Final Evaluation Report

We ask all grant recipients to complete a project evaluation that helps us to gauge the success of your project. This must be sent in **MS Word and not PDF format**. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please DO NOT fill in and submit this form until the project has been completed.

Complete the form in English. Note that the information may be edited before posting on our website.

Please email this report to jane@rufford.org.

Your Details	
Full Name	Yussuf Yussuf
Project Title	Community-Based Conservation of High Value Endangered sea cucumber (*Holothuria scabra*) and it's habitats in Mafia Island, Tanzania
Application ID	43989-1
Date of this Report	20/08/2025

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
To assess the status of mangroves and seagrass meadows and identify new threats to *H. scabra* such as ongoing anthropogenic activities in the project area.			✓	The objective was achieved through field and social surveys. The team visited seagrass meadows and mangrove forests of 4 villages. The team assessed the level of deforestation in mangroves by looking at tree stumps as well as degraded seagrass meadows caused by human activities. The line transects and plots were used to accomplish the assessment process of these ecosystems. We also conducted field interviews with key informants who accompanied a team during field survey. In 4 villages, we interviewed a total of 10 key informants including 4 village executive officers, 1 Forest officers, 1 Fisheries officer, 2 Beach management unit officers, and 2 experienced fishermen.
To evaluate the awareness of local fishermen, tree loggers and sea weed farmers regarding conservation status of *H. scabra* and their habitats.			✓	The objective was achieved through social survey. The team interviewed 112 respondents and conducted 4 focus group discussions (FGDs) from 4 villages. Each FGD consisted of 7 members and each discussion took around 40 minutes. Previously, the proposed number of respondents was 100, i.e. 25

				respondents from each village but the team decided to increase the number in case some of the questionnaires may lack quality and decided to be discarded.
To provide conservation education to key project stakeholders such as fishermen, farmers, tourist operators and tree loggers in effort to rescue the population of *H. scabra* and its sensitive habitat in Mafia island.			✓	The objective was achieved through provision of conservation education to targeted groups. In this activity, about 250 people including local community members, fisheries officers, BMU members, community leaders, representatives of fisheries and environmental committees, representative from Mafia Island Marine Park, etc participated.
To restore the degraded mangroves and sea grasses meadows by planting a diverse species of sea grasses			✓	The objective was achieved through planting diverse species of mangroves seedlings and seagrass in the selected areas. About 3,000 seedlings of different mangrove species including *Brugueira gymnorhiza*, *Rhizophora mucronata* and *Aviccenia marina* were planted in 4 villages. Moreover, the project rehabilitated at least 6 acres (each village 1.5 acres) of degraded sea grasses meadows by planting grasses adjacent to mangrove in order to increase the connectivity of these ecosystems. During evaluation of the project, it was found that both mangroves and seagrass seedlings planted have shown good growth performance (see Figure 4 a-d). Since restoration cannot be

				completed within one year of our project, long-term monitoring will be done by Beach Management Units who are legally empowered to conserve and protect coastal ecosystems. Also, village fisheries and environmental committees who were trained by the project team will continue to conserve the restored ecosystems in these village lands. Regular monitoring is needed to understand the survival rate of restored mangrove at a different growth period.

2. Describe the three most important outcomes of your project.

a). Baseline information of the awareness of local community members as well as conservation status of *H. scabra*, mangroves and seagrass meadows.

The social survey generated an important information that can be integrated on the existing management strategies to enhance the conservation and management of *H. scabra* and its potential habitats. Among others, the project found that, though the community members are aware of the general trend (decrease) of sea cucumber population in the area, they have a limited knowledge regarding the current conservation status of the target species (Fig 1). Presumably, this could be the general pattern on the remaining coastal villages around the Mafia Island, hence necessitate a wider program to reach out the remaining community to enhance their conservation knowledge. Overfishing, destructive fishing methods, climate change, illegal collection of the resources, and increase of coastal populations (fishers) were among the contributing factors outlined by the respondents for the decline of sea cucumbers. Other includes lack of enforcement of existing law and regulation, lack of alternative livelihood, lack of conservation education, pollution, and destruction of breeding area of sea cucumber. Several factors were also listed as the main causes of seagrass and mangrove degradation in the project area including; infrastructure development such road across the mangrove forest, deforestation of mangrove for domestic use such as firewood especially in boiling anchovy and making drying racks (Fig 2. a), and pollution from aquaculture facility (prawns faming). Others includes climate change, unsustainable fishing practices (beach seining), increase in fishing activities along the intertidal area due to seasonal increase in fishers' number due to the presence of fishing camping (Fig 2. b), boat anchoring and trampling. Additionally, key stakeholders provided a number of options for improving the current

status of sea cucumber and their potential habitats in the project area including; provision of conservation education among members of coastal community on the ecological importance of sea cucumber and the role played by these major marine ecosystem (mangrove and seagrasses) on sea cucumber availability. Other suggestions include presence of alternative livelihoods such as sea cucumber farming to reduce pressure on the remaining individuals from the natural population. enforcement of the rules and regulations, and provision of modern fishing equipment for off-shore fishing has been also proposed as a possible measure.

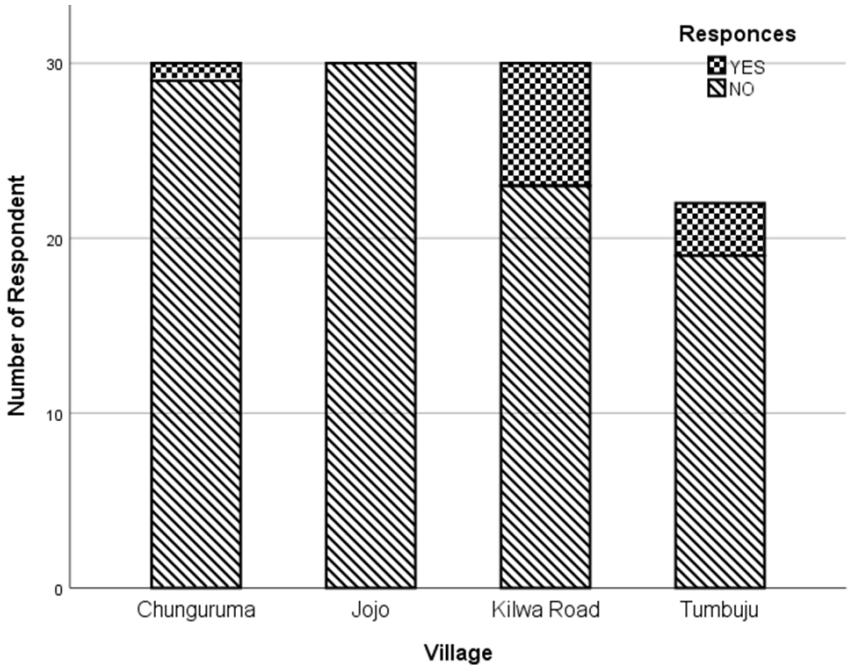

Fig 1. Awareness on the current conservation status of Sea cucumber *(Holothuria scabra)* from four villages

Fig 2. (a) Drying racks made off pole harvested from Mangrove trees, (b) fishing boat dock at Tumbuju landing site during fishing camping season.

b). Increased conservation awareness and provision of restoration education to community members and other key stakeholders.

The team provided conservation education to local fishermen, seaweed farmers, gleaners, tree loggers, tourist operators, Beach Management Unit (BMU) representatives, and local government leaders in effort to rescue the remaining population of *H. scabra* and its sensitive habitat in Mafia island. The training sessions aimed at equipping the participants with both theoretical and practical skills to enable them to participate in conservation of *H. scabra* and the coastal ecosystem (Fig 3. a-b). The sessions were conducted in every selected villages using participatory approach where participants were encouraged to share their opinions as well as asking questions regarding conservation of *H. scabra* and its habitats. After the sessions, participants were given opportunity to group themselves and discuss major challenges and their solutions to improve conservation of *H. scabra* species and its habitat (Fig 2. c-d). Additionally, members of the community got an opportunity to physically observe the studied sea cucumber species (*H. scabra*), identify its local name and agreed that the species has been severely depleted. Degraded sea grass and mangrove area from each village were identified in the class and visited during outdoor session. The most affected species of mangrove were also identified and the possible reason for being more impacted were outlined.

Restoration education was also introduced during a training session where participants were able to learn various techniques used in the restoration of degraded seagrass and mangrove area. Moreover, hand-on-training on how to restore these major marine ecosystems were conducted in their respective intertidal area of each village (Fig 2. e and f).

Generally, both indoor and outdoor training showed positive impact because the participants were able to respond to various questions concerning threats and conservation of *H. scabra* and its habitats which were asked by instructors after training. Moreover, participants were given opportunity to demonstrate practically in the field and they kept practicing during restoration activities under supervision of team members.

The evaluation process for this project was planned to be conducted in two ways;

Short-term evaluation: This was done immediately after every indoor and outdoor training sessions. It aimed at understanding how the participants' awareness and knowledge have changed after receiving conservation education. Participants were asked pre-structured oral questions and later practical sessions for them to demonstrate how they can appropriately restore the degraded habitats particularly mangroves and sea grass meadows.

Long-term evaluation: This is yet to be done and the plan was to conduct it 1 year after implementation of this activity. Since we are planning to continue with conservation activities in the Island, the evaluation outcome will be included in our coming report following implementation of our next project. It is our expectation that this is just a beginning of conservation activities in the project site and the team will win another funding either from Rufford (2nd RSG) and/or other funders to continue the initiatives. To have clear idea on how the community members have retained the knowledge and changed their behaviors toward conservation of *H. scabra* and its habitats.

a

b

c

d

e

f

Fig 3. (a-f): Conservation education to project stakeholders on *H. scabra* and its habitats in Mafia island.

c). Restoration of the degraded coastal habitat.

In effort to restore the degraded coastal habitat in the project area, the project planted three mangrove species which are *Brugueira gymnorhiza*, *Rhizophora mucronata* and *Aviccenia marina* in areas which were cleared the most. Additionally, seagrasses were planted of which *Thalassia hamprichii* being the most planted species in the most degraded sea grasses meadows. Seagrass restoration was done adjacent to mangroves in order to increase the connectivity of these ecosystems. The recent field visit has found that the planted mangroves and sea grass seedlings are progressing well (Fig 4. a-d). However, the assessment of the overall performance (survival rate) of both planted mangrove and seagrass has not been quantified. Restoration program of mangrove forest will only be successfully if the surrounding community have needed conservation education.

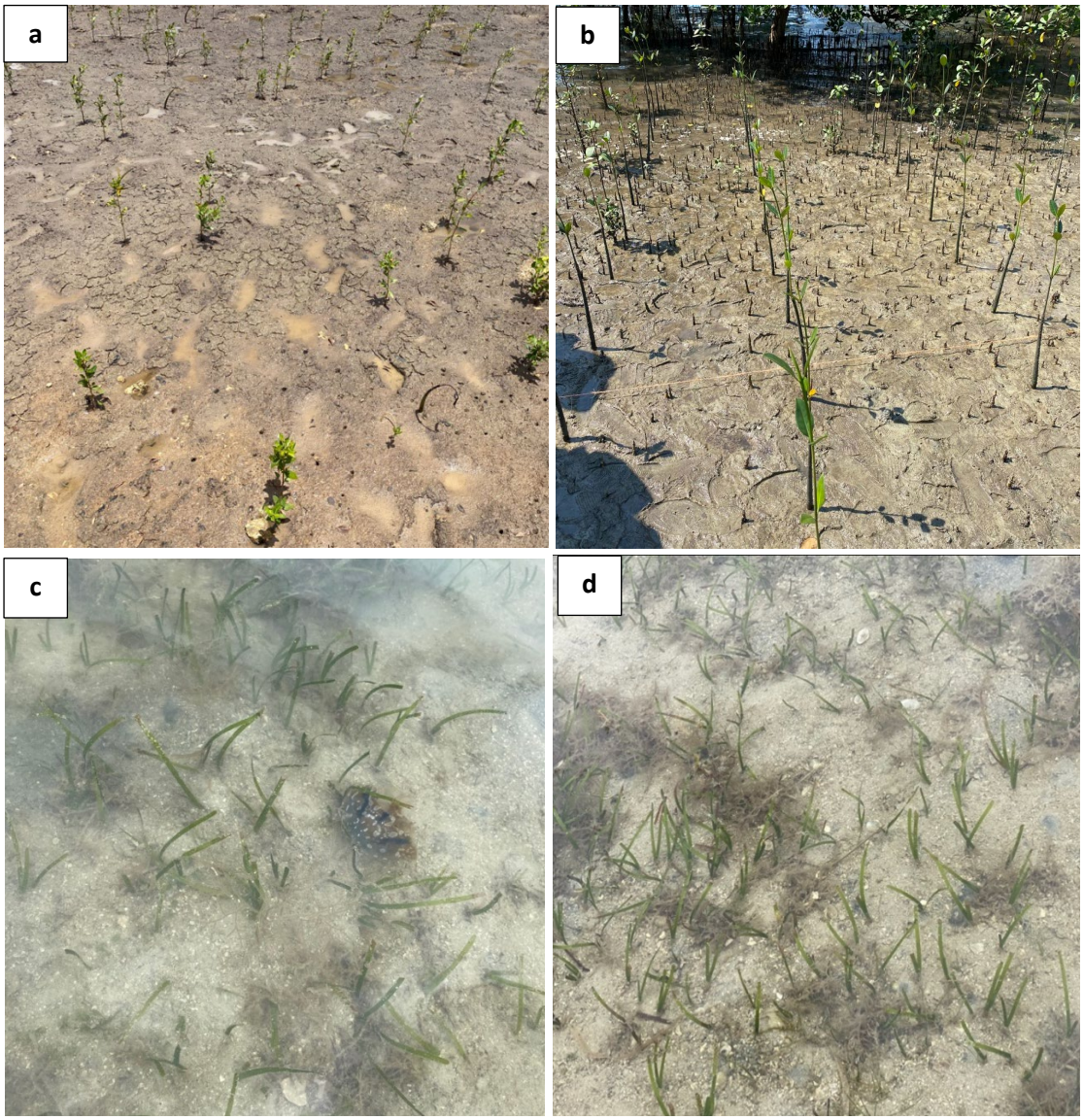

Fig 4. (a-d): Progress of the restored degraded mangrove forest and seagrass meadows in Mafia island.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

There was delay in carrying out social surveys due to preparation and voting process of the national general election for local government leaders which took place in November 2024. However, the team resumed in early December and all activities were carried out as per our plan. Moreover, a process of getting research permit took excessive time than anticipated due to the prolonged government procedures which involve many stages from the top government offices (Regional Commissioner and District Commissioner) to the local government. The fisheries officer from the studied area was not as cooperative as we had expected, this caused frustration among team member especially during early stage of the project which was resolve later on during the project implementation.

4. Describe the involvement of local communities and how they have benefitted from the project.

Involvement of local communities; During the implementation of our project in Mafia Island, the team involved local communities in various ways. Firstly, all village leaders and selected community members were invited to discuss the implementation of project activities. Secondly, the BMU representatives, local leaders, and community members participated in planting mangroves and sea grass seedlings to restore selected degraded coastal areas. Also, these members participated in the training workshops organized by project team so as to enhance their knowledge and skills on conservation and habitats restoration practices to safeguard coastal ecosystems. The social survey conducted target only local community members that have reside the studied villages for extended period of time (> 5 years) regardless of their gender.

Benefits accrued; Through implementation of this project, the surrounding local community in the project area in Mafia island has benefited in various ways:

- Enhance their knowledge and skills on appropriate conservation approach and practice the most common restoration technique through indoor and outdoor trainings respectively.
- It is anticipated that, in the future, the restored mangroves and seagrass meadows will reduce coastal erosion and provide suitable area and conditions for fish and aquatic invertebrate including sea cucumber to bread, and thus increase their populations. The increase of fish population will boost income through sustainable fishing.
- Understand the role played by the mangrove and seagrass ecosystems in conserving sea cucumber population in the area, likewise realizing the role played by sea cucumber in maintaining the health of marine ecosystems.
- Realizing the role of sea cucumber farming as long-term solutions for effective conservation and management of sea cucumber population and at the same time getting the financial benefit from the activities.

5. Are there any plans to continue this work?

Absolutely Yes, the team would like to continue with conservation activities in the project area and possibly extend to the nearby villages. It was found that local communities in a studied village have limited knowledge for conservation of *H. scabra* and its potential habitats. This could have been a major contributing factors to the high rate of disappearance of the species in the area, hence necessitate a wider training program to the remaining village across the Island. Also, mangroves and seagrass meadows are highly degraded due to various human related activities. Therefore, the team would like to provide education to more members of local community and BMU to enhance their knowledge and skills that will enable them to participate and promote conservation activities in the project area. Additionally, the team would like to continue with restoration program of mangrove and seagrasses seedlings to fasten restoration of the coastal habitats which are the potential habitat for sea cucumber. Moreover, after successful restoration of degraded these important coastal habitat (mangrove and seagrass), the project team would like to introduce farming (sea ranching) program of the species in the area so that to reduce pressure toward the wild stock and at the same time allow coastal community to get financial benefit as it was in the past when the resources were abundantly in the coastal water.

Through farming programs, the wild stock of sea cucumber in the nearby area will be regenerated since cultured individuals will reproduce and subsequent juveniles will repopulate the area (spill over effect).

6. How do you plan to share the results of your work with others?

Report- Copies of the final report will be delivered to various stakeholders including local government authority, Mafia Island Marine Park, Western Indian Ocean Marine Science Association (WIOMSA), Mafia Island District Council, WWF and Wildlife Conservation Society.

Publication- One manuscript is being prepared and it will be submitted to a peer-reviewed journal for publication.

7. Looking ahead, what do you feel are the important next steps?

Looking ahead, several crucial next steps emerge from the outlined challenges and proposed solutions. Furthermore, there is a need to engage more members of local communities to raise awareness about the importance of sustainable use of marine resources since large part of the population was not reached in first phase of the project. Community involvement and empowerment are essential for the successful implementation and long-term sustainability of these initiatives. Furthermore, close collaboration between local communities and other key stakeholders, including the local government authorities, conservation agencies, NGOs, and community leaders are necessary to scale up the already initiated conservation efforts. Last but not least, regular monitoring and evaluation will be crucial to assess the impact of these interventions, identify any challenges and make necessary adjustments to ensure their effectiveness and sustainability over time.

8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

Yes, the project team had some brochures, T-shirts and cap with Rufford Foundation logo. Moreover, during training and stakeholders' consultations, the funders were given recognition including how and why they support conservation activities. Additionally, the Rufford logo was included in each slide of the PPTs used during training workshops and stakeholders' meetings. At institutional level where I am affiliated with, there is a regular presentation of the progress of the project registered at the department. Through this tradition, other member of the academic staff at the departmental and college level get to know the foundation and few other fund applications were submitted from the department through this project.

9. Provide a full list of all the members of your team and their role in the project.

The project team members were:

(i) **Dr. Yusuf Salum Yussuf**: Team Leader- supervised all project activities.

(ii) **Ms. Ruth Joseph:** Team member- Involved in training, and supervised all activities related to restoration of mangroves and conservation education in the project area.

(iii) **Mr. Ailars David Lema:** Team member- Involved in training, data collection, planned and supervised trainings, and technical advice to field assistants before commencement of field work in Mafia island.

(iv) **Ms. Asha Juma:** Project assistant- involved in restoration activities and data collection.

(v) **Mr. Khamis Lusonzo:** Project assistant- involved in restoration activities and data collection.

10. Any other comments?

The project team have found that, mangrove deforestation is very common problem in one of the studied village (Tumbuju), this is mostly contributed by the ongoing anchovy fishing business that requires drying of the product (anchovy) before their transportation. This requires building of drying rack using wood materials which are normally coming from mangrove forest. Therefore, this is likely will make restoration program of the mangrove forest unsuccessful unless alternative means is introduce for making the rack such as aluminium or stainless steel rack that are more durable. We recommend that local governing body to take this initiative to rescue the restored mangrove forest for the benefit of the future generation.

ANNEX – Financial Report

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