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DUGONG MOU

FOURTH MEETING OF SIGNATORY STATES TO THE MEMORANDUM OF UNDERSTANDING ON THE CONSERVATION AND MANAGEMENT OF DUGONGS (*DUGONG DUGON*) AND THEIR HABITATS THROUGHOUT THEIR RANGE

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GEF-5 DUGONG AND SEAGRASS CONSERVATION PROJECT

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Summary: This document summarizes the outcomes of the GEF-5 funded project 'Enhancing the Conservation Effectiveness of Seagrass Ecosystems Supporting Globally Significant Populations of Dugongs across the Indian and Pacific Ocean Basins'.

The Meeting is invited to note those results and recommended next steps.

Contents

Background

1. The GEF-5 funded project, 'Enhancing the Conservation Effectiveness of Seagrass Ecosystems Supporting Globally Significant Populations of Dugongs across the Indian and Pacific Ocean Basins', was the first global movement for the conservation of dugongs and their seagrass habitats in eight countries from Africa to Asia and into the Pacific.

2. The Project was executed by Mohamed bin Zayed Species Conservation Fund (MbZ Fund), with implementation support by the United Nations Environment Programme (UNEP) and technical support from the Secretariat of the Memorandum of Understanding on the Conservation and Management of Dugongs and their Habitats throughout their Range of the Convention on Migratory Species.

3. Comprising 43 national initiatives across Indonesia, Madagascar, Malaysia, Mozambique, the Solomon Islands, Sri Lanka, Timor-Leste, and Vanuatu, the Project engaged 57 partners, including governmental and non-governmental entities, universities, and private firms.

4. Its overarching aim was to contribute to the broader conservation and development objective of enhancing the conservation status of dugongs and their seagrass habitats across the Indian and Pacific Ocean basins. Originally scheduled for implementation between 2015 - 2018, the project's timeline was extended into the first quarter of 2019 to ensure the fulfilment of all activities.

5. The specific objective of the Project was to bolster the effectiveness of conservation efforts for dugongs and their associated seagrass ecosystems in the Indian and Pacific Ocean basins. This entailed targeted actions in the eight participating countries, along with broader regional and global endeavours funded by the GEF and co-financing partners. Key strategies included: fostering community-based stewardship at crucial dugong sites; promoting sustainable fisheries practices through innovative incentives and tools; enhancing the availability of essential knowledge for conservation action; and integrating dugong and seagrass conservation priorities into national and regional policies and planning frameworks.

6. The Project marked the first concerted effort across multiple countries to conserve dugongs and their seagrass habitats. Moreover, it aimed to disseminate tools and lessons learned among project stakeholders and globally through information sharing platforms like the Clearing House Mechanism and the Dugong, Seagrass, and Coastal Communities Initiative (DSCCI) under the Dugong MOU Secretariat.

7. The full Terminal Evaluation of the UNEP/GEF project, 'Enhancing the Conservation Effectiveness of Seagrass Ecosystems Supporting Globally Significant Populations of Dugongs Across the Indian and Pacific Ocean Basins' is available in document UNEP/CMS/Dugong/MOS4/Inf.4.

Project conceptual model

8. The Project aimed to achieve its objective by tackling the underlying causes of dugong and seagrass habitat loss, along with the barriers hindering their conservation. According to the Project's logical framework, the primary threats to dugongs were primarily linked to fishing practices and habitat degradation, with seagrass habitats facing destruction and degradation as a result. The Project concept identified the following root causes contributing to these threats:

    (a) Poverty and rapid human population growth;
    (b) Conflicting national priorities;
    (c) Negative attitudes of local communities towards the environment; and
    (d) Inadequate governance and limited community involvement in natural resource management.

9. Furthermore, several barriers were identified as obstructing successful conservation or development efforts, including:

    (a) Weak enforcement of laws;
    (b) Limited alternatives for fishing communities in developing nations;
    (c) Insufficient institutional capacity and ineffective policy frameworks;
    (d) Inadequate local and national development planning; and
    (e) Lack of information and awareness.

10. The Project was designed to enhance the protection of dugongs and their habitats while improving decision-making and legal enforcement. This was to be accomplished through a dual approach: i) community-centred strategies, and ii) the application of standardized scientific methodologies and tools for gathering essential information on dugongs and their habitats to inform protection needs and policy enhancements. The overarching themes of awareness raising, capacity building, and cross-collaboration were integrated into all intervention measures. The conceptual model of the Project included four components, as shown in Figure 1 (Annex 1).

Level of attainment of Project objective

11. The achievement of the Project objective was tracked against three indicators: i) the total area of seagrass under improved management; ii) the Management Effectiveness Tracking Tool (METT) scores; and iii) the reduction in the use of 'bad' fishing gear. Table 1 provides a summary of the degree of achievement of the Project Objective.

Table 1. Achievement of the Project objective

Indicator	Baseline level	End-of-project target	End-of-Project result
Total area of seagrass (key areas for dugongs) under improved conservation management	Total seagrass area in baseline METT at PPG: 524,368 ha (eight sites: ID, LK, MG, MY, MZ)	1,000,000 ha of seagrass under improved conservation management	Over 4,364,306 ha of marine territories within 65 regional/ island sites covered through research, incentives, community-based management/monitoring
METT scores in targeted protected areas (MPAs, LMMAs, others) in national programmes	11 existing, 16 proposed new/ extended MPAs/ LMMAs (eight countries); METT scores available for eight targeted MPAs/ LMMAs (five countries)	- 20% increase of METT score - 16+ new or extended MPAs/ LMMAs approved and gazetted - Funds raised for MPAs/ LMMAs in at least 4 countries	- METT score increased by 85% - 40 new regional sites covered by seagrass and dugong work (research, incentives, community-based monitoring & management) - Funds for two countries secured (MG&VU) and a grand proposal by the CMS Dugong MoU Secretariat covering 3 project countries and worth of UD 5.5. million approved
Use of gill nets (beach seines), fixed fish traps and other damaging methods) by fishermen (which result in incidental dugong mortality) reduced	Dugong Catch/Incidental Catch surveys conducted in six out of eight countries during PPG Additional surveys, analyses to be carried out and baselines derived for all countries and targeted sites during Inception	- Zero dugong mortality due to bad fishing practices in project sites of incentives (at least 16 sites) – - reduction of 50% of "bad" fishing gear - 0 dugong mortality in incentives sites - 20% increase of income of participating local communities - 20% female participants	- Dugong sightings re-confirmed in four countries (dugong occurrence was present from the start of the Project) - CMS Dugong Catch/ Incidental Catch survey adapted and used in eight countries - Studies on threats to dugongs and seagrass carried out in 20 sites - Communities in seven of the Project countries provided with incentives/ involved in management/ monitoring in exchange of ceasing bad fishing practices - Dugongs hunting, entanglement still occurred. - Female participation in management, monitoring and incentives monitored and captured – in some cases reaching 100%

Lessons learned and best practices

Implementation arrangements

12. The implementation structure of the global Project, which included a pool of technical advisors and National Facilitating Committees led by National Facilitators, is a good practice that should be promoted to other initiatives and projects.

13. Access to technical advisors with requisite expertise significantly streamlines research efforts and other project activities, saving time and resources.

14. The role of National Facilitators was pivotal for maintaining national coordination and supporting progress tracking at the global Project level. It is recommended that National Facilitators be appointed within government institutions, either through a competitive selection process facilitated by the Executing Agency or by partnering government organizations, providing documents substantiating the experience of the appointed National Facilitator.

15. However, the implementation structure of the Project was notably complex, involving 57 partners, including 39 implementers across eight Project countries. This complexity posed challenges in monitoring and coordination, particularly considering the diverse financial and administrative systems across the countries involved. Partners varied in their preparedness for the Project. For future GEF-funded projects, it's imperative to realistically assess the administrative burden and feasibility of coordinating geographically dispersed initiatives. Planning should include a longer implementation timeframe and adequate funding to support ongoing internal and independent monitoring and evaluation. Alternatively, project teams should consider limiting the number of partnering organizations per country or collaborating with up to two key partners per country to ensure manageability.

Research

16. This Project demonstrated that following up on technical advice is as equally important as having the right experts to give you the advice. Future projects including a research component can ensure the timely follow up by their implementing partners by including this as a requirement in their funding agreements as well as an activity of their proposals and work plans.

Monitoring and evaluation cost

17. The budget allocated for monitoring and evaluation within this Project proved insufficient in comparison to actual expenses, necessitating adjustments, such as reallocating some additional costs to the budgets of national projects. To avoid such adjustments in future projects with extensive and varied geographic scopes, it is advisable to secure adequate budgets based on recent actual costs for monitoring and evaluation. Alternatively, integrating monitoring and evaluation budgets into the initial budget for national projects at the outset of the Project can streamline financial planning and execution.

Administration

18. The administration of this Project was complex due to its scale, the large number of implementing partners, and varying internal procedures and organizational cultures. To ensure fair funding distribution, a standardized agreement was introduced by the Project Coordination Team (PCT). However, revisions were needed, especially for larger organizations, regarding deadlines, audits, and communications. In cases where certain organizations could not receive funding directly, trusted non-governmental organizations were engaged to facilitate funding for government institutions in two countries.

19. Reporting templates, calendars, and mini-training sessions via Skype were implemented. A Dropbox account was used for document sharing, with each country having its own folder structure.

20. Utilizing a web-platform as a project repository proved effective and replicable. These measures, coupled with flexibility and ongoing support, enabled timely compilation of Project results and feedback on Partner performance.

Financing

21. The PCT disbursed 90% of the GEF funds allocated for national projects in advance installments, with the remaining 10% reimbursed upon final report submission and documentation hand-over. Quarterly expenditure reporting was implemented to track financial progress and advance installments were released based on Partner's financial and technical progress and cash requirements.

22. Several national projects were overfunded, despite regular reporting and liquidity analysis. Information on unspent funds was only provided in final reports, limiting redirection of resources to other needy projects. Incorporating financial progress discussions in National Facilitating Committee (NFC) meetings, with appropriate expertise, could have helped.

23. Some Partners lacked capacity to manage the funds they have applied for. To mitigate risks, smaller, more frequent fund disbursements tied to completed assignments were suggested, along with close monitoring and frequent coordination on Project implementation.

24. The Project required significant financial backing from the Executing Agency (MbZ Fund), to ensure continuity. Without this support, the Project would have faced substantial delays.

Recommendations for next steps

25. The experience gained from the Project implementation and the discussions at the Project closing workshop, held in February 2019 in Bali, Indonesia, yielded key recommendations for the continuation of dugong and seagrass conservation efforts.

Global Project recommendations

Micro-financing

26. Future conservation efforts should prioritize ensuring funding directly reaches members of society who have immediate interaction with seagrasses and dugongs, fostering sustainability and impact. The Project highlighted that providing micro-financing to local communities for altering practices or developing alternative livelihoods had a more catalytic effect compared to subsidizing communities over a finite project period. Micro-loans instilled a sense of ownership and responsibility.

27. The Project underscored the need for swift and substantial responses to the impacts of overfishing and harmful fishing practices, particularly in areas experiencing population growth.

28. Piloting small, community-based incentives is crucial for learning valuable lessons. While the Project has laid the groundwork for scaling-up and replicating these pilots, securing funding is imperative.

29. Implementing micro-loans for impoverished communities could involve collaborating with micro-

financing companies that offer such services and insurances. Alternatively, integrating the development of micro-financing and community-based funds into the objectives and work plans of future projects is viable.

Capacity building

30. The Project revealed a significant gap in understanding between conservationists and private businesses. Future projects should allocate resources to enhance the capacities of both groups in a tailored manner.

31. The Dugong MoU Secretariat should consider enlarging the Dugong Technical Group (DTG) by including more environmental economists. These experts can facilitate capacity building for both conservationists and businesses.

32. It is necessary to prioritize capacity building for conservationists in business planning for future social and economic incentives for communities. Emphasize integrating dugongs and seagrasses into economic models to enhance knowledge and provide basic business plan templates. If partnering organizations lack staff capacity, collaboration with relevant academic institutions is recommended.

33. Also, it is key to ensure that capacity-building efforts for businesses align with the conservation effort's scope and objectives. Relevant businesses include tourism, seafood processors and distributors, navigation services, and other sectors pertinent to dugong and seagrass conservation. Conduct surveys of local product supply chains to identify promising entry points for conservation efforts.

34. To achieve the above, it will be essential to provide theoretical and practical training on the impact of business operations on dugongs and seagrasses. Facilitate team-building activities for relevant business entities to raise awareness and foster further engagement with dugong and seagrass conservation efforts.

Strategic actions

35. Future projects focusing on dugong and seagrass conservation should reassess the drivers behind the loss of these species. During the closing workshop of the Dugong and Seagrass Conservation Project, Partners highlighted the need to address unsustainable and illegal forest logging activities along rivers, as well as commercial fishing (often conducted by foreign companies), which have contributed to seagrass degradation and the decline of dugong populations.

36. Additionally, efforts should be made to create more ongoing opportunities for local communities to diversify their livelihoods and improve their land and marine use practices. These initiatives should be implemented on a larger scale and supported by comprehensive capacity-building programs.

37. Government involvement is essential, but collaboration with sectoral institutions and national statistical divisions is also necessary to ensure integration of dugong and seagrass information into decision-making processes and datasets.

<u>Recommendations from the Project in Indonesia</u>

Implementation of the National Plan of Action (NPOA) on Dugong and Seagrass Conservation

38. The NPOA implementation should undergo annual evaluations to allow for adjustments and improvements within the five-year plan.

Future activities/ projects on dugong and seagrass conservation

39. Include law enforcement and establish a knowledge-sharing platform or legal forums to directly address threats to dugongs and seagrasses in Indonesia. These activities, outlined in the NPOA, should be discussed with stakeholders, with lead and supporting partners of the Project in Indonesia providing support and mentoring to future projects.

40. Focus on behavioural change towards dugongs, as some individuals still engage in unsustainable practices despite awareness of protection status and threats. Communication strategies should be adapted to specific topics and project locations.

41. Implementation arrangements for future projects/ actions, jointly implemented by the Government and NGOs.

42. Future dugong and seagrass conservation efforts could do better by agreeing to and applying certain internal rules regarding personnel arrangements, communication methods, responsibilities, and ownership or commitment to the project prior to the project commencement.

Recommendations from the Project in Madagascar

Policy and enforcement

43. During project implementation, there was no legal framework for Local Marine Managed Areas (LMMAs) governance in Madagascar. This means LMMAs must apply to become Marine Protected Areas (MPAs) under a specific category, a complex and costly process that hinders many LMMAs from obtaining official protected area status.

44. Additionally, differing attitudes and perceptions regarding local marine resource management and LMMAs between the Ministry of Environment and Ministry of Fisheries (MEEF) complicate marine protected area management. Resolving these differences is crucial to provide clear and coherent support to communities as co-managers of protected areas.

45. Raising awareness about the importance of seagrasses and associated biodiversity in Madagascar is essential for educating fishing communities and authorities about the need for sustainable fishing practices to protect these habitats.

46. The government plays a crucial role in supporting the rights of small-scale fishers and strengthening LMMAs. Involving government members in events and forums, and continuing discussions to gather their feedback and support for locally-led marine resource management, is vital. The government can also facilitate collaboration among stakeholders across the marine environment and support LMMAs in establishing exclusive zones for small-scale fishers, particularly important amidst growing grassroots support for local marine protection.

47. To achieve dugong and seagrass conservation objectives in Madagascar, it's imperative to integrate their conservation into national fisheries management and protected area practices. The MIHARI network, with over 200 community management associations covering 17% of Madagascar's nearshore coastline, is well-positioned to support this objective by ensuring effective communication between LMMAs and regional and national government entities.

48. Implementing the Dugong and Seagrass National Strategy in partnership with NGOs and

government agencies can standardize and coordinate conservation efforts across Madagascar. This can mirror the Strategy for Lemurs (IUCN) and should include financial mechanisms for implementing necessary actions within specified time frames to prevent the extinction of dugongs and seagrasses in Madagascar in the coming decades.

Scope of future projects

49. Future dugong conservation projects in Madagascar must prioritize funding and efforts on proven dugong hotspots to prevent extinction. Focus should be on organizations committed to long-term conservation efforts on-site, prioritizing site-based work over meetings and workshops.

50. MPAs/LMMAs proposed for dugongs should undergo critical assessment to ensure funding is allocated only those proven to harbour dugongs and are of sufficient scale.

51. Identification of new areas used by dugongs in protected areas should be evidence-based, with research on dugongs and habitats included in baseline marine biodiversity assessments by NGOs. Standardized methods should be employed, with funding contingent on research quality.

52. Given the rarity of dugongs in Madagascar, prioritizing conservation of seagrass habitats alongside raising awareness about dugong protection is deemed more efficient and economically viable for greater conservation success.

Data

53. Research should adhere to verified and standardized methods, essential for wider marine spatial planning and funding allocation. It's crucial to employ standardized research methods across all institutions and centralize data by a national agency to prevent loss or duplication of data by different NGOs. Integration and regular updates of all data collected through the Project in Madagascar are recommended.

54. During the Project, no data on dugong mortality, particularly through bycatch in industrial fishing nets in Madagascar, were available. Obtaining this data could support reducing industrial fishing in key hotspots. This effort could also address the ongoing direct and indirect take of sea turtles, another key seagrass-dependent species, in Madagascar, by linking it to other megafauna bycatch and direct hunting.

Local implementation

55. Given the multiple challenges associated to the conservation efforts in Madagascar - including remoteness, poverty, community awareness levels, and institutional differences in attitudes toward conservation - it is recommended to undertake MPA/ LMMA work in phases or on a smaller scale initially, before expanding to a larger scale.

Coordination

56. According to the Partners, to ensure effective national coordination and monitoring of future projects of similar nature, UN Environment and the MEEF should sign a coordination agreement under Small Scale Funding Agreement.

57. A Steering Committee should be stablished that is led by the MEEF and includes participants from other relevant ministries, the private sector, civil society and local community representatives. The MEEF will have a strategic role, while the NGOs will handle operational functions. To formalize this arrangement, a memorandum of understanding should be signed

between the Ministry and the relevant organizations, clearly defining each organization's responsibilities, associated indicators and funding agreements.

Recommendations from the Project in Malaysia

Political will

58. The lack of political will from both state and federal governments was a significant obstacle throughout the project. Cooperation between these entities is crucial for protecting dugongs and their seagrass habitat. Given the jurisdictional dichotomy, collaborative efforts are essential to streamline laws, coordinate management, and enhance enforcement.

Communities' involvement in conservation

59. The successful establishment of the co-management committee in Malaysia demonstrated the willingness of local stakeholders to cooperate and collaborate. Moving forward, securing endorsement from the Malaysian government for these collaborative setups is crucial to provide legal mandate for the committees to operate and execute management activities at the local level. This endorsement will also facilitate improved communications between government authorities and local stakeholders.

Training future conservationists

60. It is recommended to continue education and awareness-raising activities initiated by the Partners for different age groups beyond the Project's conclusion. A wealth of educational materials exists that can further promote seagrasses, dugongs, other marine mammals, community involvement in conservation, and the importance of marine protected areas.

61. Continuing beach cleanup activities and conservation camps in Sibu and Tinggi, where local resorts, homestays and communities have already been trained, can yield significant benefits. This ongoing practice will not only engage youth and communities but also support local businesses while contributing to dugong conservation efforts.

62. Youth aged 18 and above should receive training in snorkelling and scuba diving to participate in conservation activities in Sibu and Tinggi Islands, including reef monitoring, turtle conservation and dugong conservation.

63. Community-based activities can include training sessions on best practices for dugong and seagrass conservation, organising opportunistic dugong watching events, and implementing waste management initiatives focused on reducing, reusing and recycling waste. These activities may involve workshops on recycling, income-generating incentives, and capacity building for composting.

Conservation and incentives

64. Given the economic challenges faced by communities in Pulau Sibu and Tinggi, where conservation may not be a primary concern, introducing incentives-based programmes could be beneficial. These programmes would offer benefits to encourage behavioural change that support conservation efforts. For instance, implementing alternative livelihood options in exchange for participating in dugong conservation could be integrated into future community development and conservation initiatives.

Operationalising further dugong and seagrass conservation in Malaysia

65. From the government perspective, the authorities responsible for the management of fisheries and marine mammals must play an active role in the conservation of dugongs and seagrasses. The Department of Fisheries of Malaysia (DOFM) assumed sole responsibility for managing MPAs, marine mammals and fisheries in Malaysia in 2019. As such, it is tasked with implementing all conservation actions outlined in existing policies, including commitments to dugong and seagrass conservation at both national and international commitments.

66. Enhanced public awareness activities targeting key stakeholders, including fishermen, islanders, tour operators, and other relevant groups, are essential for effective dugong and seagrass conservation. These activities could include community workshops, educational campaigns, and outreach events tailored to each group's needs and interests.

67. Seagrasses in Malaysia are currently not afforded legal protection, leaving important feeding areas for dugongs vulnerable to threats such as destructive fishing practices and coastal development. It is imperative that the Malaysian government takes action to address this gap by implementing legal protections for seagrass habitat. This could include designating seagrass meadows as protected areas, enacting legislation to regulate activities that may harm seagrass ecosystems, and establishing conservation programmes aimed at restoring and maintaining healthy seagrass habitat.

Future funding to multiple implementing organisations

68. Given the importance of coordination between implementing organizations, a programme of work could be streamlined well in advance of a project initiation.

69. An improved system for distributing funds at the national level should be established, ensuring allocations are based on the compatibility of proposed work with predetermined criteria, rather than arbitrary decision.

Recommendations from the Project in Mozambique

Dugong (marine) conservation for fishing communities

70. In future conservation efforts for dugongs and seagrass in Mozambique, it is crucial to empower and involve local communities in leading conservation initiatives. This approach ensures that marine conservation aligns with the interests of fishing communities rather than conflicting with them. Simply declaring ocean areas off-limits to fishing can create tension and negatively impact the livelihoods of coastal communities. For many of the 1.4 billion people who live around our tropical coasts, forgoing fishing in protected areas represents too severe an economic sacrifice and too significant an opportunity cost. Instead, efforts should focus on removing barriers to engagement, such as providing access to healthcare and alternative livelihoods opportunities. Locally led management initiatives should be developed to support sustainable natural resource management. Additionally, local governance mechanisms need to be supported by national legislation and authorities to underpin and strengthen community-led conservation and marine management activities.

71. In the short term, it is crucial to prioritize appropriate management activities in Bazaruto to meet dugong and seagrass conservation objectives, as this area serves as the primary dugong hotspot in the country. If dugong populations decline in this region, there is a risk of the population becoming locally extinct in Mozambique. Therefore, it is vital that the next steps in Bazaruto focus on long-term protection measures that address identified community needs and reduce threats to dugongs. Sharing lessons learnt between projects in Mozambique and the other countries could

help bridge any knowledge or skill gaps and enhance conservation efforts.

Continue the awareness raising efforts

72. Continued awareness-raising efforts should target fishers and their associations, students, teachers and institutions across the wider Bazaruto area. This can be achieved through lectures, school contests, hands-on-experience trainings for students. These initiatives not only raise awareness but also cultivate future conservationists.

73. The social medial platform developed by the Project should continue to promote dugongs and their seagrass habitats.

74. In future conservation initiatives, it is recommended to plan additional radio broadcasts and TV advertisements focusing on dugongs in Bazaruto. Radio broadcasts are particularly effective in reaching a wider local audience.

75. TV advertisements play crucial rule in attracting tourists and enhancing collaboration with tourism operators.

76. Dugong and seagrass advocacy and awareness-raising efforts can align effectively with the principles of the blue economy, sustainable development of coastal areas, sustainable fisheries and eco-tourism development. Events such as conferences, fairs and exhibitions focusing on these topics provide valuable platforms to share lessons learned from the Project and disseminate information about dugongs and seagrasses.

Effectiveness of the conservation effort in dugong and seagrass conservation by the civil society

77. NGOs will effectively deliver dugong and seagrass conservation goals if they:

    (a) Forge stronger bilateral alliances with the Mozambique government at the ministerial level to ensure political buy-in and support for the expansion of the Marine Protected Area.

    (b) Advocate for stronger legal opposition to development activities of concern, such as the Sasol oil pipeline planned to be installed north of the park, which poses a significant threat to the dugong population.

    (c) Implement a comprehensive Population Health Environment (PHE) programme, initially focusing on the islands of Bazaruto and gradually expanding to mainland communities over time. This programme should be adequately resourced with the necessary human resources and expertise.

    (d) Conduct an Asset-Based Community Development (ABCD) assessment to support community members in establishing their own micro-enterprises within an enabling environment, including access to markets. Establish local organising committees that include marginalised members of each village to ensure community participation and empowerment. Previous top-down approaches to alternative livelihood projects have shown limited success in the area.

Recommendations to donors

78. To establish a bursary programme for youth in the area, facilitating access to education and diverse economic opportunities to reduce long-term reliance on fishing. Implementing agents will oversee the selection process and logistical aspects of the programme.

79. To endorse the establishment of a central research hub aimed at consolidating and directing research efforts towards tangible management outcomes, while fostering strong connections with local and international universities. The Kisawa Research Centre is currently pursuing this initiative.

80. To redirect attention towards dugong hotspots located beyond the boundaries of Bazaruto Archipelago National Park boundaries, where no protective measures are currently in place.

81. To endorse a comprehensive, long-term monitoring and management programme for the Bazaruto fisheries, encompassing both small-scale utilisation and offshore illegal and unregulated commercial fishing activities, and to integrate the outcomes of this project into the programme.

82. To prioritise multi-sectoral partnerships from project initiation, establishing collaborations according to project needs. Strong coordination among partners should commence from the project's design phase, facilitated by a professional agent endorsed by government agencies.

Recommendations from the Project in the Solomon Islands

Scope of next conservation efforts

83. This Project has gathered valuable data on dugong populations and seagrass habitats, focusing on Lau, Roviana and Vonavona lagoons. To enhance conservation efforts, it is essential to gather detailed information on dugong populations and their conservation status in other regions of Solomon Islands. Utilising both existing and new data, efforts should be made to develop dugong hotspot maps for informed conservation strategies.

84. Seagrass mapping using the Seagrass Watch methodology was conducted in priority sites including Lau Lagoon on Malaita, Naro on Guadalcanal, Nusatupe and Vonavona in Western Province, Kumagha on Isabel. To track ecosystem changes effectively, it is recommended to establish regular monitoring intervals, such as every three years, at these priority sites.

85. Emphasising village and tribal governance is paramount. Given the ongoing limited capacity of the Solomon Islands government, both at national and provincial levels, to support and enhance local fisheries management in Western Province, it becomes imperative to build a robust constituency and knowledge base at the village level. Ultimately, the key to effective resource management lies within local fishers and leaders.

Raise awareness on dugongs and seagrass

86. While the project has made significant efforts to raise awareness about dugongs and seagrass in key conservation sites, there remains much to be accomplished. In the Solomon Islands, dugongs found in low densities and often exhibit significant mobility. Therefore, it is imperative to ensure that information regarding the cultural significance of dugongs, the ecological importance of seagrass, and strategies for marine resource management reaches all coastal communities. Reproducing existing awareness materials and disseminating them widely among coastal communities is essential to achieve this goal.

87. The community-based resource management unit of the MFMR has integrated seagrass awareness into its standard package for community education.

88. Raising awareness about the importance of seagrass and the new legal status of dugongs in the country is a crucial aspect of implementing the CBRM model.

Including dugongs and seagrasses in the education curriculum

89. It is essential to include information about dugongs and the importance of seagrass in primary and secondary level study books, thereby introducing children to this knowledge at a young age. Additionally, providing educators with appropriate teaching materials will ensure they are adequately prepared to impart this important information.

90. Incorporating citizen science initiatives such as Seagrass-Watch into schools' yearly programmes can foster students' awareness and appreciation of the crucial role played by inshore marine habitats in maintaining ecosystem services. This approach also offers a valuable opportunity to collect long-term data on the status of these habitats and associated species.

National Facilitating Committee

91. The implementing organisations of the Project, namely SICCP, WF, MECDM and MFMR, should maintain their involvement in the National Facilitating Committee (NFC) and formalize its structure. The NFC should draft a three-year plan outlining key activities, including the establishment of an effective monitoring program. Additionally, awareness-raising efforts should persist, with focus on national events such as the World Environmental Day. Dissemination of educational materials such as posters, factsheets and the CMS questionnaires should also target sites not visited during this project period.

Enforce legislation protecting dugongs and seagrass

92. At the Provincial level, the conservation of dugongs and seagrasses should be reflected in provincial ordinances, highlighting their significance in local governance. Furthermore, at the national level, post-project efforts should prioritise the implementation of the National Dugong Strategy to ensure coordinated conservation actions across the country.

93. The Fisheries Management Regulations of 2018 prohibit the hunting of dugongs. It is essential that MFMR and other relevant institutions enforce these regulations, particularly in the case when dugong meat is sold in urban areas. Additionally, stringent enforcement of existing forestry laws is crucial. Commercial logging poses a significant threat to seagrass ecosystems in Solomon Islands, leading to environmental degradation, erodes the rule of law, defrauds the government of revenues, undermines food security, and creates social conflicts. It is essential that MFMR, MECDM and provincial governments take steps to improve the enforcement legislation that protect dugongs and their seagrass habitats.

<u>Recommendations from the Project in Sri Lanka</u>

More attention to community livelihoods in conservation

94. The Project piloted several livelihoods models and they proved that with the right guidance, local communities are ready to diversify their sources of income. However, the scale should be bigger and linked to clear objectives and ongoing performance. Future donors and implementing organisation should focus their efforts on building incentives which can be expanded to support more community members, as they develop. This can be achieved if there is a condition to receiving the financial support, which would require from the beneficiaries to set aside a small percentage of their revenues into a community fund.

95. This kind of community funds and incentive programmes can be introduced at the community conservation groups to be formalized by the Sri Lankan Government.

Targeted actions are carried to prevent dugong hunting and seagrass degradation

96. The Project made it clear that dugongs are still threatened by deliberate and incidental catch. Dugong meat was reported to be highly appreciated and there is a shadow market for it. There were a few cases during the course of the Project, in which fishers had been caught and prosecuted. However, more should be done to prevent the extinction of the dugong in Sri Lanka. It will be more effective if the government and non-government organizations of Sri Lanka work together with TRAFFIC and allocate resources to hire independent professionals to investigate criminal cases of wildlife market nature, which can reveal and bring to court as many parties in the supply chain as possible.

97. Community Conservation Groups will play a crucial role in ensuring compliance with the law. To enhance their effectiveness, the approval process should be streamlined, and communities should be provided with guidance on structure, roles and responsibilities of these groups during the establishment phase. Additionally, these groups should be empowered to collect fees from visitors who enjoy or research in preserved natural habitats and species. Long-term financial support for Community Conservation Groups should be contingent upon conservation performance.

98. This approach will create a sense of ownership and enthusiasm among the communities to safeguard their local environment.

Further research and monitoring of seagrasses

99. A long-term monitoring plan should be established for the seagrass areas already studied. It is suggested that a set of national physical and chemical indicators are developed to determine and monitor the status of seagrass habitats. More areas should be surveyed and mapped, and more seagrass areas should be explored in the sub-tidal areas that were not covered by the Project.

100. Efforts should be made to identify both point and non-point sources of pollution to mitigate their impacts on marine habitats. Additionally, a thorough analysis of the impact of fisheries on seagrasses and other marine habitat is necessary. Recommendations based on these analysis should be made to the respective authorities to reduce fisheries' impacts on marine ecosystems.

<u>Recommendations from the Project in Timor Leste</u>

Tara Bandu

101. Tara Bandu customary law is proving to be a powerful tool for communities to manage their own resources. The use of Tara Bandu to directly protect seagrass and dugongs is the main recommendation for similar projects. The lengthy, yet vital, consultation process of establishing Tara Bandu gives facilitators and communities ample opportunity to discuss the importance of seagrass ecosystems for fisheries. This is particularly essential in Timor-Leste, where communities often prioritise coral reefs for their fisheries and may not immediately recognise the importance of seagrass habitats. By harnessing the power and acceptance of Tara Bandu, practitioners can integrate resources such as seagrass and dugongs into the framework, ensuring their conservation even in areas where they might otherwise be overlooked.

102. It is also recommended to incorporate participatory science in Tara Bandu consultations, enabling communities to engage in both management and monitoring efforts. While Tara Bandu consultations may extend over months without yielding immediate practical results, the establishment of participatory monitoring can be achieved within a short timeframe, typically after

one week of training for operators. This approach sustains momentum within communities, enhancing the consultation process, and simultaneously generates valuable data for informing the design and implementation of conservation actions.

103. Providing financial benefits, such as through the homestays programmes, is recommended, as they offer clear incentive to communities and create opportunities for practitioners to foster relationships and trust necessary for marine management discussions. Additionally, in the longer term, establishing a Tara Bandu network of communities with support from the central government is highly recommended.

Further conservation efforts in dugong and seagrass conservation

104. Future dugong and seagrass conservation initiatives in Timor-Leste should prioritise community engagement at every stage, from awareness raising to capacity building and livelihood provision. These efforts should integrate a livelihoods components aimed at enhancing quality of life, such as diversified employment opportunities, improved health services, better market access, and the development of community cooperatives or associations. The successful homestay programme on Atauro can be replicated or used as a model for future conservation and livelihood projects.

Cooperation between implementing partners

105. It is important for projects implemented by several implementing organisations to ensure strong collaboration and coordination between partners. By working collectively, agencies will be able to increase both the scope and quality of their programmes.

106. All relevant ministries involved in dugong, seagrass and marine species conservation, including the Ministry of Commerce, Industry and Tourism, the Ministry of Agriculture and Fisheries, the Ministry of Public Works, the Ministry of State Administration, the Ministry of Planning and Strategic Investment, the Ministry of Health, among others, should collaborate to establish an inter-ministerial commission. This commission would be tasked with addressing issues related to marine biodiversity comprehensively, fostering coordination and cooperation across different sectors.

Education and conservation

107. Recognising the potential of education in overcoming public apathy and ignorance, as well as in changing attitudes and behaviours towards conservation, it is imperative to fully integrate dugong and other biodiversity species conservation into the national curriculum at all levels. This Integration should encompass junior and senior high schools, teacher education institutes, and other higher education institutions. By incorporating conservation principles into formal education, we can ensure that the new generation acquires the necessary skills and expertise in biodiversity conservation.

108. It is crucial to incorporate dugong and seagrass, and other biodiversity conservation issues into early childhood education. Building awareness among children and young people about the conservation of these species can lead to more effective conservation policy and action in the future. Achieving this goal requires inter-ministerial cooperation, supported by national and international agencies dedicated to conservation efforts. Additionally, sustained financial support is essential to ensure the success of these educational initiatives.

<u>Recommendations from the Project in Vanuatu</u>

109. Recommendations include, to:

(a) Review policy and development aid to effectively reach coastal communities and align with joint conservation and social goal.

(b) Validate the information gathered in the questionnaire surveys through scientific surveys of seagrass and dugongs in the identified hotspot areas.

(c) Expand awareness activities to encompass all 20 identified hotspot areas.

(d) Increase funding for future projects to enhance effectiveness and maximize impact.

(e) Explore potential partnerships with tourism operators to secure funding for dugong conservation initiatives.

(f) Sustain collaboration with international experts to continue building capacities in dugong and seagrass conservation efforts.

Project documents

110. All documented Project results are also available on the website of the Dugong and Seagrass Conservation Project, www.dugongconservation.org.

Action requested

111. The Meeting is invited to:

(a) Take note of the Project results outlined in this document, along with the subsequent recommendations detailed in paragraphs 26 to 37 for global level actions and 39 to 109 for national level initiatives.

ANNEX 1

Figure 1. Visualization of the Project Components and Outcomes