grenada, the Lao People's Democratic Republic and Sri Lanka, government staff participated in CCA training courses. Workshops on safety at sea and the use of new vessel designs[12] were conducted for fishers and boatbuilders.

49. In terms of mainstreaming adaptation into policy planning, CCA measures were incorporated into policy planning in the Philippines, both at the provincial and national levels. The Provincial

[12] The project explained the safety at sea relevance of this component in responding to small-scale fishers' needs in light of changing climate and weather. The component promoted safety at sea through trainings, guidance notes and material activities, such as building and promoting vessels with increased safety features.

Development Council adopted a climate-smart fisheries management plan in 2022: the Small Pelagics Fisheries Management Plan for the Province of Zamboanga del Norte. Due to the project's efforts, the Bureau of Fisheries and Aquatic Resources' Operations Manual for Disaster Risk Reduction and Climate Change Adaptation and Mitigation was produced. At the time of writing, this manual was not online or available in other major languages of the Philippines. However, the evaluation has learned that work is underway to publish it.

50. In Grenada, safety regulations for fishers were updated with CCA considerations for the national Fisheries Act (House of Representatives of Grenada, 1986). In Sri Lanka, the United Nations safety at sea guidelines (FAO, 2021) were translated into the local languages of Sinhala and Tamil.

Finding 2.3. Many of the practical adaptation activities introduced by the project have proven to be both replicable and scalable. However, some did not achieve the expected results

51. Generally, the component's selected activities were demand driven and community led. Component 2 project activities with tangible results and direct material action included: fuel-efficient vessel construction and demonstrations (Grenada and Sri Lanka); coral and mangrove nurseries (Grenada and the Philippines, respectively); aFADs (Mozambique); and improved markets and climate data, and alternative livelihoods support (South Africa). as mentioned in the above finding, many of these were replicable and scalable, to illustrate: the installation of bulbous bows on fishing vessels in Sri Lanka; coral reef restoration in Grenada; integrated agriculture-aquaculture practices in Lao PDR; and vocational school trainings in Grenada.

52. The component implemented two courses: Adaptation Planning for Fisheries and Aquaculture; and Climate Finance for Fisheries and Aquaculture Adaptation. These were in accordance with its expected output on climate-smart extension curriculum and activities developed and delivered, but they were not available online to the wider public. The project self-reported an uptake of the courses, which were delivered through workshops (see Table 2).

Table 2. Adaptation and climate finance trainings held by the project

Workshop name/country	Date	Attendees, female	Attendees, male
Adaptation planning			
Sri Lanka	June 2022	16	30
Lao People's Democratic Republic: field training workshops in the Provinces of Luangnamtha, Oudomxay, Savannakhet and Salavan	January 2023 February 2024	38 26	19 11
Philippines	From May to June 2023	48	42
Totals		**128**	**102**
In addition, the Indaba fisher conference took place in South Africa among 124 participants in August 2023. FAO supported the session on Learning and Co-designing CCA Plans.			
Climate finance			
Grenada	March 2023	6	20
Sri Lanka	November 2022	21	15
Totals		**27**	**35**

Source: Authors' own elaboration, based on the project team's training records.

53. The success of the climate finance workshops is further discussed under the sustainability finding for this component.

Finding 2.4. FAO's technical expertise and assistance, as well as its impartiality, were highly valued. Stakeholders praised the quality of innovative initiatives such as the bulbous bow design for fuel-efficient vessels.

54. Across all six participating countries, the evaluation's interlocutors were uniformly impressed with the technical skills and knowledge of FAO personnel, as well as associate personnel through external consultants identified and hired by FAO. For example, government stakeholders in Sri Lanka stressed the FAO consultant's engagement with the bulbous bow design and construction. Indeed, they identified this initiative as a novel concept and one that has proven to be successful. Here are the words of one interlocutor from Grenada:

"The FAO colleagues who visited were really professional and knowledgeable. They also exhibited an understanding of our challenges."

55. FAO has worked with national ministries for decades in the Lao People's Democratic Republic and the Philippines. As confirmed by a government stakeholder in the Lao People's Democratic Republic and as mentioned in the relevant FAO Country Programming Framework, FAO and the government have collaborated since 2013 to develop local learning methods that address food insecurity and nutrition issues through fish farming in rice fields (FAO and Ministry of Agriculture and Forestry, 2013).

56. The component's budget also funded the research and publication of The Fisheries and Aquaculture Adaptation Finance Gap (FAO, 2024a), which became a stand-alone publication and was included in the United Nations Environment Programme's 2023 Adaptation Gap Report Update (UNEP, 2024). This report is an independent, science-based assessment. Its objectives aligned with the Global Stocktake from the United Nations Framework Convention on Climate Change, and, in fact, the overall adaptation gap figures from the United Nations Environment Programme report were cited in the first Global Stocktake (UN, 2024). As such, it can inform the United Nations Framework Convention on Climate Change community and others on the CCA funding status and trends for fisheries and aquaculture. Indeed, it is a testament to the strong scientific capacities and reputation of FAO.

3.1.3 Gender equality and other equity issues

57. The inclusion and participation of women in the project, as well as gender mainstreaming, varied across countries. The project presented more positive results in Grenada and South Africa, where key project activities targeted women. It was more neutral in the Lao People's Democratic Republic and the Philippines, where women were included among other beneficiaries. Female staff members of the relevant government bodies were not given special consideration in Mozambique and Sri Lanka. Here, the project activities focused on marine capture fishing operations and did not cover the subsectors that usually involve women. The project made efforts to collect and report gender-disaggregated data across project activities, especially trainings. Some of the countries made a conscious effort to target vulnerable social groups.

58. In Grenada, women in particular took on the coral reef nurseries activity. They then became community coral reef gardeners following the project's training. Out of all the participating countries, South Africa had perhaps the most active participation of women, even though this was

limited in numbers.[13] According to the Component 2 final project report for South Africa (2023), the project conducted a needs assessment with communities in the Province of Western Cape. As a result, 19 women were trained in furniture restoration and upholstery, and 20 in silk. Twenty-two of the participants from these two workshops were also trained, as per their request, in starting and managing a small business, and self-actualization. These efforts were meant to increase the women's income, decrease poverty and empower them. *The evaluation would be interested to see more data from a follow up with participating women to conclude its analysis on the results of these efforts*.

59. In Sri Lanka, however, stakeholders acknowledged that women were minimally involved. The project activities did not cover subsectors that usually involve local women. There had been a conscious effort to include women trainees and workshop participants in general, but this was limited to a few boat yards and vessel owners.

60. In the Lao People's Democratic Republic, the project team specified that they wanted a poverty reduction focus. The local government selected the participating farmer families accordingly.

Finding 2.5. There is a distinct possibility to sustain the project's policy and institutional-level outputs. However, securing additional funding and government commitment will be crucial. The project directly contributed to concept notes for continued funding from the GCF in Grenada and Sri Lanka.

61. Some project gains have already reverted due to factors beyond the project's control: floods in the Lao People's Democratic Republic, despite affecting just one project site; and coral bleaching and loss in Grenada due to a heat wave and a hurricane. Nevertheless, there is a distinct potential for sustainability with select project activities. This will largely depend on securing additional funding, and participating governments' efforts and participation.

62. The catastrophic flooding in the Lao People's Democratic Republic represents an interesting case: following the event, the project provided funds to support 150 farmer families to recover and rehabilitate the rice fields (Project terminal report, 2024). Additionally, the project maintains that the participating farmers could recover more quickly from the catastrophic event. Their yields, incomes and resilience increased from integrated farming practices. Despite all this, the project confirmed that in some of the districts where the floods had destroyed the integrated farms, the activities will not continue because farmers have abandoned these fields or are unwilling to reinvest due to the increasingly high risk.

63. In a similar vein, catastrophic weather events destroyed about 80 percent of the coral reef nursery in Grenada. Nevertheless, the community and the project team showcased resilience on the matter as, according to the final project report, "the corals that have survived the bleaching event have now recovered; and the coral gardeners are in the process of cleaning up the nursery to repopulate the trees with staghorn corals that must be sourced and harvested from wild stocks" (WINDREF, 2024). Through interviews, the evaluation confirmed an interest in restarting the activity with required additional funding. It is worth noting that the surviving corals can be

[13] Here, FAO strived to build on its practices from a previous project: Enhancing Climate Change Resilience in the Benguela Current Fisheries System. This project had trained women in fishing communities on alternative, sustainable livelihood activities, as well as Phase 1 of this Norad project. However, due to the COVID-19 pandemic, the participants who had started their own businesses were forced to stop. This Phase 2 project provided a chance for restarting these promising activities.

genetically more thermal stress-resilient. Therefore, their further propagation can increase the corals chances of survival and reproduction in the future (Drury, 2020).

64. In Mozambique, the project was designed with the knowledge that local institutes lack capacity, for example, boats, to monitor the aFADs. However, the main objective was to test the viability of aFADs and use the results to prove the need for this capacity, which could be developed. Financial support and capacity from a variety of donor sources is flowing into the region. This can be used to build monitoring capacity over the long term. In order for this to happen, a feasible project and monitoring needs to be demonstrated, which this small pilot project set out to demonstrate.

65. Monitoring and maintenance are considered key for the management of aFADs (ISSF, 2024) and would need to be considered in further iterations of this pilot initiative. Other areas for improvement would be to take additional measures to prevent fishing on top of the coral reefs, such as declaring them as protected areas. Government officials confirmed plans to replicate the experiment at other sites, in both the region and the country, and agree that any replication of activities should consider the necessary improvements.

66. For the policy and institutional-level outputs, there is a distinct possibility that the project gains will continue. However, much depends on future funding and the governments' will. An illustrative example of this would be the Operations Plan for Disaster Risk Reduction and Management for Fisheries in the Philippines – the national rollout of which had yet to start as of October 2024.

67. Upon studying the project documentation and speaking to stakeholders across all Component 2 countries, the evaluation found that the project acted in good faith and strategically to introduce activities that could have a high potential for sustainability. These include the project's policy support activities, vocational trainings and its climate finance educational endeavours. Moreover, learning from the project's pilots has directly contributed to concept notes for funding from the GCF in Grenada and Sri Lanka.

68. All project countries were encouraged to develop ideas and recommendations for future projects or funding. The climate finance workshops informed countries about the landscape of climate finance opportunities and how to apply for funding with various donors. The local stakeholders highly appreciated these workshops. In the opinion of the Evaluation Team, these represent a cost-effective use of the donor's resources with a potentially high impact in the future.

69. Moreover, learning from this project has verifiably supported the GCF project proposals in Sri Lanka (see Finding 2.5). This may result in up to USD 105 million of new funding for climate-resilient fisheries. In Grenada, fisheries form one component of the overall funding proposal. In the Philippines, diagnostic meetings for a GCF proposal took place and will eventually feed into a GCF Readiness Programme proposal (GCF, 2024). As part of this Readiness Programme, the Norad project team elaborated, together with partners, a concept for a new project: Mangrove and Fisheries Resilience for Coastal Communities in the Philippines.

70. Project activities that have a high potential for sustainability include curriculum development for a vocational fisheries school and captain training course, both of which took place in Grenada. Other trainings in Grenada, however, could have enhanced sustainability even further by introducing an additional knowledge management and learning sharing component post-training (see the Supplementary recommendation section of this evaluation).

71. In South Africa, the project also implemented activities with an eye on sustainability. However, the Evaluation Team did not have enough data to verify their continuity. Namely, if the alternative livelihoods workshops and trainings prove successful and women can start to earn other streams

of income instead of solely relying on proceeds from the fishing industry, then they could adapt to climate change and maintain an income. In addition, activities related to the ABALOBI application in South Africa sound promising.[14]

72. The fact that the project was implemented by local governmental and non-governmental counterparts – for example, through letter of agreement arrangements with providers in Grenada and South Africa, and with the Department of Livestock and Fisheries in the Lao People's Democratic Republic – should have a positive influence on sustainability. Assuming that funds are available, these entities can continue the project's activities and retain institutional learning from them – even without further involvement from FAO.

Finding 2.6. The evaluation was able to identify lessons learned for this component: boat interventions introduced in Sri Lanka; aFADs in Mozambique; and communications efforts.

73. In line with the Paris Agreement, the project created a detailed framework to track CCA progress in fisheries and aquaculture. It was tested by an external consultant in the Philippines in May 2023 and in Sri Lanka in June 2024. As a researcher and fisheries specialist, this consultant conducted evidence-based reviews of FAO's CCA interventions under this component. The stated goal was to assess if adaptive vulnerabilities were reduced thanks to FAO's intervention (Component 2) and, if not, why. The reviews resulted in useful findings that described different levels of project implementation – from design and targeting to implementation. However, there was no focus on the use and sustainability of the interventions. Although these were only test reviews, the Philippines assessment took place mid-stage and could therefore contribute to adaptive measures from the review's recommendations.

74. In Sri Lanka, the design and production of two climate-resilient, one-day fibre-reinforced plastic vessels as a pilot initiative and the fixing of a bulbous bow[7] were identified by stakeholders as the two most impactful activities of the project. In particular, the bulbous bow was identified as the most successful of the interventions by the government stakeholders. This was seen as a new concept, which can be considered successful as there is already demand for it from the vessel owners. The one-day fibre-reinforced plastic activity was less successful. A comparative analysis of these two activities is provided in Table 3.

[14] The Evaluation Team was unable to interview the main interlocutor on this matter, despite attempts to do so.

Table 3. Climate-smart boats introduced by the project in Sri Lanka

	Resounding success: bulbous bow (for longline fishery vessels)	Needs work: one-day fibre-reinforced plastic boat
CCA/climate change mitigation	From 12 to 15% fuel saving (Source: government officials/vessel owner)	Stakeholders confirm a climate-resilient vessel design. However, increased weight means more fuel consumption.
Cost	LKR 3 million can be covered in four to five fishing trips. The second bulbous bow from the project was fully funded by the vessel owner.	From LKR 2.5 to 3 million This is unaffordable for small boat yards (needs external funding).
Challenges	None were noted by the evaluation.	This involves the vessel's heavy weight (from ten to 15 workers to pull to shore vs the current 203 workers), cost (from two to three times higher than the existing vessel) and anchorage system in Sri Lanka.
Demand generation	Yes, there is demand from vessel owners.	Yes, there is demand from small boat yards.
Current status (boat usage)	Boat usage was confirmed by the evaluation on the ground.	The boat in the southwest is not being used at the moment.
Other considerations	The vessel owner belongs to a vessel owner association. The evaluator noted that they are willing to share knowledge on the bulbous bow with other fishers.	The government plans to introduce a new regulation that new vessels need to follow the one-day fibre-reinforced plastic boat design.

Source: Author's own elaboration.

75. The project's interventions in Mozambique (in the Cabo Delgado region) were meant to address food insecurity by making it easier for small-scale fishers to catch the underexploited tuna stock by using aFADs. At the same time, as understood by the project coordinators in-country, this was meant to encourage fishers not to fish on top of the coral reefs. The project collected data on how fish catch changed by using the aFADs. The results were that in four out of six sites fish catch improved, and in two out of six it stayed the same. A good number of the installed aFADs have already disappeared. However, if we consider that the project's objective was to present a pilot initiative, then it may still prove effective if the initiative is replicated elsewhere with necessary improvements. In fact, the Government of Mozambique has expressed a readiness to do so. The evaluation interviews revealed that the intervention lacked more ownership among the communities, as well as government involvement.

76. The project teams in the participating countries promoted the project by disseminating the component's outputs and results through various media. The Evaluation Team saw ample evidence of this component's communications work. For instance, local newspaper articles, videos on YouTube and social media sites, and FAO website articles all described the various outputs and results of this component.

3.1.4 Suggested actions

The various types of learning from this component were appreciated during the peer exchange and South–South and triangular cooperation visits in Grenada, Sri Lanka and the United Republic of Tanzania. Therefore, it would be a good idea to make these learnings available in a centralized location like a project website.

Consider including the use and sustainability of the interventions in the frameworks, which the project produced and tested, for tracking CCA progress in fisheries and aquaculture.

3.2 Component 3. Aquatic biosecurity

3.2.1 Key findings and takeaways

- The PMP/AB was successfully developed, and guidelines for its implementation were published.
- At least seven countries strengthened their capacities to implement the PMP/AB through their participation in project-sponsored workshops on how to implement the PMP/AB toolkits.
- Only the cost-benefit analysis toolkit was piloted. Limited timeframes for toolkit finalization and piloting meant that some interventions lacked adequate testing and validation. Many tools remain in development, delaying broader adoption.
- FAO's added value was demonstrated through strong collaborative partnerships and its convening power during the component's delivery across the focus countries and regions around the globe.
- In India, Madagascar and Saudi Arabia, plans are underway to build upon the project's interventions.

3.2.2 Component 3 introduction

77. A cornerstone of this component is the PMP/AB. This framework for achieving sustainable aquaculture biosecurity and health management systems was developed as part of the project's previous phase (FAO, 2023a). This project phase focused on developing and disseminating toolkits that facilitate implementation of the PMP/AB. The core toolkits included a cost-benefit analysis, a risk analysis in the aquaculture value chain, emergency preparedness and contingency planning for mass mortality events in aquatic populations, and guidelines for countries or regional entities interested in developing an aquatic organism health strategy. The component also developed two publicly available e-learning courses.

78. This component was global in nature. A few focal countries were prioritized due to their moderate- to high-level of aquaculture production and interest in improving aquaculture biosecurity that had been expressed through their national objectives and priorities. Indonesia and Viet Nam were the primary target countries, with an additional 20 countries[15] receiving a combination of e-learning and face-to-face training opportunities.

Primary evaluation question for Component 3: To what extent and how did the project support competent authorities and aquaculture stakeholders to enhance their capacities in implementing the PMP/AB?

Finding 3.1. At least seven countries strengthened their capacities to implement the PMP/AB through their participation in project-sponsored workshops on toolkits and antimicrobial resistance.

79. The interviewees recognized that the component provided high quality advice and support for countries that want to improve the biosecurity and health management of their developing aquaculture industries.

80. The component supported capacity enhancement through several interventions.

[15] This included India, Indonesia, Madagascar, Malaysia, the Philippines, Saudi Arabia and Thailand, among others.

i. For both Indonesia and Viet Nam, workshop reports provided evidence that countries had participated in numerous workshops to enhance and strengthen their capacities on how to implement numerous toolkits that strengthen the PMP/AB implementation pathway. This component focused on enhancing country capacities to transition from concepts and principles to field application and capacity building. It also focused on strengthening national- and regional-level linkages and capacities for PMP/AB implementation, for example, through the Association of Southeast Asian Nations Network of Aquatic Animal Health Centres. In addition to the target countries, numerous other countries participated in the same workshops, including India, the Philippines and Thailand. This enhanced partner institution capacities for collaborative implementation of the PMP/AB guidelines and toolkits.

ii. Indonesia, the Philippines and Saudi Arabia participated in a workshop on antimicrobial resistance in aquaculture that was held by FAO in collaboration with the Chinese Academy of Fishery Sciences in China in May 2024. This workshop also launched a closely aligned output, that is, reference centres to step up the fight against antimicrobial resistance in China, India (a project focal country) and the United States of America. The centres were in support of FAO's Action Plan on Antimicrobial Resistance 2021–2025 (FAO, 2021a) on awareness, surveillance and responsible use.

iii. India, Madagascar and Saudi Arabia participated in a workshop to introduce the PMP/AB cost-benefit analysis pilot case studies in March 2024.

iv. The project supported online fish-vet dialogues on One Health and biosecurity (FAO, 2024f).

v. The project created content for two e-learning courses (see Finding 3.5).

81. The interviewees confirmed that gender equity was considered during project implementation. The diversity of workshop participants also demonstrated that gender equity was considered during the project's intervention across the various workshops that were delivered.

Finding 3.2. The project supported the development of national and even regional strategies that provided the foundation for the PMP/AB implementation.

82. This component supported countries to develop their national aquatic organism health strategies. In turn, these would support the incorporation of the various PMP/AB elements. In this regard, the component's activities were conducted through national and regional meetings, expert workshops, and expert and stakeholder consultations. Through project support, Indonesia finalized its national aquatic organism health strategy, while those in Ethiopia, Peru and Sri Lanka remain ongoing under the auspices of other FAO projects and the PMP/AB guidelines.

83. In 2023, the project supported the development of a regional aquatic organism health strategy for the Network of Aquaculture Centres in Asia-Pacific, which has 19 participating countries. This regional strategy is also expected to support the PMP/AB implementation. Adoption of the first regional strategy was considered an important milestone. In fact, starting with Asia is particularly impactful since the region accounts for over 90 percent of global aquaculture production.

84. Component 3 also promoted the integration of the PMP/AB stepwise approach as a useful framework to implement the existing national aquaculture biosecurity strategies in India and Saudi Arabia by placing core biosecurity elements into perspective. As part of the evaluation, interviews were held with representatives of the National Aquaculture Group, which is the largest aquaculture operation of shrimp and fish farming in Saudi Arabia. This confirmed the component's role in enabling the domestication of the PMP/AB tools at the national level. Additionally, this

enhanced the importance of aquatic health through a structured, risk-based approach. In India, there was not only a National Aquaculture Biosecurity Strategy prior to the Component 3 interventions but also a national programme that had been implemented on aquatic animal diseases. However, their programme focused primarily on surveillance, and the PMP/AB toolkit actually helped the country to frame their biosecurity responses.

Finding 3.3. The PMP/AB cost-benefit analysis toolkit was finalized after being piloted in four countries.

85. The PMP/AB cost-benefit analysis toolkit was piloted in India, Madagascar, the Philippines and Saudi Arabia. In both India and Saudi Arabia,[16] preliminary results of cost-benefit analyses indicated that the implementation of biosecurity protocols is a good investment. The pilot of the cost-benefit toolkit in India focused on applying biosecurity and disease mitigating measures to freshwater finfish pond systems in the study region, including the application of treatments for *saprolegniasis*, which is a significant constraint. Both countries are still concluding the publication of these results, which will be made available for dissemination as FAO publications.

86. Madagascar reported that investment in improving the biosecurity of shrimp farms, including significant investment in treating water to prevent the ingress of pathogens, was highly beneficial. Farms that made this investment upfront were reportedly less affected by white spot syndrome virus than farms that did not make these investments.

Finding 3.4. FAO's added value was demonstrated through strong collaborative partnerships during the delivery of the component's activities across the focus countries and regions.

87. The series of fish-vet dialogues initiated by the component demonstrated FAO's capacity to leverage partnerships for the purpose of implementing globally shared, participatory responses to biosecurity and disease mitigation. This brought together a diverse team of international, regional and national experts to discuss emerging biosecurity issues.

88. The evaluation found visible collaborative efforts and synergies with partner institutions to deliver on workshops. For example, the PMP/AB and antimicrobial resistance in aquaculture events were co-organized in May 2024 with the Chinese Academy of Fishery Sciences and China's Ministry of Agriculture and Rural Affairs. Other partner institutions that participated in co-organizing or co-hosting events include the Association of Southeast Asian Nations Network of Aquatic Animal Health Centres and the Network of Aquaculture Centres in Asia-Pacific.

89. It was suggested that stronger collaboration between FAO and the World Organisation for Animal Health should be fostered due to the complementary nature of the work delivered by both organizations. For example, this involves supporting the development and implementation of aquatic animal health management plans and biosecurity.

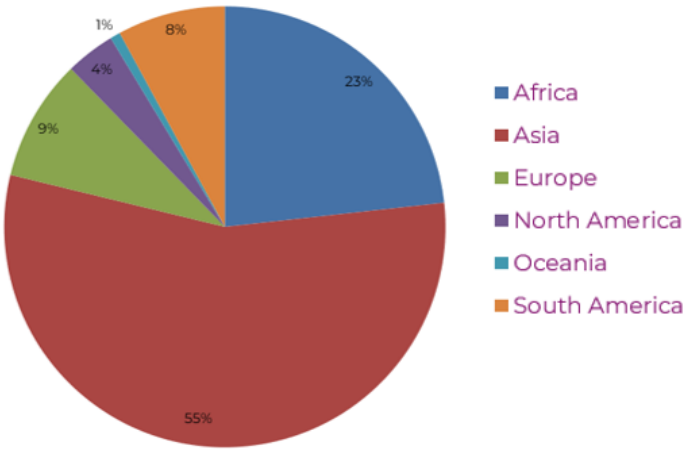
Finding 3.5. Component 3 delivered numerous knowledge products. The component also published a number of strong guidance documents and associated, open access and peer-reviewed papers in high impact journals, such as *Reviews in Aquaculture*.

90. The project developed a new certified course: Pathway to Aquaculture Biosecurity (FAO elearning Academy, 2023a). This presented five lessons and was accessed by over 609 learners, 586 of whom finished the course and 156 of whom completed the assessment to receive a certificate. As of

[16] The Evaluation Team faced data gaps in evaluating this component (see Subsection 2.2).

October 2024, user statistics indicated that those who had finished the course represented six regions (see Figure 5), and 39 percent of them were female. Over 35 percent of the course participants were from the government sector, followed by university and research centre participants (21 percent) and the private sector (17 percent).

Figure 5. Number of learners per region who took the aquaculture biosecurity course



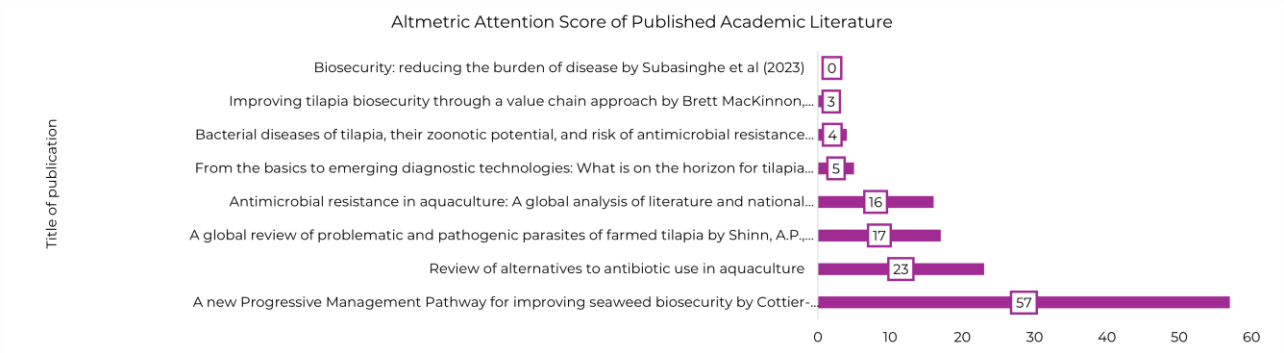
Source: Authors' own elaboration, based on FAO elearning platform and team.

91. The project supplemented an existing online training course that targeted officers of African and Mediterranean countries. The online training course has been ongoing since 2021. However, the project was instrumental in building a specific module on biosecurity, which included an introduction to biosecurity. This presented protocols and results of good management on biosecurity in aquaculture and considered the economics of biosecurity, as well as other topics. Course trainers worked hand in hand with the FAO team to create awareness and implement the training course. The course targeted participants from various backgrounds, including fisheries and agriculture. The course, which is structured over ten weeks, is now in its fifth edition and targets approximately 17 officials each year. The interviewed training officer confirmed that the FAO team had prepared the biosecurity module exceptionally well.

92. The component also published a number of strong guidance documents and associated, open access and peer-reviewed papers in high impact journals, such as *Nature* and *Reviews in Aquaculture*. The evaluation compared the Altmetric Attention Scores[17] of the project's peer-reviewed publications and found that a paper published in *Nature*, which applied the PMP/AB approach to the seaweed sector, received the highest Altmetric score among the project's publications (Cottier-Cook et al, 2022). This was followed by publications on the review of alternatives to antibiotic use. Please see Figure 6 below, and the Bibliography section for full details.

[17] Altmetric Attention Scores are a weighted count of the amount of attention for a research output from a variety of sources based on three main factors: volume, sources and authors.

Figure 6. Altmetric Attention Score of published academic literature for Component 3



Source: Authors' own elaboration.

Finding 3.6. A number of toolkits are still under development or being piloted. The evaluation is therefore unable to assess the sustainability potential for these outputs. Regardless, it is promising that there are plans to build upon the project's interventions in several participating countries.

93. Countries noted that a much longer period of time is typically needed, that is, from five to ten years, to develop responsive biosecurity and disease mitigation programmes. Fortunately, the component presented long-term collaboration with and between project partners and built on the success of previous initiatives in this area. This enabled the delivery of meaningful change.

94. As a result of the project's interventions, the Government of Saudi Arabia committed to implementing a new surveillance programme at the national level. The programme aims to keep a record of veterinary drugs used in the aquatic animal health sector to inform ongoing policy interventions in biosecurity. This approach is new and has never been attempted. The programme is expected to maintain detailed records of veterinary drugs used in the aquatic animal health sector in Saudi Arabia, which then enhances biosecurity measures. By tracking which drugs are administered, their dosages and the specific conditions that they are used to treat, government authorities can identify patterns and trends in drug usage, and then utilize the information for assessing the effectiveness of biosecurity interventions and making informed decisions about future policies. For instance, if certain treatments do not demonstrate effectiveness at preventing disease outbreaks, then this could prompt a review of their use or lead to the development of alternative treatments.

95. Similarly, the Madagascar shrimp industry reported that relatively high investments in improved biosecurity showed a significant return on investment due to losses associated with the significant reduction of the white spot syndrome virus. If these lessons can be shared more widely, then this may be highly beneficial to other aquaculture producers. Since relevant production data are held by private farms, dialogue will need to take place to facilitate data and information sharing in a way that safeguards their commercial interests.

96. Following the successful implementation of the cost-benefit analysis toolkit, India is interested in going further to undertake an assessment that estimates economic losses due to diseases in biosecurity with a view to pursuing improved economic data. The results of such an assessment will help to quantify the financial impact of diseases and enable the government to prioritize funding and resources towards the most significant threats. This will then allow for committing resources where they will have the greatest effect in mitigating risks associated with biosecurity threats.

3.2.3 Suggested actions

97. Component 3 succeeded in developing the PMP/AB and publishing guidelines for its adoption. Since the component's overall goal is to establish sustainable biosecurity and health management systems that support national aquaculture sectors, there would be value in extending the PMP/AB and its guidelines to other countries and regions through webinars that focus on the training of trainers across various regions. This is a relatively cost-effective way in which the project's benefits can be extended globally.

98. A number of PMP/AB toolkits remain under development or are being piloted. In order to harness the full benefits of the component's interventions, it would be important to support the finalization of the toolkits in the four pilot countries. This would provide the pilot countries with an opportunity to cross share implementation experiences and further share the results of the pilot study across various regions through virtual engagements.

99. These actions emphasize the wide dissemination of knowledge outputs – beyond just the project's initial focus countries. This is because the generated knowledge is useful for informing the global One Health goals. Stakeholders underscored the need for the component to reflect the best ways to realize dissemination among a broader, global audience. This would align with the component's outcome to enhance capacities that implement the PMP/AB.

3.3 Component 4. Social protection

3.3.1 Key findings and takeaways

- This component performed the groundwork for three focus countries – Colombia, Paraguay and Tunisia – in order to establish dialogue on social protection in fisheries and evidence-based information on fishers' needs and vulnerabilities. It was also instrumental in establishing interinstitutional arrangements in the focus countries. However, the three countries have not established national social protection systems for fisheries. Participating countries appreciated the creation of a global database and South–South and triangular exchanges, particularly by learning from Brazil's model. These successes highlighted FAO's role in facilitating knowledge sharing and capacity building.
- Considering that social protection in fisheries and aquaculture was a relatively new concept in the three countries, the component's interventions such as establishing baselines, conducting socioeconomic assessments, producing roadmaps and partnering with relevant actors offered added value.
- Policy shifts in the focus countries were visible and the interinstitutional groups have continued post-project. However, national-level efforts are still required to develop and adopt national social protection policies for fish chain actors.

3.3.2 Component 4 introduction

100. Component 4 aimed to build institutional capacity that expands social protection programmes for fishers, fish workers and fish farmers. It offered global support across several participating

countries, including Brazil, Cabo Verde, Chile, Colombia, Paraguay, Peru, Tunisia and SIDS), and focused national-level interventions on three focus countries: Colombia, Paraguay and Tunisia.[18]

101. Key government participants in Colombia and Tunisia agreed that social protection specific to fish chain actors was considered a new activity in the two countries. As such, approaching fishing communities to discuss social protection was not easy from a contextual perspective.

102. In Colombia, the evaluation revealed that the fisheries subsector is informal and fishers have limited awareness of social protection. Despite provisions in the Colombian Fishing Law of 1990 (Congress of Colombia, 1990), the sectoral-based social protection regime for fishers, fish workers and fish farmers is limited. For example, 95 percent of fishers are not affiliated with a universal social protection such as a pension scheme. There is also no social protection in case of extreme weather events like hurricanes. Social protection in fisheries is also new for Tunisia, and the project presented a new perspective for the country.

103. An important outcome of this component was the development of a global database of the social protection programme, the Social Protection for Fisheries and Aquaculture (known as SocPro4Fish). This database encompasses the three project countries and 43 additional countries with a primary focus on SIDS across three regions: the Pacific; the Atlantic, Indian Ocean and South China Seas; and the Caribbean.

Primary evaluation question for Component 4: To what extent did the project increase participating countries' institutional capacities for making available, implementing and monitoring social protection programmes, including shock-responsive and gender-sensitive social protection for fishers and fish workers?

Finding 4.1. This component attracted interest by high-level national officers and fostered interministerial discussions and exchanges around the topic of social protection. The project was also responsible for the participating countries gaining valuable lessons from the experience of Brazil, which is a front runner in social protection programmes. Notably, Paraguay has started to collect baseline data from this learning.

104. National-level consultations with Colombia, Paraguay and Tunisia confirmed the participation of representatives from key ministries of social protection, gender and fisheries in the project's activities. This included social protection workshops, dialogues and webinars. This led to a greater recognition of social protection as an important policy consideration in promoting economic inclusion and strengthening the resilience and livelihood security of fishers and fish chain actors, and, most importantly, improving compliance with management measures.

105. The component successfully facilitated collaboration among line ministries, which drove more integrated approaches to social protection across their respective mandates. For example, in most countries, the mandate for fisheries and fishers is under the agriculture or fisheries ministries, whereas social protection is usually under the social protection ministries. The integrated approach helped government ministries align their efforts to address the unique social protection needs within the fisheries sector.

106. In collaboration with the General Fisheries Commission for the Mediterranean (GFCM), this component hosted workshop sessions in September 2021. These aimed to increase awareness on social protection needs, assess existing coverage and evaluate the capacity to extend and enhance social protection for fishers and other actors along the fish value chain. The component also

[18] The project document mentioned that Malawi would also be a beneficiary country.

delivered an extra capacity building module on social protection during a workshop held in Malaga, Spain in June 2022, which was a first of its kind in that country.

107. National stakeholders agreed that the project facilitated the exchange of lessons learned and shared experiences for multiple countries, including Brazil, Cabo Verde, Chile, Colombia, Paraguay, Peru and Tunisia. Particularly valuable were learnings from Brazil. This country is considered a front runner in social protection through its unemployment insurance programme for small-scale fishers, *Seguro-Defeso*, which protects them during closed fishing seasons. Based on the Brazilian experience, Paraguay started to build fisher baseline characterization related to social protection systems with the Ministry of Social Development.

Finding 4.2. The component also delivered a global product: the Global Database on Social Protection in Fisheries through a delivery chain approach. This database is a key tool that presents an avenue for continued data analysis in order to inform policy decisions on social protection. However, continued capacity for analysis is required for this to be effective.

108. The purpose of the database is to identify and assess the availability of social protection schemes to the fisheries and aquaculture sector, with a special focus on the most vulnerable. It focuses on social protection legislation and policies at the national and subnational levels that target or are accessible to fishers and fish workers, including universal and sectoral schemes. The database evaluates coverage for different types of risks, for example, life cycle, economic and environmental, and highlights existing gaps and barriers to access. Data collection was carried out for 43 countries. This encompassed: the SocPro4Fish countries (Colombia, Paraguay and Tunisia); five countries in the Mediterranean (Albania, Algeria, Egypt, Lebanon and Morocco); China; and 34 SIDS across three regions (African, Caribbean and Pacific). For each country, there is an overview of the status and trends that characterize fisheries and social protection frameworks. This includes some indicators (economic, demographic, labour market and social). Furthermore, synergies were established with the GFCM-Lex database. A social protection section was added to the GFCM-Lex country profiles, which will be available online.

Finding 4.3. In Colombia, Paraguay and Tunisia, the project established previously unavailable baseline information on social protection for fishers and fish value chain actors. Various research assessments were conducted to support national social protection systems. While the project shifted policy considerations, no national social protection systems specific to fisheries were established in the participating countries.

109. To date, no national social protection systems have been established in the participating countries as a result of the project's interventions. However, the component contributed to raising awareness of social protection in fisheries as a response that can promote economic inclusion and strengthen the resilience and livelihood security of fish chain workers. The component also recommended numerous strategies to strengthen awareness raising and concrete actions that fishers can take to improve their organization and membership growth.

110. In Colombia, Component 4 conducted a detailed assessment of the socioeconomic profiles of fisheries, aquaculture and social protection. As a result, the socioeconomic module was incorporated into the Colombian Fisheries Statistical Service, led by the National Aquaculture and Fisheries Authority. Ten maps were created. These detailed the closed areas for artisanal fishers and used landing data to assess income variations during closed and open seasons. The component evaluated the benefits of integrating fisher registries with social information systems to improve data exchange, resource management and policy development. This increased resilience to shocks like climate change and climate variability, as well as natural disasters.

111. In Colombia, the country explicitly integrated aquaculture into all of its activities since the two subsectors (fisheries and aquaculture) work hand in hand. As a result, the country managed to establish a financing mechanism, that is, Rotary revolving funds, which can contribute to social protection from the perspective of economic inclusion for these two subsectors.

112. The component's assessment of Paraguay revealed that the country has eight social protection programmes, albeit with gaps in addressing labour conditions, gender inequality and climate readiness. The component developed socioeconomic profiles for beneficiaries of the Assistance Programme for Fishers and evaluated alternative livelihoods during closed seasons. Additionally, a process evaluation of the Assistance Programme for Fishers was conducted with concrete recommendations put forward to redesign the programme.

113. For Colombia, Paraguay and Tunisia, the project established baseline information on social protection for fish chain actors since this was not considered during previous in-country initiatives. Stakeholders in these countries agree that this was an important step for future work on social protection in fisheries and aquaculture. It can be considered a key added value of the project.

114. In Tunisia, Output 4.3 on strengthening informal social protection providers and mechanisms to increase the resilience of fishing households against covariate shocks, was considered extremely important in securing the livelihoods of Tunisian fish chain workers. However, this component has yet to achieve commitments that scale up strategies for revolving funds, as indicated in the logframe.

115. Studies on gender-sensitive social protection for fish chain workers and socioeconomic impact assessments were undertaken. Registry systems of fish chain actors were evaluated. The project's interventions were viewed as novel and influential in establishing interest and knowledge among key government ministries that are responsible for social protection and fisheries, key stakeholders, and fish chain actors.

116. At the global level, the component supported high-level policy dialogue to drive and influence social protection policy changes and reforms. Policy shifts became visible and emerged at the national level as a result of the project's interventions.

117. In Colombia, the component successfully established the Interinstitutional Group on Social Protection for Fisheries and Aquaculture (GIPRO, by its Spanish acronym) to promote dialogue and support the revision of Law 2268 of 2022, which ensures the protection and socioeconomic sustainability of artisanal, commercial and subsistence fishers. The establishment of GIPRO was a significant outcome of the project in that it provides a dedicated platform for coordinating efforts and advancing social protection in the fisheries sector. Through GIPRO, it was possible to increase the representation of fishers and aquaculture workers in the processes of policy formulation, implementation and monitoring. This promoted spaces for consultation, which were led in this space for interinstitutional articulation.

118. Additionally, there was a comprehensive compilation and review of existing social protection with key findings that identified gaps and opportunities for improving social protection coverage for fishers and fish value chain actors. These findings are critical in informing future policy and programme design. This analysis identified the institutional framework and participation within the system based on two key pillars: i) the contributory system, where individuals pay for their social security; and ii) the subsidized system, where the state provides support to individuals with low purchasing power. The findings of the study revealed that informality is high in Colombia, which results in limited access to social protection.

119. In Paraguay, the project improved institutional coordination on social protection by establishing the catalyst working group. This included the Ministry of Social Development, the Ministry of Environment and Sustainable Development, and the Social Cabinet's Technical Unit.

120. Following the component's feasibility study on extending social protection to the small-scale fisheries sector, Tunisia's Ministry of Social Affairs embarked on a policy reform process regarding social protection for fishers.

Finding 4.4. The component engaged a few new partners, such as the International Collective in Support of Fishworkers. Synergies were successfully explored with a Norad programme in Colombia. The project also expanded the social protection agenda through South–South and triangular cooperation in a 2023 workshop on social protection for the fisheries and aquaculture sectors, which was held in collaboration with the Government of Brazil.

121. A workshop was held from 28 November to 1 December 2023. Brazil shared lessons from 30 years of experience in implementing unemployment insurance during fishing closures: *Seguro Defeso*. Participants included different line ministries from the component's three focus countries – Colombia, Paraguay and Tunisia – as well as Brazil, Cabo Verde, Chile, Ecuador and Peru. Brazil, which was the host country, is also considered the most advanced country in Latin America in terms of social protection schemes. The workshop included fishers and national fisher representatives from all participating countries, as well as representatives from the International Labour Organization (ILO), the International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations, the International Collective in Support of Fishworkers, the International Transport Workers' Federation, and Stella Maris.

122. In June 2024, the project organized a learning session on social protection in the fisheries sector. It shared lessons learned and achievements from the project with relevant FAO colleagues, country focal points and FAO headquarters. In September 2024, a joint webinar on social protection was held in collaboration with a global organization, socialprotection.org (socialprotection.org, 2024). This demonstrated the team's commitment to expanding the social protection knowledge base.

123. Two project components delivered complementary work in Colombia, especially Component 5 FLW, which incorporated Component 4 into meetings and workshops. This expanded the project's shared value. Colombia is a primary country partner in Norad's Fish for Development Programme (Norad, 2019). This bilateral programme delivers complementary support to fisheries and aquaculture. The delivery of Component 4 in Colombia found synergies through this existing partnership with Norad.

124. Partner institutions such as the International Collective in Support of Fishworkers and the World Bank participated in global dialogues, workshops and webinars. Through a letter of agreement, the International Collective in Support of Fishworkers undertook a desk review and focus group discussions to collect data for the SIDS social protection database.[19] The World Bank confirmed complementarities and synergies between Component 4 and its ongoing social protection work under the World Bank's Blue Social Protection Handbook: Protecting People, Fish and Food (Bladon, Greig, Okamura and Nico, 2025).

[19] This includes SIDS, least developed countries and Land Locked Developing Countries.

125. The evaluation found distinct synergies between Component 4 and the ILO's Global Flagship Programme: Building Social Protection Floors for All, which incorporates social protection considerations within its programmes. There were also synergies with the World Bank's Blue Economy Programme, PROBLUE, which recognizes the importance of social dimensions like poverty alleviation, livelihoods and inclusion. All three initiatives prioritized social protection in fishing communities and established programmes to support a deeper understanding of social protection systems and frameworks that improve the livelihoods and working conditions of fisherfolk and fishing communities.

126. Collaborative approaches to address social protection in fisheries is key in the face of limited resources. As noted, the component established partnerships with organizations such as the ILO and the World Bank. This was also an added value of the component.

127. As a result of the component's interventions, the GFCM included a social protection element in the national profiles of the GFCM-LEX database. This is significant because the commission's recommendations are binding legal instruments that are then transposed by contracting parties into their national legislation.

Finding 4.5. While gender and other equity issues were certainly considered during project implementation, this component specifically implemented several gender-sensitive and gender-responsive actions.

128. This component ensured gender mainstreaming with gender parity among project leads, as well as workshop and training participants. It conducted extensive gender-responsive work to support the economic and social empowerment of Colombian women fish sellers, known as *platoneras*. It also incorporated variables to capture gender sensitivity and responsiveness in existing social protection programmes. Additionally, the e-learning course on addressing the climate-poverty nexus featured a dedicated section on gender and gender analysis.

129. Relevant stakeholders in Colombia, Paraguay and Tunisia agree that gender mainstreaming was an important consideration during the project's intervention in the three focus countries. There was gender diversity across the national project component leads. There was also inclusiveness among women and men who attended the component's workshop, dialogues, working groups and webinars. For the course held at the Latin American Faculty of Social Sciences in Paraguay, the project presented disaggregated data for the participation of men and women.

130. In Colombia, key social protection actions were implemented among *platoneras*. This recognized their essential role in aquatic value chains as artisanal fishery product traders. These initiatives supported their inclusion in technical training programmes and competency-based certification. At the same time, it strengthened their organizational capacities. Additionally, efforts were initiated to integrate them into public procurement processes and ensure their access to financial tools and improved working conditions. Through a gender-responsive approach, these actions aimed to directly address inequities between men and women, secure labour rights, enhance livelihoods, and build community resilience against economic and environmental challenges (FAO, 2022a).

131. Data collected for the Global Database on Social Protection in Fisheries was disaggregated by gender where possible. The data collection template also included a section that facilitated the identification of programmes with gender-sensitive or gender-responsive elements, as well as a focus on vulnerable groups.

Finding 4.6. The component delivered numerous, publicly available knowledge outputs, including a comprehensive website and a well-attended online course.

132. This component delivered the social protection website, which is available in English, Spanish and French. The website will be a source of information on social protection in fisheries by featuring informative articles, sharing global knowledge products and providing specific country-level knowledge products for the focus countries of Colombia, Paraguay and Tunisia. In addition to the website, the component delivered numerous knowledge products: webinars; blog posts; human stories; podcasts; and over 12 publications covering various social protection topics and themes (see Annex 4).

133. The component delivered a course in Paraguay in August 2022 entitled Diploma in Social Protection, Economic Inclusion, Food Security and Nutrition with an Emphasis on Territorial Management. There were 40 graduates (75 percent women) from regional and local institutions. A self-paced online version of the course was launched in 2022. It received over 250 new registrations from 55 countries during the first three months of availability and is co-certified by the University of the West Indies and FAO. As of 20 May 2024, the self-paced course received 447 enrolments, and 79 have already completed the course. Interestingly, 48 percent were from academia.

134. The component developed and delivered a separate course entitled Addressing the Climate Change and Poverty Nexus. This course included both a tutored virtual version (a pilot with 55 invited participants from 13 Caribbean countries) and a self-paced online version (for a global audience). Both versions were co-developed and co-taught with the University of the West Indies. To date, 507 people have enrolled in the course – of which, 107 participants (20 percent) successfully completed it.

Finding 4.7. National-level efforts are still required to develop and adopt national social protection policies for fish chain actors.

135. In terms of sustainability, the component was instrumental in establishing interinstitutional groups within the project's focus countries for the benefit of driving social protection in fisheries. Country-level consultations confirmed that these interinstitutional working groups actively engage in social protection matters within their respective countries. However, this will require continued commitment and funding.

136. In Tunisia, a technical committee of the government and local unions was established. The committee is expected to extend support to social protection in fisheries across various forums.

137. In Colombia, the component supported the establishment of GIPRO, which involves key public and private entities in the fisheries, aquaculture and social protection subsectors. In fact, GIPRO continues to advocate for and promote dialogue on social protection in fisheries. In addition, the Colombian Fisheries Statistical Service created a new software module for social protection information, which has yet to be implemented. Colombia's fisheries authorities recommended the creation of a registry outside of the Colombian Fisheries Statistical Service since the system requires data to be anonymized. As a result, the General Registry for Fisheries and Aquaculture was proposed.

138. In Paraguay, the component constituted the catalyst working group. This included the Ministry of Environment and Sustainable Development and the Social Cabinet's Technical Unit, which continues to promote social protection in fisheries.

3.3.3 Suggested actions

139. Component 4 succeeded in promoting the expansion of social protection coverage to the fisheries sector for the pilot countries of Colombia, Paraguay and Tunisia. It also provided capacity building in social protection to SIDS and Mediterranean countries. However, national-level efforts are still required to develop and adopt national social protection policies for fish chain actors and to improve social protection access in pilot countries and globally. The development and dissemination of a guiding framework for improving access to social protection, primarily for informal fishers and fish chain actors, is suggested. This framework can be based on Brazil's successful *Seguro Defeso* programme.

140. The component also delivered the Global Database on Social Protection in Fisheries. This key tool presents an avenue for continued data analysis to inform policy decisions on social protection. However, data analysis and the subsequent dissemination of results is pending finalization. The database can be extremely useful since it facilitates the collaboration and standardization of data across different regions and affords fish chain actors and relevant fishery organizations real-time access to information regardless of their geographic location. It is suggested that continued capacity for its analysis be provided to ensure that the database is completed and can be utilized effectively by the pilot countries and globally. This then extends the benefits of the component's results and its dollar value.

3.4 Component 5. Multidimensional solutions strategy for food loss and waste

3.4.1 Key findings and takeaways

- Component 5 provided an essential evidence base that identified FLW problems, then developed a multidimensional solutions strategy. The FLW assessments and targeted capacity building effectively raised awareness and promoted innovative solutions.
- Each of the three project countries made some progress in continuing the component's work. The United Republic of Tanzania adopted the multidimensional solutions strategy, which receives funding from other projects. In Colombia, an interinstitutional group was formed to continue the work on FLW. In Sri Lanka, the component provided important inputs for the funding proposal to the GCF.
- Stakeholders highlighted that FAO's technical knowledge, that is, its methodological guidance on FLW, added value. Also, FAO's national and regional networks ensured that the right stakeholders participated in the projects.

3.4.2 Component 5 introduction

141. Component 5 focused on FLW reduction in aquatic food value chains in Colombia, Sri Lanka and the United Republic of Tanzania. The scope of the national case studies differed between countries as these were selected by national working groups: an artisanal fishing community in Colombia (Tumaco); a fishery subsector in Sri Lanka (multiday fishing vessels); and a fish species value chain in the United Republic of Tanzania (dagaa).

142. National teams were trained in FLW assessment methodologies. These teams then carried out FLW assessments that led to multidimensional solutions strategies for the three countries. A summary of the FLW assessments was published on FAO's FLW website in 2023, and the multidimensional solutions strategies were published in 2024. For Output 5.3 on strengthened

evidence-based FLW knowledge products developed and disseminated, the component produced the FLW methodology e-learning course.

143. The Evaluation Team's findings concur with the terminal report that Component 5 achieved all of the outcomes and met all of the indicators in the project document.

Primary evaluation question for Component 5: To what extent did the project enhance the sustainable utilization of fisheries and aquaculture products and their contribution to livelihoods and food security (by utilizing the multidimensional solutions strategy to reduce FLW in fish value chains)?

Finding 5.1. Component 5 provided an essential evidence base that identified FLW problems via an FLW assessment. It then developed multidimensional solutions strategies in the three focus countries. The recent finalization of these solutions means that it is too early to gauge the extent of FLW reduction as a result of the project.

144. Capacity building occurred through: i) workshops for working group members, most of whom were fish value chain stakeholders; ii) trainings for researchers tasked with carrying out the FLW assessment; and iii) workshops for value chain stakeholders to share assessment results. Consultations with stakeholders in the three focus countries of Colombia, Sri Lanka and the United Republic of Tanzania confirm that the capacities of stakeholders participating in the project were enhanced.

145. The extent to which the implementation of solutions occurred to enhance the sustainable utilization of fisheries and aquaculture products varied among countries. With the time and resources available, it was unrealistic to expect that the FLW solutions would be applied and result in evidence of reduction. Nevertheless, the implementation of some FLW solutions in Colombia and Sri Lanka occurred during the project's life cycle.

146. One indicator associated with the outputs involved multidimensional solutions strategies for FLW that applied to 100 percent of the targeted value chains. There was evidence of FLW reduction and benefits to value chain actors. This may have led to unrealistic expectations of what would be delivered by the project.

147. The narrative supporting Finding 5.1 is presented in the following points, categorized by focus country.

148. The Tanzania Fisheries Research Institute conducted an assessment in **the United Republic of Tanzania**. Some stakeholders suggested that it was a steep learning curve for fishery biologists to undertake an FLW assessment, but their capacity to do so was certainly enhanced through the training provided by FAO. Other stakeholders confirmed the improved capacity of institutional stakeholders, that is, the Tanzania Fisheries Research Institute and the Fisheries Education and Training Agency. This improvement was due to the training provided. One working group participant noted that "value chain actors, particularly those directly involved in the project, are becoming more organized to address FLW challenges. They are also acting as social carriers of the new way of doing things, or change agents, in their respective communities."

149. In the United Republic of Tanzania, the multidimensional solutions strategy was adopted and applied to the dagaa value chain. This resulted in a multidimensional solutions strategy that was adopted by the government. Factors identified as contributing to the successful application of the multidimensional solutions strategy in the United Republic of Tanzania included: the identification and participation of the relevant stakeholders; the comprehensive assessment of a priority

fisheries value chain, that is, dagaa; and a strategy that involves multiple components along the whole value chain – not just improved technology, so based on robust evidence.

150. A stakeholder from the United Republic of Tanzania noted that "the most important success factor was the creation of awareness that FLW cannot be mitigated by merely upgrading technology. Rather, it rather requires searching for a solution from multiple angles – policy, regulations, knowledge and skills, infrastructure, technology, gender and social, as well as marketing dimensions."

151. Stakeholders confirmed that the working group, workshops and training events were well organized and delivered efficiently. Stakeholders recognized that a workshop to share results was very useful, but greater reach could be achieved through the use of media and brochures.

152. Some stakeholders had expectations that applying the multidimensional solutions strategy would include implementing them. In any case, the Tanzanian Government is committed to the multidimensional solutions strategy. Since its launch in 2024, some no-cost and low-cost solutions such as awareness raising have been implemented, and some aspects that require significant investment have been implemented by other projects.

153. The Tanzanian Government has continued the working group as a task team to progress its implementation. This is a positive endorsement of Component 5. The research agencies have also taken steps to ensure that institutional capacity is sustained. The United Republic of Tanzania's multidimensional solutions strategy states that it was validated and endorsed by the FLW working group, and the Tanzanian Government and stakeholders confirmed that it is being implemented to the extent possible by relevant stakeholders through the leadership of the Ministry of Livestock and Fisheries (FAO, 2024a). It contributes to realizing the National Development Vision 2025 and the 2015 National Fisheries Policy. Applying this strategy should enhance the efficiency, resilience and profitability of the dagaa fisheries while minimizing environmental impacts and ensuring food security. It can be used to attract further investment to complete all of the activities and outputs proposed (FAO, 2024a).

154. Some elements of the strategy, such as awareness raising, have been advanced by the Tanzanian Government. For example, the Tanzanian Bureau of Standards held a workshop with small-scale dagaa processors to encourage improved drying techniques, better packaging and marketing. The FLW assessment and loss mitigation through the application of the multidimensional solutions strategy were embedded in the Tanzania Fisheries Research Institute's programmes. Also, this was integrated into the Fisheries Education and Training Agency's curriculum to ensure that institutional capacity is maintained.

155. A global aquatic value chain development programme known as FISH4ACP, the Asia–Africa BlueTech Superhighway (AABS) and DREEM Hub projects did not represent the full implementation of the strategy in the United Republic of Tanzania. This is because FISH4ACP focused on Lake Tanganyika, the AABS focused on coastal communities and DREEM Hub centred on Mafia Island. There was not a clear pathway to implement some elements of the multidimensional solutions strategy, that is, by improving inland dagaa value chains.

156. There is also an ongoing component of FISH4ACP to tackle FLW at Lake Tanganyika (FAO, 2025b), which is using findings from an FLW assessment on post-harvest losses to inform ongoing actions. Under Component 5, the assessment was conducted on dagaa fisheries at Lake Victoria, Lake Nyasa and coastal fisheries – not at Lake Tanganyika. The work across the two projects was complementary, and there was some overlap in the resulting multidimensional solutions strategy with small pelagic management plans proposed for all three of the main lakes (FAO, 2024e).

157. The AABS is led by WorldFish and supported by the United Kingdom of Great Britain and Northern Ireland's Blue Planet Fund. This project will run until 2030 across five countries, including the United Republic of Tanzania, with a total budget of NOK 625 million. It focuses on several fish value chains in coastal areas, including dagaa. One of the four work streams of the AABS is Climate-smart Technologies for Reducing Aquatic FLW: Scaling Affordable and Accessible Climate-smart Food Preservation, Processing and Storage Technologies to Reduce Aquatic Food Loss and Waste. Key focus areas in the United Republic of Tanzania include:

i. the introduction and adoption of climate-smart technologies for drying and smoking;

ii. capacity building and training on sustainable fishing methods, quality control and efficient post-harvest handling techniques;

iii. improved market access through strategic partnerships, novel preservation methods, and training on value addition and business skills;

iv. policy advocacy for improved infrastructure and access to finance;

v. the development of standards and certification in collaboration with regulatory bodies for safety and quality, and to bolster market value; and

vi. women- and youth-targeted programmes to train and increase access to income opportunities within the dagaa value chain.

158. Another project led by the World Wide Fund for Nature Tanzania and DREEM Hub involves a one-year initiative with NOK 16 million support from the Mott Foundation. It is centred on Mafia Island and supports the adoption of solar-powered technology, including dagaa drying racks.

159. The multidimensional solutions strategy focused on dagaa, and the same approach could be applied to address FLW in other value chains, including aquaculture. The AABS initiative began with a TOC workshop in Dar es Salaam, which mapped challenges along the value chain, identified stakeholders and agreed upon approaches to ensure that interventions lead to the intended impact for small-scale fishing communities. Researchers for the AABS project revisited and modified FAO's loss assessment methodology, for example, in recognizing that price change does not always equate to quality change and, in isolation, is not a clear indicator for an FLW assessment. There was also debate around the definition of food loss. For example, does the entrance of dagaa into animal feed markets equate to loss?

160. In **Sri Lanka**, the training for and implementation of the FLW assessment (a ten-day intensive course) was identified by national stakeholders as the most impactful intervention of this component. While the Sri Lankan Ministry of Fisheries and other stakeholders were aware of the high levels of FLW in the Sri Lankan multiday fishery, which is referred to as the IMUL fishery, comprehensive data on the issue were lacking. Apart from a few focused studies around some harbours, there was no nationally representative FLW assessment. In general, FLW was identified as an issue that requires attention by all stakeholders to strengthen Sri Lankan fisheries. Following the first phase of the assessment covering eight multiday fishing harbours, a few validation workshops were conducted. Here, it was decided to conduct another phase of the assessment, and all 23 fishery harbours where multiday fisheries operate were selected for a repeat survey to facilitate a more representative sample. This aimed to capture any seasonality and fish species that are FLW-specific. Direct engagement with stakeholders in the multiday fisheries increased FLW knowledge, and solutions were discussed. The two-phase approach did, however, result in a delay to the full FLW assessment being available with knock-on effects for the multidimensional solutions strategy finalization and the potential to implement its elements.

161. The stakeholders saw the FLW assessment itself as impactful given that data and findings from the assessment could be used for the design of other activities to reduce FLW. This includes seeking other donor funding to implement some of the activities identified in order to reduce FLW. Government stakeholders mentioned the possibility of conducting microlevel assessments at a few selected harbours through the trained officers from the Department of Fisheries and Aquatic Resources in order to understand the impact of the interventions. However, given the daily workload of these officers, conducting an assessment, even at the microlevel, may not be practical and will require additional resources.

162. The full application of the multidimensional solutions strategy in **Sri Lanka** was less evident. This aspect was partial during the project's life cycle. FAO's methodology was followed to assess FLW, but delays in finalizing the assessment led to progressing solutions that focused on fishing vessels. The ring net fishery was identified as one of the highest causes of loss, and a consultant was then appointed to identify workable solutions. However, solutions still need to be finalized. The multidimensional solutions strategy was developed during a four-day workshop. This encompassed the whole value chain, but post-harvest solutions beyond the fishing sector stage were less developed. Among the strategies was a refrigeration and cooling system for multiday fishing vessels. This was identified as having the potential to be most impactful on FLW associated with these vessels. However, the equipment is expensive and only a pilot system on one vessel was installed. There is also an application in development using artificial intelligence to identify quality grades.

163. The delays in completing the FLW assessment and multidimensional solutions strategy led to the working group prioritizing a few activities to be funded through the project: i) installing the cooling system as a pilot (on the same long-line vessel for which the bulbous bow was fixed[20]); and ii) application development. Once completed, the FLW assessment identified that the ring-net fishery also required attention to reduce FLW. This is because the fishery reported the highest FLW. A consultant was appointed to propose solutions, and the findings were validated by the stakeholders, including the working group. This was not completed in time for publication of the multidimensional solutions strategy. However, the outputs and outcomes are applicable across the multiday fishery, and the multidimensional solutions strategy is considered a living document that can be revised during the implementation timeframe. The delay prevented some FLW improvements from progressing elsewhere in the supply chain, but a revision of the multidimensional solutions strategy is possible.

164. The assessment report will be published online and scientific papers will be produced based on it. However, plans for sharing its data with other interested parties, including stakeholders in research, academia, donors, other United Nations agencies and other government agencies, remain unclear. The stakeholders stated that the data, findings and analysis from the training of trainers, which captured all segments of the fishery value chain, are available only as PowerPoint presentations. Disseminating brief material from the training may also provide some insights into the other value chain segments, which would then recognize the diversity of actors in the country's fishing value chains. This could provide a basis for further research and, more importantly, action to reduce FLW along other nodes of the value chain in a more inclusive and sustainable manner.

165. Stakeholders reported that FAO coordination was smooth and effective. Good communication was maintained and meetings were held as frequently as necessary. However, delays in the

[20] The on-board cooling systems were only introduced for one or two participants. While testing at pilot scale is certainly necessary, it was not clear whether there is an intention or the means to install these systems more widely.

assessment process were reported by several government stakeholders. The training of trainers took place in September 2022, but the first phase of the assessment started in August 2023 – almost a year later. Delays in completing data collection were reported by the stakeholders, with the main reason being relevant government officers who acted as data collectors being busy with their day-to-day duties and responsibilities. It was also likely that the two-phase approach to the FLW assessment in Sri Lanka, which extended the survey to 23 harbours from the original eight fishery harbours, ensured more robust data. This may have contributed to the delay in finalizing the assessment. As a result, the evaluation believes that the discussions and actions on a multidimensional solutions strategy were delayed.

166. In terms of a future outlook in Sri Lanka, a new FAO GCF project proposal includes components on FLW that build on the findings of this component. The project's concept note explicitly states: "The project builds on extensive work by FAO and FAO Sri Lanka on ... post-harvest loss reduction and their work funded by Norad on [FLW] in the fisheries sector. Having the Organization [FAO] as the lead technical partner and Executing Entity ensures that this knowledge and experience is built for this project." A key proposed action involved addressing the increase of post-harvest losses in high seas and coastal fisheries through:

i. demonstration, capacity building on fishery product preservation and storage techniques, including low carbon technologies;

ii. the provision of finance to support and offer access for marketing higher grades; and

iii. the provision of extension services.

167. In **Colombia**, the project was managed and coordinated by FAO Colombia, together with other executing organizations such as the Marine and Coastal Research Institute "José Benito Vives de Andréis", the National University of Colombia (Tumaco branch) and the small-scale Confederation of the National Artisanal Fishing Table of Colombia, known as COMENALPAC. The evaluation noted that FAO's status as an international institution provided a sense of confidence and trust to the stakeholders involved.

168. The Interinstitutional Panel on Aquatic Food Losses and Waste was created, and an assessment of the catching sector and 57 fish product traders was carried out. Fishers learned about fish handling on board, realizing that fish loss started right there, and that fish prices may depend on it in many cases. A seafood festival in Tumaco showcased processed fish products that minimized food loss. A label, TUMA.CO, was developed, and business links were developed, mainly with companies in Bogotá to avoid illegal fish trade intermediaries. Fifteen associations in Tumaco were trained in the manufacturing of fish-based products such as surimi fish paste, hamburgers and fish sausages. As a result, some restaurants in Bogotá started to get fishing products direct from Tumaco fisher associations. Stakeholders highlighted various activities to directly reduce FLW with some fish parts or materials from fish processing used for:

i. the use and exploitation of the shrimp shell to produce animal feed;

ii. the use of organic waste from small-scale fisheries to produce biogas;

iii. commercialization of the viscera of some species, for example, sea bass bungs;

iv. the use of fish scales for collagen production;

v. the donation of the fish skeleton to people in need; and

vi. biopolymer processing for the pharmaceutical or food industry.

169. The Interinstitutional Panel on Aquatic Food Losses and Waste has since been absorbed into GIPRO in order to continue the processes started with FLW. Capacity building was given to local and regional governmental institutions to enable the whole multidimensional solutions strategy process to continue.

170. The Colombian FLW assessment related to 15 main species of the most abundant catches. A first value chain exercise was carried out with eight fishery products (shrimp, piangua, sierra, hake, corvina, pelada, pargo and picuda), showing that each species is treated differently during capture, transport, processing and marketing. Therefore, the loss was different in each case. The greatest losses were in billfish (26.3 percent) and shrimp (21 percent). The loss depended on the fishing gear and its treatment of the catch: more mistreated gill nets and less mistreated hook lines. The cause of loss was due to inadequate handling of the product and small sizes of the species caught, while, in marketing, it was due to discarding parts or whole products and the lack of ice preservation.

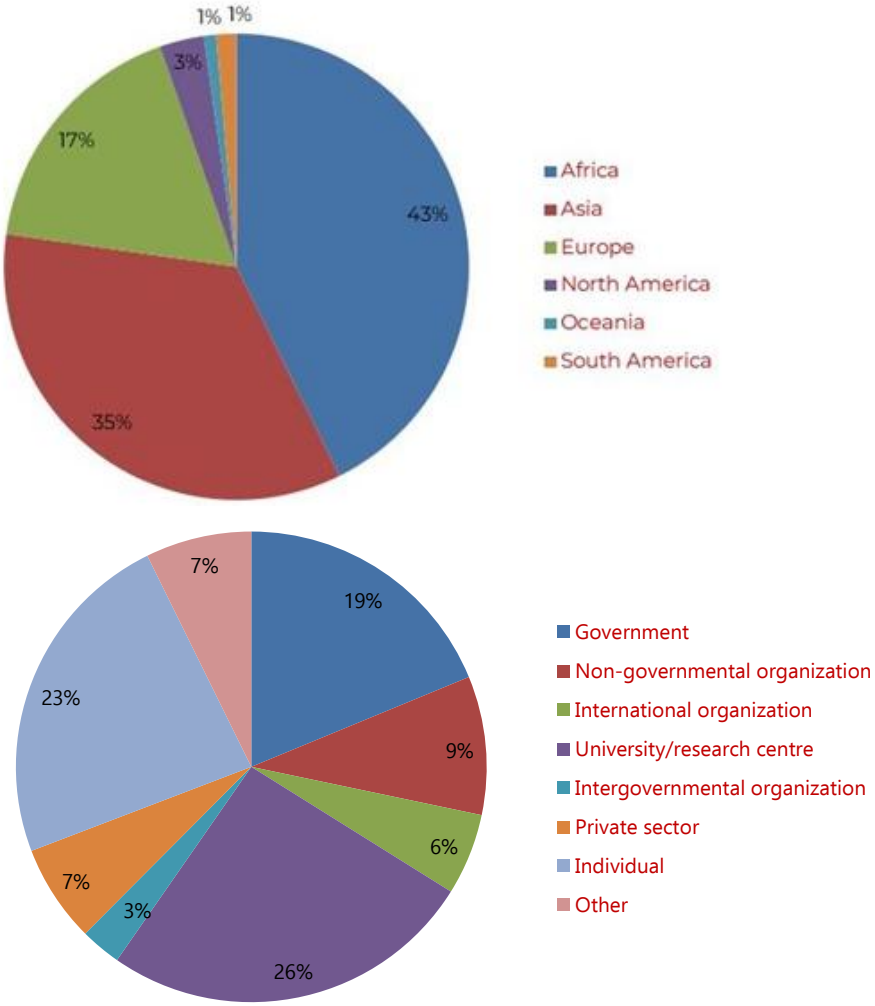
171. Capacity building for Colombian stakeholders was given to most small-scale fish trading companies in the case study location, Tumaco, to make value added products and utilize by-products. Between 18 and 21 small-scale fishing organizations were trained in: marketing and sales (two courses); organizational management strengthening (two courses); a course for non-formalized organizations to formalize; a course on competencies, good manufacturing practices and marketing; and a course on the dynamics of marketing artisanal fishing products. The issues addressed by the project were made visible with brochures and the reporting of project activities in the media.

Finding 5.2. The e-learning course is promising but could reach more people if translated into Spanish and French with outreach to the private sector.

172. This component produced the FLW methodology e-learning course for Output 5.3 on strengthened evidence-based FLW knowledge products developed and disseminated, which was released in November 2023. By the end of September 2024 (ten months after the launch), 193 participants had accessed the course online, 168 participants had downloaded the course and 38 certifications of completion had been issued (23 percent).[21] Forty-two percent of those downloading the course identified as female, and 57 percent identified as male. It is notable that most learners came from the Africa region. This was followed by Asia with 35 percent, and just 1 percent from South America (see Figure 9). This is perhaps understandable as the e-learning course is currently available in English only. The number of learners by type of organization showed a diverse group of learners, but only 7 percent stated that they belonged to the private sector (see Figure 9).

[21] Only three participants completed feedback on the course. All were positive about the usefulness and quality of information in the course. One participant suggested that more video content should be used.

Figure 7. Number of learners by region and number of learners by type of organization



Source: Authors' own elaboration, based on FAO elearning platform.

Finding 5.3. Stakeholders confirmed that Component 5 was delivered efficiently. They highlighted FAO's technical knowledge as an added value alongside the national and regional networks that FAO utilized to ensure that the right stakeholders participated in the projects.

173. Tanzanian stakeholders appreciated FAO's technical support, which provided training in their FLW assessment approach. FAO's role in facilitating their ability to bring together a variety of stakeholders in the working group was also recognized.

174. In Sri Lanka, the technical knowledge of conducting assessments was valued. Theory, combined with the practical learning experience of data collection, was particularly appreciated by the stakeholders who were part of the programme, which was distributed across ten days of the training.

Finding 5.4. Gender issues were assessed in all countries. This was facilitated by a gender-related assessment methodology. The extent to which it featured in the component was dependent on the case study selected. For example, there was a greater focus in the United Republic of Tanzania on the dagaa fishery over Sri Lanka's male-dominated multiday fishery. There was no evidence of other equity issues being considered.

175. Gender was identified as an important aspect regarding FLW in fish value chains. A gender-responsive fish loss assessment methodology was developed. Also, the e-learning course included

lessons on this: identify, through the gender-responsive FLW assessment methodology, the gender-based constraints that can contribute to FLW and the types of intervention to be applied.

176. In the United Republic of Tanzania, gender equality was recognized in the multidimensional solutions strategy as women are very active in dagaa processing. They were encouraged to work cooperatively, and the strategy included microcredit schemes that prioritize women within the value chain. However, there was no mechanism to implement this and various other elements of the strategy.

177. In Sri Lanka, it was suggested by some stakeholders that there could have been greater consideration of gender and other equity issues. The decision was made to focus on FLW associated with multiday fishing vessels that had limited involvement of women in production. However, women were involved in the rest of the value chain, such as processing and marketing. Some stakeholders stated that if time and resources permitted, a more comprehensive assessment, including other nodes of the value chain like processing and marketing, could have been done. This would make the assessment more inclusive and comprehensive. The training of trainers included a session on the gender-responsive FLW assessment methodology. Additionally, the government stakeholder with an interest and background in gender and fishery believed that the knowledge and training received can be applied to other steps of the value chain, such as fish processing and marketing.

178. In Colombia, the project highlighted female participation in several activities throughout all of the fishery activity. Many fishery associations were constituted by women, for example, mangrove cockle associations. A methodology was developed with a gender perspective to know how many women were involved in several steps of fish capture, as well as trading and contributions in all processes regarding fishing and processing activities.

Finding 5.5. FAO may be less flexible in amending the FLW assessment methodology and its definitions as it seeks consistency with the Food Loss Index and reporting against Sustainable Development Goal 12.3.

Finding 5.6. A narrow focus on one aspect of FLW risks inadequate consideration of potential trade-offs with improved quality. This leads to changes in market supply. Applying the multidimensional solutions strategy should enable the holistic view that is needed.

179. It is suggested that improved quality in Sri Lanka's multiday fishery would enable greater access to export markets instead of lower value domestic supply chains. This highlights the need to consider possible trade-offs of FLW reduction, with one potential trade-off being a reduced supply to local markets. Improvements to the United Republic of Tanzania's dagaa value chain is less likely to have unintended negative consequences for food security. This would ensure that a greater proportion of dagaa is safe for human consumption markets instead of animal feed markets.

3.4.3 Suggested actions

180. Component 5 delivered comprehensive FLW assessments and multidimensional solutions strategies in the three participating countries that are specific to the case studies. With capacity building on assessment methods provided to in-country researchers, this could be replicated for other important supply chains in those three countries, for example, dagaa from inland fisheries or aquaculture products.

181. Elements of the multidimensional solutions strategy are moving forward in each country, including through the Global Environment Facility projects and other external partners. However,

implementation is only expected to be partial without additional external support. A follow-up action could be to work with the respective governments in mapping where gaps exist in delivering multidimensional solutions strategies with a view to identifying support for these areas.

182. Component 5 provides a blueprint for assessing FLW and developing a comprehensive strategy to address FLW. This could be promoted by FAO more widely for replication in other countries where FLW in aquatic food supply chains is a significant issue.

3.5 Component 6. Other effective area-based conservation measures in fisheries

3.5.1 Key findings and takeaways

- The project may have led to an increase in OECM in fishery listings and validations, particularly in Asia and Africa after the workshop interventions.
- Following the Convention on Biological Diversity (CBD) criteria, FAO's work over the years has made this the main source of technical knowledge related to fisheries and OECM. Its outputs remain the only sector-specific guidance.
- The feedback suggested that the project's workshops effectively enhanced participants' understanding of OECM. The combination of practical sessions and theoretical content in e-learning courses also received positive attention.
- Time and resource constraints limited the ability to finalize workshop reports promptly or translate materials into multiple languages, which hindered broader dissemination.
- Workshop participants reported ongoing work on designating and validating OECM in relation to the CBD criteria. This utilizes the component's products, such as the handbook on identifying, evaluating and reporting on OECM in marine fisheries.

3.5.2 Introduction to Component 6

183. The OECM is "a geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the *in situ* conservation of biodiversity, with associated ecosystem functions and services and, where applicable, cultural, spiritual, socioeconomic, and other locally relevant values" (CBD, 2018). At the 34th session of the FAO Committee on Fisheries in February 2021, the relevance of OECM in achieving a number of Sustainable Development Goals and global biodiversity targets was noted. Additionally, FAO was requested to produce and disseminate practical guidelines to support the participating countries in their identification and implementation.

184. The component's outputs consisted of a series of workshops and e-learning courses based on the primary output of a handbook for identifying, evaluating and reporting on OECM in marine fisheries (FAO, 2022a). As of December 2024, the Altimetric statistics show that ten policy documents have referenced the handbook (eight from the International Union for Conservation of Nature and two from FAO), with 106 posts on X that continue to be shared by 68 users.

185. To deliver Output 6.1 on supporting FAO members, regional fisheries bodies and parties to the CBD in understanding and consistently applying criteria for designating the OECM from existing and new area-based fisheries management tools, this component held, with partners, eight

workshops to target the needs of countries that had been identified under its scoping exercise. The workshops were held from 2022 to 2024, as follows:[22]

i. online expert meeting on fisheries-related OECM in the Mediterranean organized with the GFCM in February 2022;

ii. online Sustainable Ocean Initiative Capacity Building Workshop for the Wider Caribbean and Central America on OECM in the Marine Fishery Sector organized with the CBD Secretariat in April 2022 and in collaboration with the Caribbean Regional Fisheries Mechanism, the Western Central Atlantic Fishery Commission, the Caribbean Environment Programme, the PROCARIBE project and the International Union for Conservation of Nature Fisheries Expert Group;

iii. workshop on other effective area-based conservation measures in Argentina organized with the Ministry of the Environment and Sustainable Development and the Undersecretariat of Fisheries and Aquaculture of the Ministry of Agriculture, Livestock and Fisheries in October 2022;

iv. workshop on fisheries-related OECM in Latin America and the Caribbean in Costa Rica organized in March 2023 with the Organization for Fisheries and Aquaculture of the Central American Isthmus to support participating countries of the Commission for Small-scale and Artisanal Fisheries and Aquaculture of Latin America and the Caribbean;

v. workshop on fisheries-related OECM in the Bay of Bengal and Southeast Asia organized in Thailand together with the International Union for Conservation of Nature in December 2023;

vi. workshop on OECM in areas under the jurisdiction of regional fisheries bodies organized with the Regional Fishery Body Secretariats' Network in Italy in January 2024;

vii. workshop on advancing the contribution of OECM to ocean conservation and local communities in fisheries in the United States of America in March 2024, held during the World Fisheries Congress; and

viii. workshop on fisheries-related OECM in the Southwest Indian Ocean region organized in Kenya with the Western Indian Ocean Marine Science Association in April 2024.

Primary evaluation question for Component 6: To what extent did the project increase awareness and expertise in national and regional fisheries authorities (and stakeholder communities) on assessing, implementing and the timely reporting of OECM?

Finding 6.1. Out of all the participants who provided written feedback for this evaluation, nearly all stated that the component's workshops and e-learning courses enhanced the understanding of OECM and the CBD criteria.

186. The content of the handbook to identify, evaluate and report on OECM in marine fisheries was distilled into two e-learning courses. Course 1 introduces the OECM concept and puts it in the context of marine fisheries, while Course 2 presents a process for recognizing fisheries-related OECM. These two courses are offered in English, French and Spanish (FAO elearning Academy, 2024).

187. Since their release in 2024, the two e-learning courses have been accessed online or downloaded 536 and 257 times, respectively, with completion badges issued to 19 percent and 17 percent of

[22] A detailed overview of the workshops is provided in the project's 2024 terminal report.

learners. This is a higher completion rate than the Component 5 e-learning course (11 percent), but lower than the Component 3 aquaculture biosecurity course (31 percent).

188. Eighty-six percent of learners accessed the English course versions, which were released in June 2024, compared to the Spanish (10 percent) and French (4 percent) versions released in September 2024. This rapid uptake shows that there is significant interest in the topic, and the statistics highlight that this is spread across the regions (30 percent of learners from Africa and 26 percent from Asia) and across organization types (for example, 23 percent from governments, 17 percent from non-governmental organizations, 17 percent from academia and 21 percent from individuals).

189. Two peer-reviewed papers were published in *Frontiers in Marine Science* in 2022 (Himes-Cornell *et al*. 2022; Garcia *et al*. 2022). Altmetrics report a good attention score for the first one (4 566 views and downloads, and six citations) and a high attention score for Garcia *et al*. (7 669 views and downloads, which place it in the top 25 percent of all research outputs scored by Altimetric).

190. Workshops helped to deliver guidance to national and regional stakeholders. For example, a 2022 workshop held in Argentina at the request of the Ministry of Economy helped to introduce the OECM concept. This was particularly welcomed by the fisheries sector. Information was gathered with the help of FAO, and a range of stakeholders participated in the OECM workshop where knowledge of OECM and the CBD criteria was shared.

191. The Evaluation Team requested feedback from 255 workshop participants in English and Spanish. Fifty-one people provided written feedback. Also of note is that the earliest workshops took place some time ago in 2022, so the recall for these may have been low. However, nearly all workshop attendees who provided feedback stated that the workshops enhanced the attendees understanding of OECM and the CBD criteria. They also felt that sufficient information was provided to apply the CBD criteria. This should enhance consistency in OECM establishment and reporting.

192. The component was enabled by a small yet well-organized project team with considerable experience in OECM. The team produced workshops and material that addressed a clear interest and need from members. The small project team and accompanying resource constraints have, understandably, resulted in delays to the finalization and publication of some workshop reports. Nevertheless, workshop participants stated that these were well organized and delivered efficiently.

Finding 6.2. The project may have led to an increase in OECM listings and validations, particularly in Asia and Africa after the workshop interventions.

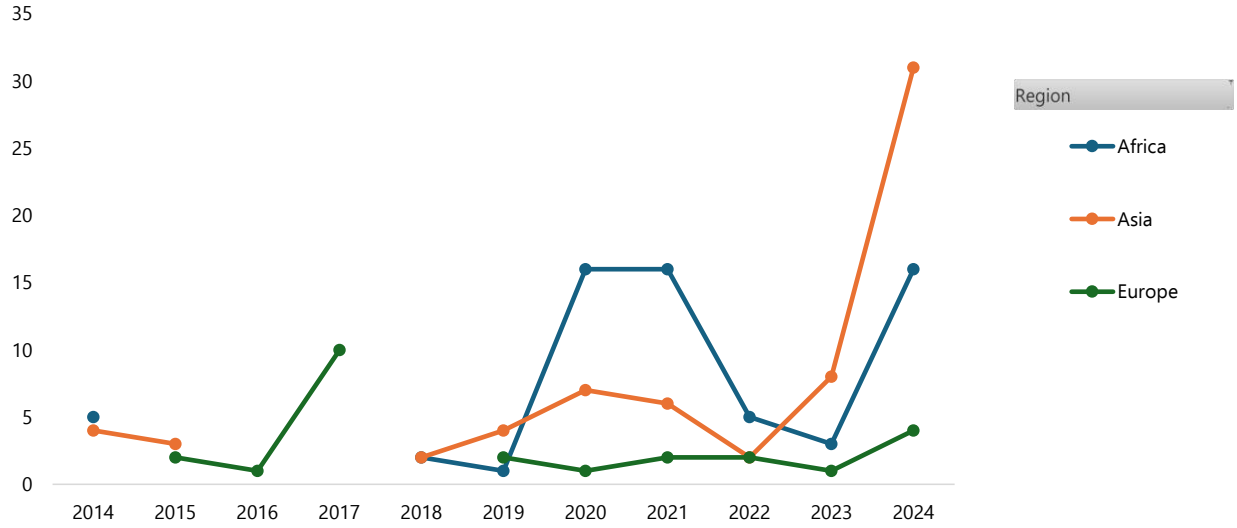
193. An analysis of a database on OECM activities on Protected Planet showed greater updating and validating activity (see Table 4 and Figure 8). Figure 8 establishes the context, while Table 4 shows that some entities updated their OECM in the 12 months following workshop participation. Regardless, the evaluation was unable to state causation with certainty.

Table 4. Number of OECM updates from workshop participants

Workshops	Number of entities that updated the OECM in the 12 months following the workshop
Workshop on OECM based in Argentina in January 2022	2
Workshop on the potential for recognizing OECM in inland fisheries in November 2023	4
Workshop on fisheries-related OECM in the Bay of Bengal and Southeast Asia in December 2023	0
Workshop on fisheries-related OECM in areas under the jurisdiction of regional fisheries bodies in January 2024	0

Source: Protected planet. 2025. *Protectedplanet.net* [website]. Cambridge UK and Gland, Switzerland.

Figure 8. Number of OECM updates per year per region



Source: Protectedplanet.net, Evaluation Team analysis.

Finding 6.3. FAO's work over the years following the CBD criteria has made it the main source of technical knowledge related to fisheries and OECM. In fact, its outputs remain the only sector-specific guidance.

194. Workshop attendees providing feedback to the Evaluation Team said that FAO's technical knowledge was the main added value by FAO to the project. Several attendees stated that FAO provided multiple benefits, such as communication of the technical knowledge of OECM. FAO's reputation, network and contacts were also cited as adding value, with one respondent stating:

"FAO provides a unifying understanding on OECM for fisheries administrations. It serves to network through the Regional Fishery Body Secretariats' Network. It gives fisheries a common approach in the face of alternative interpretations of OECM coming from non-governmental organizations, etc."

Finding 6.4. A range of follow-up activities were reported by those who participated in the workshops, for example, continued awareness raising at a national level and further work on designating or validating OECM in relation to the CBD criteria. These post-project activities continue to be informed by the project's outputs.

195. Follow-up work included national awareness raising on the concept of OECM through workshops, preparatory work and policy work, such as defining the OECM concept in national legislation and publishing guidelines. Some workshop attendees are working on designating OECM, with most at the stage of identifying potential areas. A few have submitted their documentation to the CBD.

196. Some workshop attendees encountered challenges in continuing work on OECM, including: a lack of precision in the interpretation of what constitutes an OECM; more work needed in communicating OECM at the local level; and OECM not being at the top of the government's agenda. A small minority of workshop attendees, out of those who provided feedback, were negative about the usefulness of the OECM concept because it applies only to vulnerable marine habitats and is considered too academic.

197. Project outputs are also being used to produce guidelines as a baseline for future studies, and for disseminating knowledge and raising awareness about OECM.

3.5.3 Suggested actions

198. Resources and time constraints limited the extent to which the project's outputs could be translated into additional languages. National government interest has prompted follow-up work in translating outputs, for example, a Portuguese version of the handbook for Mozambique, and in modifying guidance for specific subsectors, namely inland fisheries. Translation into additional languages and tailoring outputs for other subsectors such as aquaculture would extend the dissemination of knowledge on the CBD criteria for OECM.

4. Conclusions and recommendations

4.1 Conclusions

Conclusion 1. The overall outcome levels (as per the results framework) for the project's components were too ambitious considering the time and resources available for their execution. The project's full contributions to its intended outcomes are still not apparent as many of the activities and outputs were only completed recently. The short project timeframe means that, while some components created the necessary knowledge base and capacity, follow-up activities are needed to deliver impacts.

Conclusion 2. FAO added value in the context of this project. This involved providing technical knowledge and assistance, establishing relationships with relevant ministries and departments in the participating countries, and bringing actors together as neutral partners.

Conclusion 3. FAO leveraged its previous efforts, including Phase 1 of this project and other relevant initiatives. At the same time, the project acted as a catalyst for future endeavours.

Conclusion 4. The most promising project activities in terms of sustainability and impact potential increased the knowledge and capacity of national stakeholders. This brought together stakeholders who can then take ownership of the project's outputs.

Conclusion 5. Regarding Component 2 and Component 5, FAO opened the door to future climate financing for the participating countries. This was done through climate finance workshops and by building upon the project's pilots for future funding from the GCF.

4.2 Recommendations

Recommendation 1. *To FAO (ongoing)*. Continue to strategically plan engagement for similar projects. This includes planning to fund activities with higher chances of scaling up potential, and a good understanding of the funding and economic context for the participating countries.

199. The components tackled different aspects in encouraging the sustainable use and conservation of fisheries resources. All components delivered the planned outputs, and these are expected to contribute to their intended outcomes. Component 2 and Component 5 will require additional time and resources beyond this project in order to achieve the ambitious outcomes.

Recommendation 2. *To FAO and the partner agencies (in 2025)*. Not all actions that are recommended for continuation need to be performed by FAO. However, FAO is in a good position to continue providing technical assistance.

200. Stakeholders identified FAO's technical knowledge and networks as important value additions to the project. At the same time, they recognized that other partners can also be well placed to implement strategies and utilize the capacities that were developed during the project.

Recommendation 3. *To FAO, the participating countries and the partner agencies (in 2025)*. Consider supporting the countries to share outputs and findings from key knowledge products, for example, publications and case studies that are still in progress.

201. In some instances, knowledge outputs remained internal, were only recently published, or focused on specific countries and case studies. There would be benefit in continuing efforts to disseminate these knowledge outputs and ensuring that they are widely accessible (exploring other publication platforms with more reach and translating certain materials into additional languages).

Recommendation 4. *To FAO, the participating countries and Norad (ongoing)*. The project's successes can be replicated in additional countries. For the participating countries, these can also be extended to other regions.

202. These components applied robust approaches to encourage the sustainable use and conservation of fisheries resources, which was a catalyst for further action. They often focused on specific countries and case studies. The approaches and methodologies can be applied more widely to address similar challenges identified by the participating countries.

4.2.1 Supplementary recommendation[23]

203. To enhance the impact of capacity building, projects should incorporate knowledge management and accountability components. Large projects can still benefit from managing knowledge via user friendly "hub" websites or repositories. There should be an element of accountability expected from countries that benefit from the project's capacity building. For instance, government employees who attend trainings and workshops can have further responsibility to share the learning. These metrics can be part of the project's monitoring and reporting. Monitoring indicators that go beyond the number and gender of people trained are recommended.

[23] There is no expectation that this recommendation will be included in the project's management's response to the evaluation.

Bibliography

References

Bladon, A., Greig, G., Okamura, Y. and Nico, G. 2025. *Blue Social Protection Handbook: Protecting People, Fish and Food (English). Leveraging Social Protection and Jobs Interventions for Sustainable Fisheries*. Washington, DC, World Bank Group. [Cited 20 April 2025]. http://documents.worldbank.org/curated/en/099032425114538566

CBD (Convention on Biological Diversity). 2018. Protected areas and other effective area-based conservation measures. Draft recommendation submitted by the Chair. CBD/SBSTTA/22/L.2 6 July. Montreal, Canada. [Cited 20 April 2025]. https://www.cbd.int/doc/c/9b1f/759a/dfcee171bd46b06cc91f6a0d/sbstta-22-l-02-en.pdf

Congress of Colombia. 1990. Law 13 of 1990 dictating the general fishing statute. *Diario Oficial*, No. 39143, 15 January. Bogotá. [Cited 20 April 2025]. https://faolex.fao.org/docs/pdf/col3535.pdf

Drury, C. 2020. Resilience in reef-building corals: The ecological and evolutionary importance of the host response to thermal stress. *Molecular Ecology*, 29(3): 448–465. https://doi.org/10.1111/mec.15337

FAO (Food and Agriculture Organization of the United Nations). 2021. Safety at sea for small-scale fishers. Rome. https://openknowledge.fao.org/server/api/core/bitstreams/c24d3838-177d-4574-b194-fdac341088e8/content

FAO. 2021a. *The FAO Action Plan on Antimicrobial Resistance 2021–2025: Supporting innovation and resilience in food and agriculture sectors*. Rome. https://doi.org/10.4060/cb5545en

FAO. 2022a. Platoneras de Buenaventura: Mujeres de tradición, legado de la cultura afrocolombiana [Platoneras from Buenaventura: Women of tradition, legacy of Afro-Colombian culture]. In: *fao.org*. Rome. [Cited 20 April 2025]. https://www.fao.org/colombia/noticias/detail-events/ru/c/1513499/

FAO. 2022b. *A handbook for identifying, evaluating and reporting other effective area-based conservation measures in marine fisheries*. Rome. [Cited 20 April 2025]. https://openknowledge.fao.org/server/api/core/bitstreams/822cfedc-a209-4b73-ac2e-b3cb4c10f3eb/content

FAO. 2023a. *The Progressive Management Pathway for Aquaculture Biosecurity: Guidelines for application*. Rome. https://doi.org/10.4060/cc6858en

FAO. 2024a. The fisheries and aquaculture adaptation finance gap. Rome. [Cited 20 April 2025]. https://openknowledge.fao.org/handle/20.500.14283/cd1588en

FAO. 2024b. Fish loss in the artisanal fisheries subsector in Tumaco, Colombia. In: *fao.org*. Rome. [Cited 20 April 2025]. https://www.fao.org/flw-in-fish-value-chains/projects/colombia/fish-loss-assessment/en/

FAO. 2024c. Fish loss in the multiday fisheries in Sri Lanka. In: *fao.org*. Rome. [Cited 20 April 2025]. https://www.fao.org/flw-in-fish-value-chains/projects/sri-lanka/fish-loss-assessment/en/

FAO. 2024d. Fish loss in the dagaa fishery in the United Republic of Tanzania. In: *fao.org*. Rome. [Cited 20 April 2025]. https://www.fao.org/flw-in-fish-value-chains/projects/united-republic-of-tanzania/fish-loss-assessment/en/

FAO. 2024e. *Climate-resilient fisheries in Sri Lanka. Concept note to the Green Climate Fund. FAO internal document*. Rome

FAO. 2024f. *The fish-vet dialogue: Improving communication in aquatic organism health management*. Rome. https://doi.org/10.4060/cc6858en

FAO. 2025a [consulted]. Evaluation at FAO. In: *fao.org*. Rome. [Cited 20 April 2025]. https://www.fao.org/evaluation/resources/manuals-and-guidelines/en

FAO. 2025b [consulted]. Tanzania – Lake Tanganyika sprat, sardine and perch. In: *fao.org*. Rome. [Cited 20 April 2025]. https://www.fao.org/fish4acp/where-we-work/tanzania/en

FAO elearning Academy. 2023a. Pathway to aquaculture biosecurity: Managing disease risks in the value chain. [Online course]. Rome. https://elearning.fao.org/course/view.php?id=979

FAO elearning Academy. 2024. Recognizing other effective area-based conservation measures in marine fisheries. [Online course]. Rome. https://elearning.fao.org/course/view.php?id=1125

FAO and Ministry of Agriculture and Forestry. 2013. *Country programming framework Lao PDR*. Vientiane. [Cited 20 April 2025]. https://openknowledge.fao.org/server/api/core/bitstreams/2b9fb790-0fcf-4184-9014-18cf2384b4f4/content

Garcia, S.M., Rice, J., Himes-Cornell, A., Friedman, K.J., Charles, A., Diz, D., Appiott, J. and Kaiser, M.J. 2022. OECMs in marine capture fisheries: Key implementation issues of governance, management, and biodiversity. *Frontiers in Marine Science*, 9: 920051. https://doi.org/10.3389/fmars.2022.920051

GCF (Green Climate Fund). 2024. Readiness & preparatory support: GCF's Readiness Programme provides resources for countries and entities to efficiently engage with GCF. In: *greenclimate.fund*. Incheon, Republic of Korea. [Cited 20 April 2025]. https://www.greenclimate.fund/readiness

Hara, M. 2023. *GCP/GLO/352/NOR project final report July–December 2023*. Cape Town, South Africa. Internal document

Himes-Cornell, A., Sánchez, J.F.L., Potter, C., McKean, C., Rice, J., Friedman, K.J., Garcia, S.M. and Fluharty, D.L. 2022. Reaching global marine biodiversity conservation goals with area-based fisheries management: A typology-based evaluation. *Frontiers in Marine Science*, 9: 932283. https://doi.org/10.3389/fmars.2022.932283

House of Representatives of Grenada. 1986. Act No. 15 of 1986 (Grenada Fisheries Act 1986). Saint George's. [Cited 20 April 2025]. https://faolex.fao.org/docs/pdf/grn129300original.pdf

IMO (International Maritime Organization). 1974. *International Convention for the Safety of Life at Sea (SOLAS)*. London. [Cited 20 April 2025]. https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS),-1974.aspx

IPCC (Intergovernmental Panel on Climate Change). 2022. *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, USA. doi:10.1017/9781009325844

ISSF (International Seafood Sustainability Foundation). 2024. RFMO best practices snapshot: FAD management. March 13. McLean, USA. [Cited 20 April 2025]. https://www.iss-foundation.org/about-issf/what-we-publish/issf-documents/rfmo-best-practices-snapshot-2024-fad-management/

Norad (Norwegian Agency for Development Cooperation). 2019. *Fish for Development: Policy document*. Oslo. [Cited 20 April 2025]. https://www.norad.no/contentassets/1a48a9623330485089aaf9a22c108e02/fish-for-development-policy-document.pdf

socialprotection.org. 2024. SocPro4Fish: Advancing social protection in the fisheries sector. In: *socialprotection.org*. Brasília. [Cited 20 April 2025]. https://socialprotection.org/learn/webinars/socpro4fish-advancing-social-protection-fisheries-sector

UN (United Nations). 2024. *Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its fifth session, held in the United Arab Emirates from 30 November to 13 December 2023. Part one: Proceedings.* FCCC/PA/CMA/2023/16. New York, USA. [Cited 20 April 2025]. https://unfccc.int/documents/637072

UNEG (United Nations Evaluation Group). 2020. *UNEG Ethical Guidelines for Evaluation*. New York, USA. [Cited 20 April 2025]. https://www.unevaluation.org/uneg_publications/uneg-ethical-guidelines-evaluation

UNEP (United Nations Environment Programme). 2024. Adaptation Finance Gap Update 2023. In: *Adaptation Gap Report 2023: Underfinanced. Underprepared. Inadequate investment and planning on climate adaptation leaves world exposed*. Nairobi. https://doi.org/10.59117/20.500.11822/43796

WINDREF (Windward Islands Research and Education Foundation). 2024. *Provision of practical climate change adaptation in fisheries interventions in Grenada final report*. Saint George's. Internal document.

Additional resources

Note: The symbol ***** *after a bibliographic item indicates that the work was supported by the project.*

AF-TERG (Technical Evaluation Reference Group of the Adaptation Fund). 2024. *Toolkit for the ex post evaluation of adaptation interventions*. Version 1.3. August. Washington, DC. [Cited 20 April 2025]. https://www.adaptation-fund.org/document/toolkit-for-the-ex-post-evaluation-of-adaptation-interventions/

Bondad-Reantaso M.G., MacKinnon B. and Karunasagar I., *et al*. 2023. Review of alternatives to antibiotic use in aquaculture. *Reviews in Aquaculture*, 15(4): 1421–1451. https://doi.org/10.1111/raq.12786

Bondad-Reantaso, M.G., MacKinnon, B., Bin, H., McLaws, M. and Jie, H. 2024. The Progressive Management Pathway for Improving Aquaculture Biosecurity (PMP/AB): Relevance and Potential Application to the Shrimp Aquaculture Sector. In V. Alday-Sanz, ed. *The Shrimp Book II*, pp. 446–462. CABI, Wallingford, UK and Boston, USA *****

COMENALPAC (Confederation of the National Artisanal Fishing Table of Colombia). 2022. *Final Technical Report. Letter of Agreement No. 364791. Socioeconomic and productive characterization of associations of fishermen and fishery workers in Tumaco, fishermen and fishery workers with marketing capabilities from associativity, coordinate activities for the preparation, implementation and evaluation of marketing competencies*. Omar Guarin, Adriana R. Cadena. [internal document]

Cottier-Cook, E.J., Cabarubias, J.P., Brakel, J. *et al.* 2022. A new Progressive Management Pathway for improving seaweed biosecurity. *Nature Communications*, 13(7401). https://doi.org/10.1038/s41467-022-34783-8 *****

Dong, H.T., Chaijarasphong, T., Barnes, A.C. *et al.* 2023. From the basics to emerging diagnostic technologies: What is on the horizon for tilapia disease diagnostics? *Reviews in Aquaculture*, 15(S1). *Supplement: Tilapia health: quo vadis?* Guest Editors: D. Bartley, M. Philips, K. Fitzsimmons, R. Arthur and M.G. Bondad-Reantaso. https://doi.org/10.1111/raq.12734 *****

Escobar-Toledo, F., Rubio-Lancheros, D., Barrero, A., Moreno, J. and Rueda, M. 2023. Evaluation of fish loss and identification of multidimensional solutions. Final Technical Report. Letter of Agreement No. 357151. FAO and INVEMAR (Marine and Coastal Research Institute "José Benito Vives de Andréis"), Santa Marta, Colombia.

FAO. 2013. *Good practice policies to eliminate gender inequalities in fish value chains*. Rome. [Cited 20 April 2025]. https://www.fao.org/4/i3553e/i3553e.pdf

FAO. 2015. *OED Evaluation Manual*. Rome. [Cited 20 April 2025]. https://openknowledge.fao.org/server/api/core/bitstreams/01a287bd-f1b9-4902-8b3a-a2249fd10835/content

FAO. 2019a. *Committee on Fisheries: Report of the Tenth Session of the Sub-Committee on Aquaculture. Trondheim, Norway, 23–27 August 2019*. FIAA/R1287 (Tri). Rome. [Cited 20 April 2025]. https://openknowledge.fao.org/server/api/core/bitstreams/d6f3ef08-0b0c-4caa-b0ad-b77d4da2c945/content

FAO. 2019b. Pilot project towards a harmonized legal framework for the conservation of Mediterranean living marine resources and ecosystems | GFCM-Lex. In: *fao.org*. Rome. [Cited 20 April 2025]. https://www.fao.org/gfcm/activities/compliance/decisions/gfcm-lex-project/en/?utm_source=chatgpt.com

FAO. 2019c. *Social protection for small-scale fisheries in the Mediterranean region - Policy Brief*. Rome. [Cited 20 April 2025]. https://socialprotection.org/discover/publications/social-protection-small-scale-fisheries-mediterranean-region-policy-brief

FAO. 2021b. *Economic inclusion and social protection to reduce poverty: Fisheries and aquaculture*. Rome. https://doi.org/10.4060/cb2639en

FAO. 2022c. *Strengthening coherence between social protection and fisheries policies – Framework for analysis and action*. FAO Fisheries and Aquaculture Technical Paper No. 671/1. Rome. https://doi.org/10.4060/cc2411en

FAO. 2022d. *Strengthening coherence between social protection and fisheries policies – Diagnostic tool*. FAO Fisheries and Aquaculture Technical Paper No. 671/2. Rome. https://doi.org/10.4060/cc2425en

FAO. 2023b. *FAN FAO Aquaculture News*, 67, June. Rome. [Cited 20 April 2025]. https://openknowledge.fao.org/server/api/core/bitstreams/173ae9b5-f975-454a-a10a-776c221381b4/content#page%3D14

FAO. 2023c. Celebrating four years of the Food Loss and Waste in Fish Value Chains. In: *fao.org*. Rome. [Cited 20 April 2025]. https://www.fao.org/flw-in-fish-value-chains/resources/articles/Celebrating-Four-Years

FAO. 2023d. *Evaluation of the impact of unemployment insurance on the socioeconomic conditions of small-scale fishers*. Rome, FAO and New York, USA, UNDP. [Cited 20 April 2025]. https://socialprotection.org/discover/publications/evaluation-impact-unemployment-insurance-socioeconomic-conditions-small-scale

FAO. 2024g. *Scaling up climate resilient food and nutrition security in Grenada*. Rome. FAO internal document.

FAO. 2024h. Multidimensional solutions strategy for the reduction of food loss and waste in the dagaa fisheries in the United Republic of Tanzania mainland. Rome. [Cited 20 April 2025]. https://openknowledge.fao.org/handle/20.500.14283/cd1668en

FAO. 2024i. Multidimensional solutions strategy for the reduction of food loss and waste in the multiday fisheries subsector in Sri Lanka. Rome. [Cited 20 April 2025]. https://openknowledge.fao.org/items/5d41a997-afcc-464e-a0a6-cd5adb83cdb3

FAO. 2024j. Multidimensional solutions strategy for the reduction of food loss and waste in the artisanal fisheries subsector in Tumaco, Colombia. Rome. [Cited 20 April 2025]. https://openknowledge.fao.org/items/061567e1-06e2-4e24-aab4-b1ae3c339f0f

FAO. 2024k. Social protection for fisheries and aquaculture (SOCPRO4FISH): Colombia. Rome. [Cited 20 April 2025]. https://socialprotection.org/discover/multimedia/social-protection-fisheries-and-aquaculture-socpro4fish-colombia

FAO. 2024l. Social protection for fisheries and aquaculture (SOCPRO4FISH): Paraguay. Rome. [Cited 20 April 2025]. https://socialprotection.org/discover/multimedia/social-protection-fisheries-and-aquaculture-socpro4fish-paraguay

FAO. 2024m. *Social protection in small-scale fisheries and aquaculture in Latin America and the Caribbean.* Rome. [Cited 20 April 2025]. https://socialprotection.org/discover/publications/social-protection-small-scale-fisheries-and-aquaculture-latin-america-and

FAO. 2024n. *Report of the FAO Workshop on Social Protection for the Fisheries and Aquaculture Sector – Brasília, Brazil, 28 November–1 December 2023*. FAO Fisheries and Aquaculture Report, No. 1452. Rome. https://doi.org/10.4060/cd1707en

FAO elearning Academy. 2023b. Fish loss assessment methods. [Online course]. Rome. https://elearning.fao.org/course/view.php?id=1031

FAO and INVEMAR (Marine and Coastal Research Institute "José Benito Vives de Andréis"). 2022. Value Chain Report - MLDP: Analysis and diagnosis of the installed capacity of the small-scale fishing activity in the Tumaco district. [internal document]

FAO and IPC-IG (International Policy Centre for Inclusive Growth). 2023. Socioeconomic impact evaluation of unemployment insurance for small-scale fishers in Brazil (Seguro-Defeso). Research Report No. 78. Brasília. [Cited 20 April 2025]. https://socialprotection.org/discover/publications/socioeconomic-impact-evaluation-unemployment-insurance-small-scale-fishers

FAO and OIE (World Organisation for Animal Health). 2021. Fish-Vet Dialogue: Exploring collaboration on managing health of aquatic organisms. Virtual conference, 7–9 June 2021. Oslo, Norad.

Garay, A., Rueda, M., López, J., Salazar, A., Guerrero, D., De la Pava, M., Escobar, F. and Bernal, A. 2022. Social protection for fisheries and aquaculture (SocPro4Fish) in Colombia. Final technical report. Letter of Agreement 350137. FAO and INVEMAR (Marine and Coastal Research Institute "José Benito Vives de Andréis"), Santa Marta, Colombia.

Guerrero, D., Escobar F., Roa, L., Moreno, J. López, J., Estupiñán, M., Castillo, L., Ruíz, K, De la Pava, M. Carreño, C. and Rueda, M. 2024. Social protection for fisheries and aquaculture (SocPro4Fish) in Colombia, Final Technical Report PRY-VAR-020-22 ITF. INVEMAR (Marine and Coastal Research Institute "José Benito Vives de Andréis"), Santa Marta, Colombia.

Haenen, O.L.M., Dong, H.T., Hoai, T.D. *et al.* 2023. Bacterial diseases of tilapia, their zoonotic potential, and risk of antimicrobial resistance. *Reviews in Aquaculture*, 15(S1). *Supplement: Tilapia health: quo vadis?* Guest Editors: D. Bartley, M. Philips, K. Fitzsimmons, R. Arthur and M.G. Bondad-Reantaso. https://doi.org/10.1111/raq.12743 *****

INVEMAR and FAO. 2023a. Pesca y Acuicultura a pequeña escala en Colombia: una guía para conocer los programas de protección social en Colombia. INVEMAR. Serie de publicaciones generales N°125 [Small-scale fisheries and aquaculture in Colombia: A guide to social protection programmes in Colombia. INVEMAR. General publications series No. 125]. Santa Marta, Colombia. [Cited 20 April 2025].

https://alfresco.invemar.org.co/share/s/mX5Cx1KBQcCbvirVTp6xMg

INVEMAR and FAO. 2023b. Protección social para la pesca y la acuicultura en Colombia (SOCPRO4FISH) [Social Protection for Fisheries and Aquaculture in Colombia (SOCPRO4FISH)]. Santa Marta, Colombia. [Cited 20 April 2025]. https://alfresco.invemar.org.co/share/s/pBYTi-AaSwGtsGYGJThXpA

IUCN (International Union for Conservation of Nature). 2020. Expert Meeting on OECMs in the Marine Capture Fishery Sector. Amber Himes-Cornell Fisheries Officer, Fisheries and Aquaculture Department, FAO. Nordic Council of Ministers and MAFF. [Cited 20 April 2025]. https://iucn.org/sites/default/files/content/documents/2020/8.pwp_oecm-oecm_in_marine_capture_fishery_sector_fao.pdf

Kruijssen, F., Tedesco, I., Ward, A., Pincus, L., Love, D. and Thorne-Lyman, A.L. 2020. Loss and waste in fish value chains: A review of the evidence from low and middle-income countries. *Global Food Security*, 26: 100434. https://doi.org/10.1016/j.gfs.2020.100434

MacKinnon, B., Debnath, P.P., Bondad-Reantaso, M.G., Fridman, S., Bin, H. and Nekouei O. 2023. Improving tilapia biosecurity through a value chain approach. *Reviews in Aquaculture*, 15(S1). *Supplement: Tilapia health: quo vadis?* Guest Editors: D. Bartley, M. Philips, K. Fitzsimmons, R. Arthur and M.G. Bondad-Reantaso. https://doi.org/10.1111/raq.12776 *****

National University of Colombia. 2022. Fortalecimiento de emprendimientos de productos y subproductos de la pesca artesanal en Tumaco. Código Hermes: 61236 [Strengthening of artisanal fishing products and by-product enterprises in Tumaco. Hermes Code 61236]. Bogotá. [Cited 20 April 2025]. https://tumaco-pacifico.unal.edu.co/?page_id=2210

Shinn, A.P., Avenant-Oldewage, A., Bondad-Reantaso, M.G. *et al.* 2023. A global review of problematic and pathogenic parasites of farmed tilapia. *Reviews in Aquaculture*, 15(S1). *Supplement: Tilapia health: quo vadis?* Guest Editors: D. Bartley, M. Philips, K. Fitzsimmons, R. Arthur and M.G. Bondad-Reantaso. https://doi.org/10.1111/raq.12742 *****

socialprotection.org. 2022. Ep. 18 | Social protection, sustainability and fisheries. [podcast]. In: *socialprotection.org*. Brasília. [Cited 20 April 2025]. https://socialprotection.org/learn/podcasts/ep-18-social-protection-sustainability-and-fisheries

socialprotection.org. 2023a. Expanding social protection coverage for fishers and fish workers in Tunisia. In: *socialprotection.org*. Brasília. [Cited 20 April 2025]. https://socialprotection.org/discover/news/expanding-social-protection-coverage-fishers-and-fish-workers-tunisia

socialprotection.org. 2023b. FAO Support to Strengthen the Fishers' Assistance Programme in Paraguay. Brasília. [Cited 20 April 2025]. https://socialprotection.org/discover/news/fao-support-strengthen-fishers-assistance-programme-paraguay

Subasinghe, R., Alday-Sanz, V., Bondad-Reantaso, M.G., Jie, H., Shinn, A.P. and Sorgeloo, P. 2023. Biosecurity: Reducing the burden of disease. *World Aquaculture Society*, 54(2): 397–426. *Special Issue: Global Conference on Aquaculture Millennium+20: Aquaculture for Food and Sustainable Development - Thematic Reviews* *****

Appendix 1. People interviewed

Component 2

Stakeholder category	Name	Department	Designation
Executing agency	Florence Poulain	FAO Food safety, nutrition and health	Component Lead
Executing agency	Austin Stankus	FAO Food safety, nutrition and health	Fishery Officer
Executing agency	Raymon VanAnrooy	FAO Food safety, nutrition and health	Senior Fishery Officer
Partner institution, Grenada	Trevor Noel	Windward Islands Research and Education Foundation	Deputy Director
Partner institution, Grenada	Roland Baldeo	-	Project Coordinator and National Consultant
Project participant, Grenada	Tylon Joseph	Fisheries association	Director of Fisheries Innovation and Marine Technical Solutions
Project participant, Grenada	Lisa Chetram	St. John and St. Mark, Ministry of Fisheries	Fishery Officer
Project coordination, Lao People's Democratic Republic	Nick Innes Taylor	-	Project coordinator and International Consultant
Project coordination, Lao People's Democratic Republic	Chanthaboun Sirimanotham	-	Project Coordinator and National Consultant
Partner institution/government, Lao People's Democratic Republic	Daovieng Yaibouathong	Technical Division of Fisheries, Department of Livestock and Fisheries	
FAO Philippines	Nikki de Vera Carlie Labaria	-	Project Coordinator and Former Coordinator, respectively
Partner institution/government, Philippines	Jennylyn Vargas and Eser, on behalf of Maria Abegail Albalabejo	Bureau of Fisheries and Aquatic Resources, Department of Agriculture	Chief of the Fisheries Planning and Economics Division
Partner institution/ government, South Africa	Belemane Semoli	Department of Forestry, Fisheries and the Environment	Project Focal Point
Project coordination, South Africa	Mafaniso Hara	University of the Western Cape Institute for Poverty, Land and Agrarian Studies	Project Coordinator and National Consultant
FAO Mozambique	Riccardo TorresColl	-	Fishery Officer
FAO Mozambique	Isilda Mabasso	Fisheries	National Project Specialist
Partner institution/government, Mozambique	Arone Salenca	Institute for the Development of Fisheries and Aquaculture	Delegate
Partner institution/government, Mozambique	Sergio Jose	Mozambique Oceanographic Institute	Delegate

Stakeholder category	Name	Department	Designation
Partner institution/government, Mozambique	Acacio Mussa	National Administration of Fisheries	Delegate
Independent expert, Mozambique	Helena Motta	-	Fishery Expert
FAO Sri Lanka	Kehelella Premalal	-	Project Coordinator
FAO Sri Lanka	Chandrani Pushpalatha	-	National Coordinator
Partner institution/government, Sri Lanka	Dhammika Ranathunga	Ministry of Fisheries and Aquatic Resources	Additional Secretary, Technical
Partner institution/government, Sri Lanka	Buddika Abeyrathna	Ministry of Fisheries and Aquatic Resources	Deputy Director
Partner institution/government, Sri Lanka	Susantha Kahawatta	Department of Fisheries and Aquatic Resources	Director General
Partner, Sri Lanka	Nishantha, Upul	Cey-Nor Sri Lanka Boat Manufacturing Company	Engineer and Marketing Manager, respectively
Partner/private sector, Sri Lanka	Eranga Anura Sameera	Danusha Marine	Naval Architect Production Manager Boat Technician
Fisher	Sanka	-	One-day fibre-reinforced plastic vessel owner

Component 3

Stakeholder category	Name	Department	Designation
Executing agency	Melba Reantaso	FAO Food safety, nutrition and health	Component Lead
Executing agency	Bin Hao	FAO Food safety, nutrition and health	Project Team Member
Executing agency	Andrea Dallocco	FAO Food safety, nutrition and health	Project Team Member
Executing agency	Faivre Florence	FAO Food safety, nutrition and health	Project Team Member
Executing agency	Alessia DiGrigoli	FAO Food safety, nutrition and health	Project Team Member
Executing agency	Paulo Padre	FAO Food safety, nutrition and health	Project Team Member
Partner institute, International Center for Advanced Mediterranean Agronomic Studies, Bari	Orazio Albano	-	Course Tutor since 2021
Partner institute, Centre for Aquatic Animal Disease Diagnosis and Research	Samanthika	-	Chair, Technical Working Group on Biosecurity

Stakeholder category	Name	Department	Designation
Beneficiary country, India	Pravata Pradhan	ICAR-National Bureau of Fish Genetic Resources	Principal Scientist
Beneficiary country, India	Neeraj Sood	ICAR-National Bureau of Fish Genetic Resources	Principal Scientist
Direct beneficiary, Saudi Arabia	Victoria Alday-Sanz	National Aquaculture Group	Director of Biosecurity and Breeding Programmes
Direct beneficiary, Saudi Arabia	Musthafa Mohammad Athikavil	National Aquaculture Group	Head of the Shrimp Biosecurity and Challenge Facility Department
Partner institution, Norwegian Veterinary Institute	Edgar Brun	Aquatic Animal Health	Director
Direct beneficiary, Madagascar	Marc Le Groumellec	Aqualma and Unima Group, Antanarivo	Director of Domestication and Genetics, Pathology and Biosecurity

Component 4

Stakeholder category	Name	Department	Designation/role
Executing agency	Daniela Kalikoski	FAO Fisheries and Aquaculture Division	Component Lead
Executing agency	Daniella Salazar-Herrera	FAO Equitable livelihoods	Project Team Member
Executing agency	Heysel Calderon	FAO Colombia	Project Consultant, SocPro4Fish-related matters in Colombia
Executing agency	Alcira Quintana	FAO Paraguay	Project Consultant, SocPro4Fish-related matters in Paraguay
Executing agency	Manahel Akkari	FAO Tunisia/Subregional Office for North Africa	Project Consultant, SocPro4Fish-related matters in Tunisia
Executing agency	Alison McNaughton	FAO Global	Project Consultant, SocPro4Fish database-related matters
Executing agency	Ke Song	FAO Global	Project Consultant, SocPro4Fish decent work and database-related matters in China
Executing agency	Ahmed Similan	GFCM	For matters related to the GFCM-Lex
Executing agency	Nicola Ferri	GFCM	For matters related to the GFCM-Lex
Executing agency	Anna Carlson	GFCM	For matters related to social protection and small-scale fisheries in the GFCM
Direct beneficiary, Colombia	Mario Rueda	Institute for Marine and Coastal Research	For project implementation in Colombia

Stakeholder category	Name	Department	Designation/role
Direct beneficiary, Tunisia	Sondes El Moncer	Centre for Economic and Social Studies and Research	For project implementation in Tunisia
Direct beneficiary, Tunisia	Yessine Ben Arfa	Ministry of Agriculture, Water Resources and Fisheries	For project implementation in Tunisia
Direct beneficiary, Paraguay	Viviana Rios	National University of Asunción/FAO	For project implementation in Paraguay
Partner institution	Yuko Okamura	World Bank	Partnership and collaboration
Direct beneficiary, SIDS	Sebastian Matthew	International Collective in Support of Fishworkers	Partnership with civil society and the database of social protection programmes in SIDS

Component 5

Stakeholder category	Name	Department	Designation
Executing agency	Omar Riego Penarubia	FAO Value chain development	Component Project Manager
Executing agency	Nianjun Shen	FAO Value chain development	Component Lead
Executing agency	Heysel Calderón	FAO Colombia	Project Team Member
External stakeholder	Aditya Parmar	WorldFish	Project Lead, AABS
External stakeholder	Abigail Frankfort	World Resources Institute	Project Partner, Seafood Loss and Waste
Executing agency	Fabian D. Escobar	Institute for Marine and Coastal Research	Working Group Coordinator, Colombia
Participant, Colombia	Adriana Cadena	Confederation of the National Artisanal Fishing Table of Colombia	Working Group Member
Participant, Colombia	Jhon J. Selvaraj, María Alejandra Cifuentes	National University of Colombia, Tumaco	Working Group Coordinator
Participant, Colombia	Martha Lucia de la Pava	Colombian Ocean Commission	Working Group Member
Participant, United Republic of Tanzania	Yahya Mgawe	Fisheries and Post-harvest Consultant	Working Group Member
Participant, United Republic of Tanzania	Alistidia Mwijage	Tanzania Fisheries Research Institute	Working Group Member
Participant, United Republic of Tanzania	Ivon Maha	Ilemela Municipal Council, Lake Victoria	Working Group Member
Participant, United Republic of Tanzania	Jovice Mkuchu	Ministry of Livestock and Fisheries	Working Group Member
Participant, United Republic of Tanzania	Meck Cody	Ministry of Livestock and Fisheries	Working Group Member
Executing agency	Dhammika Ranathunga	Ministry of Fisheries and Aquatic Resources	Project Team Member, Sri Lanka
Participant, Sri Lanka	Susantha Kahawaththa	Department of Fisheries and Aquatic Resources	Working Group Member

Stakeholder category	Name	Department	Designation
Participant, Sri Lanka	Sinesha Karunarathna	Department of Fisheries and Aquatic Resources	Working Group Member
Participant, Sri Lanka	Sujeewa Ariyawansa	National Aquatic Resources Research and Development Agency	Working Group Member
Participant, Sri Lanka	Madara Perera	National Aquaculture Development Authority	Working Group Member
Participant, Sri Lanka	J M Asoka	National Aquaculture Development Authority	Working Group Member

Component 6

Stakeholder category	Name	Department	Designation
Executing agency	Amber Himes-Cornell	FAO National planning and development support	Component Lead
Executing agency	Juan Lechunga-Sanchez	FAO Assessment and management	Project Team Member
Participant, Argentina	Gabriela S. Navarro	Secretariat of Agriculture, Livestock and Fisheries, Ministry of Economy	Head of the Fisheries Planning Division, Fisheries Resources Undersecretariat

Appendix 2. The project's results chain

Results chain	Indicators	Assumptions
Outcome 1 Developing states' implementation of the PSMA and complementary instruments improved	# of countries scoring 3: medium or above on the questionnaire to measure Sustainable Development Goal 4.6.1	Political, institutional and financial commitment of recipient countries to combat illegal, unreported and unregulated fishing through port state measures
Output 1.1 National policy and legislative frameworks strengthened	# of countries equipped with a national strategy and action plan to review and align national policies, legislation, monitoring, control and surveillance systems, and operations to the PSMA provisions	Concerned institutions/staff proactively support strategy development, policy and legislative revisions
	# of countries that have developed and adopted policies consistent with the PSMA provisions # of countries that have developed and adopted laws consistent with the PSMA provisions	
Output 1.2 National means and competencies to carry out monitoring, control and surveillance operations strengthened	# of countries scoring 3: medium or above on the relevant sections of the questionnaire to measure Sustainable Development Goal 14.6.1*	Availability of efficient and motivated institutions/public officials
Output 1.3 Global and regional coordination and cooperation for the implementation of the PSMA improved	% participation of developing states in relevant PSMA meetings***	Meeting reports
Output 1.4 Management, administration and implementation support for Outcome 1	% of physical and financial progress against approved plans and budgets	Timely availability of financial and human resources
Outcome 2: Selected countries adapt to climate change effectively and secure sustainable socioeconomic development	Target groups more resilient to climate change	Political stability
Output 2.1 Selected countries assess and consider their adaptation options and planning	1. # of countries for which adaptation roadmaps have been developed in a participatory manner 2. Countries in which working groups are operational with key stakeholders represented (participation disaggregated by gender)	Ability of designated authorities to fulfil climate change mandate/mission
Output 2.2 Selected countries develop capacity to implement CCA actions	Trainings implemented as per roadmaps (participation disaggregated by gender) Training workshops held (participation disaggregated by gender)	Commitment by key stakeholders
Output 2.3 Selected countries strengthen their capacity to scale up adaptation actions (institutionalizing in policies, regulations, management, etc. to strengthen enabling environments),	# of recommendations replicated and/or scaled up	Sufficient capacity of key stakeholders to develop recommendations of key importance to the sector

Results chain	Indicators	Assumptions
in line with the Paris Agreement and natioanl action plans		
Output 2.4 Management, administration and implementation support for Outcome 2	% of physical and financial progress against approved plans and budgets	Timely availability of financial and human resources
Outcome 3 Competent authorities and aquaculture stakeholders enhance capacities to implement the PMP/AB	# of PMP/AB consultation/meetings organized and implemented, and PMP/AB guidelines, checklists and requirements for initial implementation # of countries that rolled out/initial application of PMP/AB # of capacity development activities on various aspects of biosecurity governance # of countries with increased awareness on antimicrobial resistance and/or national action plans of antimicrobial resistance # of country nationals participating in scientific fora	Participating countries trained and supported in the development and implementation of the biosecurity governance systems and other relevant mechanisms State and non-state actors actively engaged in the process Capacity development provided to an equal number of women and men
Output 3.1 Capacities on risk analysis and understanding of disease burden enhanced	# of generic guidelines relevant to PMP/AB risk analysis	Participating countries trained and supported in the development and implementation of the biosecurity governance systems and other relevant mechanisms State and non-state actors actively engaged in the process Capacity development provided to an equal number of women and men
	# of training courses on risk assessments (initial step of PMP/AB) implemented (participation disaggregated by gender)	
	Finalized methodology for socioeconomic impact assessment of aquatic diseases	Participating countries trained and supported in the development and implementation of the biosecurity governance systems and other relevant mechanisms State and non-state actors actively engaged in the process Capacity development provided to an equal number of women and men
	# of countries that pilot tested the methodology	
Output 3.2 Implementation of biosecurity action plans (at farm and national levels) strengthened	# of countries that rolled out/initial application of PMP/AB	Participating countries trained and supported in the development and implementation of the biosecurity governance systems and other relevant mechanisms State and non-state actors actively engaged in the process Capacity development provided to an equal number of women and men
	# of generic guidelines relevant to PMP/AB pilot testing based on different commodities and different country scenarios	

Results chain	Indicators	Assumptions
Output 3.3 Preparedness, contingency planning and response to disease emergencies improved	# of specific disease strategy manuals developed # of generic guidelines relevant to emergency response and preparedness # of countries that rolled out/initial application of emergency response and preparedness guidelines	Participating countries trained and supported in the development and implementation of the biosecurity governance systems and other relevant mechanisms State and non-state actors actively engaged in the process Capacity development provided to an equal number of women and men
Output 3.4 Management, administration and implementation support for Outcome 3	% of physical and financial progress against approved plans and budgets	Timely availability of financial and human resources
Outcome 4 Institutional capacities increased for making available, implementing and monitoring social protection programmes, including shock-responsive and gender-sensitive social protection for fishers and fish workers	Percentage of male and female fishers, fish farmers and fish workers covered by social protection programmes in the project countries	Political, institutional and financial commitment of project countries to implement social protection programmes Line ministries involved in social protection continue to show commitment in improving coordination and harmonization of policies, programmes and strategies
Output 4.1 Evidence-based policy support provided through assessing the enabling frameworks between social protection and fisheries management and the vulnerability, hazards and impacts of sample covariate shocks at the national and district level	# of legislative, policy and institutional studies and assessment of gender-sensitive social protection for fishers, fish workers and fish farmers # of vulnerability and hazard analysis of small-scale fishers, fish workers and fish farmers differentiated by gender # of evaluations of the socioeconomic impact of the COVID-19 pandemic on small-scale fisheries and social protection responses through gender lenses and gaps # of gender-sensitive feasibility analysis of fish and fish products within public procurement processes # of global assessments of social protection schemes in the fisheries sector and compliance with the social protection mechanisms stipulated under ILO Convention 188 and ILO Recommendation 202 # of high-level dialogues among the ministries of fisheries, social protection, environment, climate change and/or other relevant ministries	State and non-state actors actively engaged in the process Political stability Concerned institutions/staff proactively support strategy development, policy and legislative dialogues
Output 4.2 Technical tools developed to enhance fishers' capacity to respond to covariate shocks caused by climate, health, socioeconomic and environmental	# of country-level road maps to design and implement social protection mechanisms in coherence with fisheries policies and programmes	Concerned institutions/staff proactively support strategy development, policy and legislative revisions

Results chain	Indicators	Assumptions
disasters affecting fishing livelihoods	# of meetings with governments to support the expansion of national social protection systems	
Output 4.3 Strengthened informal social protection providers and mechanisms to increase resilience of fishing households against covariate shocks	# of scale-up strategies for revolving funds # of capacity development trainings for community organizations to implement revolving fund schemes	State and non-state actors actively engaged in the process
Output 4.4 South–South and triangular cooperation and dissemination of results to share lessons learned on scaling up of social protection programmes to respond to covariate shocks in the fisheries sector	# of South–South and triangular cooperation workshops # of communications strategies # of project webpages # of project newsletters # of best practices and lessons learned publications	State and non-state actors actively engaged in the process
Output 4.5 Management, administration and implementation support for Outcome 4	% of physical and financial progress against approved plans and budgets	Timely availability of financial and human resources
Outcome 5 Enhance the sustainable utilization of fisheries and aquaculture products, and its contribution to livelihoods and food security	80% of project countries have agreed to adopt a multidimensional solutions strategy to reduce FLW in fish value chains	An appropriate enabling environment exists to allow the continued application and adoption of outputs No major shifts in relevant government policy Target institutions continue to operate
Output 5.1 Capacity of fish value chain stakeholders in FLW solutions enhanced	At least 80% of project countries show improved knowledge and skills in FLW assessment At least 80% of project countries show improved knowledge and skills in FLW solutions	State and non-state actors actively engaged in the process
Output 5.2 Improved application of the multidimensional solutions strategy to reduce FLW	A multidimensional solutions strategy for FLW applied in 100% of target value chains with evidence of FLW reduction and benefits to value chain actors	State and non-state actors actively engaged in the process
Output 5.3 Strengthened evidence-based FLW knowledge products developed and disseminated	New policy guidance on FLW planning and solutions endorsed by key development institutions	Concerned institutions/staff proactively support the development and dissemination of policy guidance
Output 5.4 Management, administration and implementation support for Outcome 5	% of physical and financial progress against approved plans and budgets	Timely availability of financial and human resources
Outcome 6 Awareness and expertise increased in national and regional fisheries authorities (and stakeholders communities) on assessing, implementing and reporting OECM so that qualifying area-based fisheries management can be internationally recognized as	Countries receive assistance in applying OECM criteria to area-based fisheries management measures	State and non-state actors actively engaged in the process Participating countries commit to undertaking full assessments of potential OECM

Results chain	Indicators	Assumptions
a valuable pathway to biodiversity conservation		
Output 6.1 Support FAO members, regional fisheries bodies and parties to the CBD in understanding and consistently applying the CBD criteria for designating OECM from existing and new area-based fisheries management tools	# of OECM scoping exercises # of countries supported in OECM identification # of OECM technical workshops # of communication pieces	Availability of efficient and motivated institutions/public officials Commitment by key stakeholders
Output 6.2 Prepare guidance that enhances consistency in the identification, establishment, management and reporting of OECM in the fisheries sectors	# of guidance documents relevant to fishery identification of OECM # of best practices and lessons learned published # of experts and stakeholders that provide input to guidance	State and non-state actors actively engaged in the process
Output 6.3 Management, administration and implementation support for Outcome 6	% of physical and financial progress against approved plans and budgets	Timely availability of financial and human resources

Notes:
*The measure is based on responses by recipient countries on the adherence and implementation of international instruments (or elements thereof) aimed at combatting illegal, unreported and unregulated fishing. It provides an indicator value between 0 and 1. Although the exact value might be relevant to determine short-term progress, the results will be grouped as follows: >0 –< 0.2: Band 1: Very low; 0.2 –< 0.4: Band 2: Low; 0.4 –< 0.6: Band 3: Medium; 0.6 –< 0.8: Band 4: High; 0.8 – 1.0: Band 5: Very high.
** And related international instruments and regional mechanisms to combat illegal, unreported and unregulated fishing
*** Meetings supported by the project

Annexes

Annex 1. Project's theory of change (per component)

http://www.fao.org/3/cd5974en/GCP_GLO_352_NOR_Annex_1.pdf

Annex 2. Component 2 detailed matrix of activities

http://www.fao.org/3/cd5974en/GCP_GLO_352_NOR_Annex_2.pdf

Annex 3. Component 6 stakeholder questionnaire

http://www.fao.org/3/cd5974en/GCP_GLO_352_NOR_Annex_3.pdf

Annex 4. Component 4 knowledge products

http://www.fao.org/3/cd5974en/GCP_GLO_352_NOR_Annex_4.pdf

Office of Evaluation
evaluation@fao.org
www.fao.org/evaluation

Food and Agriculture Organization of the United Nations
Rome, Italy

CD5974EN/1/07.25