

**UNITED NATIONS ENVIRONMENT PROGRAMME
NAIROBI CONVENTION**

WIOSAP FULL PROPOSALS TEMPLATE

Call title: Implementation of the Strategic Action Programme for the protection of the Western Indian Ocean from land-based sources and activities (WIO-SAP)

Participating countries: Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa, Tanzania [and France (not project beneficiary)]

Executing organization: Nairobi Convention Secretariat

Duration of demo projects: 2 years

Stage of the call: Full proposals

Submission dateline: 15th July 2019

(Maximum 20 pages including cover page, budget and annexes)

INSTRUCTIONS

| | |
|-----------------------------|--|
| Organisation Name | Institute of Marine Sciences |
| Project Title | Designing Sustainable Community-Based Mangrove Harvesting and Restoration Models in Rufiji Delta, Tanzania |
| Address | P.O. 668, Buyu Campus, Zanzibar TANZANIA |
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| Registration Details | Type of organisation: Public University Country: Tanzania Registration Number: University Act No. 12 of 1970 Year: 1970 |

Important note

In the body of the proposal, remember to remove all the text in grey after completing the proposal ensuring that it keeps to maximum 20 pages including cover page, budget and annexes. Please adhere to this page limit. Times Roman, Font 12, single spacing and double margin recommended.

Executive Summary:

Rufiji Delta hosts about 50,000 ha (50% of the country coverage) of mangroves in Tanzania, constituting an integral component of livelihoods of the communities who have settled within and around the delta for generations. The delta presents a complex coupled human-natural system where communities benefit from extractive use and conversion of mangroves and associated resources to sustain livelihoods. However, traditional dependence on mangroves and associated resources expose them to degradation and loss of the habitat. While the state virtually governs the extractive exploitation of mangroves, this has been far from full and effective enforcement. Rufiji Delta is exposed to continued conflicts between conservation and exploitation for socio-economic welfare. Governance issues related to community rights and access; the distribution of power, responsibilities, and benefits between government authorities and communities; and coordination between relevant central and local government actors are some of the pertinent drawbacks for sustainable conservation and management in the delta. This calls upon for a unique design of collaborative arrangements including harvesting and restoration strategies to incentivize communities and support co-existence while safeguard the mangroves and ecosystem services therein.

The overall goal of the project is to nurture sustainable co-existence of the coupled human-mangrove ecosystem in Rufiji Delta and provide demonstrated lessons for up-scaling over the country and the WIO region at large. Expected project outcome is: Appropriate tools and methodologies are used to manage mangrove habitats in Rufiji Delta to enhance their resilience and long-term sustainability. Expected project outputs are two-fold: i) Developed and demonstrated participatory mangrove harvesting scheme and guideline for the Rufiji Delta; and ii) Developed and demonstrated model of collaborative mangrove ecosystem restoration and sustainable utilisation strategy in the Rufiji Delta. This project leverages the designated 10,000 ha Mangrove Research and Training Forest (MRTF) and update of the management plan for the delta undertaken by Tanzania Forest Service with support from Wetlands International through its Mangrove Capita Africa project. Project activities to realize these outputs include: stakeholders analysis and mapping; community sensitization and awareness raising; analysis and mapping of land use/land cover change; validation of ecological, socio-economic and governance data; designation of community-based harvesting blocks and guideline; designated demonstration sites for community-based mangrove restoration; development of community agreements to support implementation of the harvesting and restoration schemes.

Project implementation will take two years, in the active northern block of Rufiji Delta where there is active and extensive cutting of mangroves and conversion into rice farms, encompassing the designated MRTF, which include communities of Mfisini, Kiomboni, Kikale, Nyamisati, Mchinga where more than 30,000 people live in and around the delta in permanent and temporary settlements. Project activities will be planned, coordinated and managed by the Institute of Marine Science (IMS) – University of Dar es Salaam, in partnership with Tanzania Forestry Services (TFS) and Kibiti District Council (KDC). Village Councils will be executing agencies of the day-to-day operations through their Village Natural Resource Committees (VNRCs). A technical project team will be constituted comprising of five technical expert members from IMS, two TFS staff and two KDC staff. This project implementation design provides full opportunity for capacity development to TFS, KDC and communities as a measure of ensuring sustainability. The project total budget is US\$ 115,650. Amount requested from WIOSAP is US\$ 102,650 and in-kind co-financing is US\$ 13,000.

I. BACKGROUND AND JUSTIFICATION

(a) The problem

Rufiji River Basin is the largest in Tanzania, draining about 20% of the country. The river culminates in a critical habitat that hosts about 50,000 ha (50%) of the mangroves of Tanzania. This large mangrove ecosystem constitutes an integral component of livelihoods of the communities who have settled within and around the delta for generations^{1,2}. The delta presents a complex coupled human-natural system where communities benefit from cutting of poles, logging for timber, fishing and conversion to agriculture to sustain livelihoods. However, this traditional dependence on mangroves, coupled with environmental change has over time exposed this critical habitat to degradation and loss^{3,4}. Although mangroves are categorized as state forest reserves, enforcement of this protectionist policy and legal requirement has been far from being full and effective due to the diverse and complex nature of the mangrove ecosystems, habitats, uses and users, and management institutions and actors^{5,6}. In addition to financial and technical inadequacies, other pertinent challenges on the efficiency of the management plan have been confined on the governance issues related to community rights and access; the distribution of power, responsibilities, and benefits between government authorities and communities; and coordination between relevant central and local government actors. This ecological-socio-economic-political complexity This calls upon for a unique design of collaborative arrangements to support sustainable harvesting and restoration strategies that incentivize communities and support co-existence while safeguarding the mangroves and ecosystem services therein.

(b) Justification

The socio-economic and ecological importance of Rufiji Delta cannot be overemphasized. However, expanding permanent settlements accompanied by increasing demand for the ecosystem services that mangroves provide for both domestic and commercial uses to support and sustain livelihoods, continue to expose the delta to degradation and loss. Sustainable conservation and utilization measures are complicated by the complex governance framework that gives communities little opportunities to influence decisions and participation⁷. As such new strategies that would incentivise and promote sense of responsibility are needed to convey and capacitate mangrove dependent local communities, state institutions and local authorities for a balanced conservation and socio-economic welfare. While Participatory Forest Management (PFM) strategy offers an opportunity to realize such co-management arrangements, this has not been well defined and demonstrated for mangrove forests, taking into context the uniqueness and

¹ Beardall W. (1881). Exploration of the Rufiji River under the Orders of the Sultan of Zanzibar. Proceedings of the Royal Geographical Society and Monthly Record of Geography, 3(11): 641-656.

² Sunseri T. (2005). Working in the Mangroves and Beyond: Scientific Forestry and the Labour Question in Early Colonial Tanzania. Environment and History 11: 365-94.

³ Wagner G.M and Sallema-Mtui R. (2016). The Rufiji Estuary: Climate Change, Anthropogenic Pressures, Vulnerability Assessment and Adaptive Management Strategies. In: S. Diop et al. (eds.), Estuaries: A Lifeline of Ecosystem Services in the Western Indian Ocean, Estuaries of the World, doi 10.1007/978-3-319-25370-1_12

⁴ Monga E., Mangora M.M. and Mayunga J.S. (2018). Mangrove cover change detection in the Rufiji Delta in Tanzania. WIO Journal of Marine Science 17(2): 1-10.

⁵ Mangora M.M. (2011). Poverty and institutional management stand-off: a restoration and conservation dilemma for mangrove forests of Tanzania. Wetlands Ecology and Management 19(6): 533-543.

⁶ Beymer-Farris B.A and Bassett T.J. (2012). The REDD menace: Resurgent protectionism in Tanzania's mangrove forests. Global Environmental Change 22: 332-341.

⁷ Mwasasu S. (2016). Causes and Perceptions of Environmental Change in the Mangroves of Rufiji Delta, Tanzania. Implications for Sustainable Livelihood and Conservation . PhD Thesis, Stockholm University.

complexities of the habitats, actors and actor interests. For example, a governance assessment conducted in the delta by the Center for International Forestry Research (CIFOR) in 2017⁸ reported that of the three management and restoration models had previously been attempted through various programmes and actors, none was reported to be successful to provide any lesson for replicability and upscaling. These were: (i) the individual farming permits system; (ii) the group rehabilitation scheme; and (iii) the Joint Forest Management (JFM) system. Failures of these are associated to low community buy in and trust, willingness and commitment rooted to inadequate and inconsistent engagement mechanisms that lack support from community leaders and elites; short termed cash-oriented motivation and state reluctance to effect the cost-benefit sharing agreements. The proposed demonstration project aims to revisit these models but in the context of untangling the complexities while fully acknowledging community interests.

To realize this, development of sustainable community-based harvesting and restoration models are proposed to ensure a sustainable conservation approach for the mangroves of not only Rufiji Delta, but that can be scaled-up to other mangrove areas in the country and similar areas in the region at large. This project will encompass two demonstrations: (i) Community-based blocks for demonstrating selective harvesting, allowable cut and rotation cycles as a "conservation business" model for economically empowering the communities will be devised. (ii) Demonstration blocks will also be designated for community-based restoration. These will allow responsible state, non-state actors and communities to take charge in the implementation.

(c) Consistence with national development strategies and policies; WIOSAP priorities and global commitments

The proposed action is aligned with the National Five Year Development Plan⁹ on strategic target 4.2.6 Natural Resources Management, Environment and Climate Change that target to accrue the share of GDP from sustainable utilization of forest, water and marine resources to 10%, through reversing deterioration of aquatic systems for better and healthy ecosystem services as well as human health; conserving and sustainably using lakes, rivers, oceans, seas and marine resources for sustainable development; protecting, restoring and promoting sustainable use of terrestrial ecosystems; sustainably managing forests, combating desertification, and halting and reversing land degradation and halting biodiversity loss; enhancing community-based natural resource management systems. This demonstration project is congruent with the National Integrated Coastal Environment Management Strategy (NICEMS 2003)¹⁰ Strategic Action 1 that provides for supporting environmental planning and integrated management of coastal resources and activities at the local level and provide mechanisms to harmonize national interests with local needs through (i) improvement of the environment, well-being and livelihood of all beneficiaries of coastal resources which include the poor coastal communities engaged in small-scale agriculture, artisanal fisheries, small-scale mariculture, use of forests and mangroves, small-scale business, the informal sector and extraction of coastal resources; and (ii) Supporting local initiatives, decision-making for intersectoral development and harmonizing national interests with local needs.

⁸ Mshale, B., Senga, M. and Mwangi, E. (2017). Governing mangroves: Unique challenges for managing Tanzania's coastal forests. Bogor, Indonesia: CIFOR; Washington, DC: USAID Tenure and Global Climate Change Program.

⁹ URT (2016). National Five Year Development Plan (2016/17-2020/21). Ministry of Finance and Planning, United Republic of Tanzania, Dar es Salaam.

¹⁰ URT (2003). National Integrated Coastal Environment Management Strategy (NICEMS). Vice President's Office, United Republic of Tanzania, Dar es Salaam.

In the context of land based sources and activities, large development schemes planned and implemented within the Rufiji River Basin such as the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) and the major hydropower project at Stiegler's Gorge, construction of which has just taken off, are going to pose environmental and social-economic uncertainties for the lower Rufiji floodplains and the deltaic mangroves in terms of ecological integrity and sustainability of ecosystem services therein. The proposed demonstration project is timely to set the scene for medium- and long-term monitoring of the dynamics in the delta. The TFS, who is responsible for the forest resources, recognizes the issues but lacks the capacity to develop the needed information for decision, planning and enforcement. Due to the diverse, complexities and often contradictory institutional, policy and legal provisions, the command and rule management model that is currently in operation in the delta has proved inefficient. This demonstration project will provide the opportunity to solidify partnerships among stakeholders in understanding the science and community engagement that is needed to realize sustainable management of the mangroves.

This project is relevant to WIOSAP Component A on Sustainable management of critical habitats that focus on the protection, restoration and management of critical coastal habitats and ecosystems recognizing the important value of healthy critical coastal and marine habitats for the future well-being of people in the WIO region. Specifically, the project falls under Outcome A.1 on developing appropriate tools and methodologies for management of critical coastal and marine habitats in order to enhance their resilience and long-term sustainability and it will be addressed in combination for Output A.1.2 and A.1.3 to develop and demonstrate models for sustainable community-based harvesting and restoration to incentivize and enhance co-existence of the dependent communities and mangrove nature.

The project will support and contribute to the realization of the commitment to SDG target 14.2 on sustainable management and protection of marine and coastal ecosystems, including strengthening their resilience, and take action for their restoration in order to achieve healthy and productive coasts and oceans.

(d) Other complementing programmes and activities

There are a number of completed, ongoing and prospective initiatives and activities that will mutually benefit and complement with this proposed demonstration project. The following highlighted initiatives will leverage project strategic partnerships, synergy and sustainability.

There is a designated Mangrove Research and Training Forest (MRTF) as a long term facility with three fold objectives: (i) improve, share and apply scientific knowledge on assessment of carbon stocks, restoration and sustainable use; (ii) strengthen and build capacity for integrated mangrove management institutions and strategies, and empower communities to engage in decision making and management; (iii) enhance mangrove forest resource governance by encouraging integrated management programs and conservation investments that are ecologically and socio-economically sound. The 10,000 ha block is set in the northern delta where there is active mangrove harvesting, logging for timber, conversion for rice farming and include dependent communities of more than 30,000 people who live and depend on the mangroves and associated resources for livelihoods. The block was designated in 2015 under the umbrella of the Western Indian Ocean Mangrove Network (WIOMN), and a collaborative arrangement through an operating partnership MoU between the Institute of Marine Sciences (IMS) and Tanzania Forest Services (TFS) with support from USAID through US Forest Service.

This facility offers opportunity to provide needed information and enhance local capacity in the science and management of mangroves. Baseline studies on socio-economics and ecological that the current proposed work will benefit from and update on have been conducted.

Tanzania Forest Service has embarked on the review and update of the mangrove management plan for the Rufiji Delta block, revisiting the old 1991 version. Wetlands International is providing support through its proposed 10 year Mangrove Capital Africa (MCA) project which has just concluded a 2 year pilot phase. Likewise, the MCA project is already extending support for community mobilization and capacity development on governance and ecological restoration skills. Baseline studies to support these interventions have been conducted on ecological, socio-economics and governance from which the proposed demonstration project will take advantage.

Save Our Mangroves Now Project by WWF Germany and IUCN is proposing to provide support on human resource capacity development through a pilot skills development course for forestry instructors “Training of Trainers” following legal capacity assessment of the challenges and opportunities for governance of mangrove ecosystems. The CIFOR governance assessment that identified three management and restoration models of individual farming permits system; the group rehabilitation scheme; and the Joint Forest Management (JFM) system will offer useful lessons.

Recently the Division of Environment under the Vice President’s Office concluded a mangrove restoration sub-project in the delta as one component of the larger project “Developing core capacity to address adaptation to climate change in productive coastal zones of Tanzania”. Mangrove planting operations were overseen by IMS as technical advisor. Lessons and experiences from this project similarly indicate socio-ecological and policy complexity as one of the key challenge. Based on the findings of these baseline studies, one of the emerging issues is the need for inovating a collaborative sustainable ecosystem restoration beyond planting that support and strengthen co-existence between the people and nature in the delta.

This project will therefore not reinvent on the baseline activities in the Rufiji MRTF, rather provide momentum to the management plan being developed by proving models to incentivise communities through responsible harvesting and restoration.

II. PARTNERSHIPS

| Partner Name | Mandate | Role in the project | Resources partner will provide |
|---------------------------------|---|---|---|
| 1. Institute of Marine Sciences | Research and Scientific knowledge creation and transfer | Lead Agency for technical expertise for designing, planning and execution of the project. | Human resource/manpower, field and laboratory facilities. |

| Partner Name | Mandate | Role in the project | Resources partner will provide |
|--|--|---|--|
| 2. Tanzania Forest Service | Legal custodian of state forest reserves including mangroves | Logistical facilitation, state agency beneficiary of the harvesting and restoration models to be developed, guidance to policy and legal implications of the project activities including reforms and change. | Human resource/manpower, field facilities and base of operations |
| 3. Wetlands International Africa (WIA) | Implementing a project Mangrove Capital Africa, one of its site being Rufiji Delta | Data and information sharing, joint operations, logistical facilitation and practitioner beneficiary of the harvesting and restoration models to be developed | Technical and expertise sharing, and field facilities |
| 4. Kibiti District Council (KDC) | Local government authority | Community mobilization, institutional and legal guidance on local governance arrangements on management of natural resources. | Human resource/manpower. |
| 5. Pakaya Culture and Environmental Group (PCEG) | Local NGO with interests in culture and environmental Conservation | Community mobilization and provision of local experiences and guidance in prioritizing community interests and needs | Human resource/manpower |
| 6. Village Councils (VCs) | Grass root local administrative organ | Facilitation of community mobilization, sensitization and awareness raising; oversee implementation the management plan and restoration strategy; supervise participatory enforcement, monitoring and evaluation. | Human resource/manpower |
| 7. Local schools | Educational offering to the young and upcoming generation of conservationists | Knowledge transfer, awareness and sensitization campaigns on the urgency for taking | Human resource/manpower |

| Partner Name | Mandate | Role in the project | Resources partner will provide |
|--------------|---------|--|--------------------------------|
| | | actions to protect the natural capital through effective conservation and public responsibility to enhance sustainability over generations | |

III. OBJECTIVES

A. Overall objective

To nurture sustainable co-existence of the coupled human-mangrove ecosystem in Rufiji Delta and provide demonstrated lessons on community-based conservation of mangroves for up-scaling over the country and the WIO region at large.

B. Immediate/specific objectives

- (i) To design and demonstrate a business model for sustainable community-based harvesting that incentivise community participation and responsibility in for Rufiji Delta
- (ii) To develop and demonstrate a model for sustainable community-based mangrove restoration for Rufiji Delta

IV. PROJECT IMPLEMENTATION AND MANAGEMENT PLAN

A. Expected project results and indicators

| Result/Output | Indicator |
|---|--|
| Output 1: Designed and demonstrated business model and guide for sustainable community-based harvesting for Rufiji Delta | <p>At least 100 ha designated demonstration block for each selected community</p> <p>Community agreements to support and enforce implementation of the designated harvesting scheme developed and approved</p> <p>A field guide for sustainable community-based harvesting schemes produced</p> |
| Output 2: Developed and demonstrated a model for sustainable community-based mangrove restoration for Rufiji Delta | <p>At least 2 contrasting demonstration plots designated of 50 ha each (total 100 ha), one for natural and another for artificial restoration performed for each selected community</p> <p>Community agreements to support and safeguard demonstration sites for community-based restoration developed and approved</p> |

B. Project activities and work plan

| Task | Responsible | Year 1 | | | | | | | | | | | | Year 2 | | | | | | | | | | | | |
|---|----------------------|--------|---|---|---|---|---|---|---|---|----|----|----|--------|---|---|---|---|---|---|---|---|----|----|----|--|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| Overall objective: Nurturing the sustainable co-existence of the coupled human-mangrove ecosystem in Rufiji Delta | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Outcome: Appropriate tools and methodologies are used to manage mangrove habitats in Rufiji Delta to enhance their resilience and long-term sustainability | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Output 1: Designed and demonstrated business model and guide for sustainable community-based harvesting for Rufiji Delta | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.1 Community sensitization, awareness raising and securing willingness on sustainable utilization of mangrove resources | IMS/VCS/TFS/KDC/NGOs | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.2 Update land use/cover changes, status and projections | IMS | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.3 Validation of the available ecological, socio-economic and governance baseline data relevant to the project | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.3.1 Validation of ecological characteristics | IMS/TFS/NGOs | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.3.2 Validation of socio-economic characteristics | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.3.3 Validation of governance status including harvesting regime | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.4 Identify, demarcate, map community-based harvesting demonstration blocks of 100 ha in selected communities | IMS/VCS/TFS/KDC | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.5 Development of sustainable community-based harvesting guide | IMS | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.6 Field based community training and demonstration on sustainable selective harvesting | IMS/VCS/TFS/KDC/NGOs | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.7 Development of community agreements to support and enforce | IMS/TFS | | | | | | | | | | | | | | | | | | | | | | | | | |

C. Project Beneficiaries

This project will be implemented in the active northern block of Rufiji Delta where there is most extensive cutting of mangroves and active conversion of forests into rice farms. This area encompasses the designated MRTF, which include communities of Mfisini, Kiomboni, Kikale, Nyamisati, Ruaruke, Mchinga (Salale, Saninga and Simbauranga) where more than 30,000 people live in and around the area in permanent and temporary settlements. Respective Village Natural Resources Committees and Beach Management Units will be engaged as community representatives and governing committees in the project implementation. Village councils will oversee and guarantee community agreements with groups and individuals and enforcement of the demonstrations of harvesting and restoration operations. From a gender perspective, although women in the Rufiji Delta use mangroves extensively, their participation is inadequately reflected in community groups and therefore in decision and planning processes for mangrove conservation. Village regulations require that women comprise at least 40 percent of the village council committees for natural resource management and this will be maintained and preferably upscaled in project operations. Furthermore, guidelines for gender integration in mangrove conservation and rehabilitation that draw lessons from mangrove projects and from the forestry sector would be helpful in supporting gender integration. The District Council, local NGOs and CBOs will be beneficiary of the developed harvesting and restoration models for implementing and upscaling.

D. Implementing agency management of project

As presented in the Table under part II Partnerships above, the activities for the proposed project will be planned, coordinated and managed by IMS in partnership with TFS (in accordance to the existing MoU for the MRTF) and Kibiti District Council. Village Councils will be executing agencies, while the WI-MCA and PCEG will complement community mobilization and discharging of activities falling within their scope. Local schools will drive the community sensitization and awareness raising campaigns in support of the project operations. A project steering committee will be constituted comprising of five technical expert members from IMS, two TFS staff and two KDC staff. The project team will be responsible to coordinate project operations whereas Village Councils will be in charge of day to day enforcement in the demonstration sites.

V. PROJECT METHODOLOGY

This project will be conducted in the Northern block of Rufiji Delta, where cutting for mangrove poles, logging to timber and conversion for paddy cultivation are dominant livelihood activities. Three villages of Mchinga, Mfisini and Kiomboni will be engaged to deliver on Project Output 2 - Sustainable community-based harvesting scheme. For Project Output 2 – Sustainable community-based mangrove restoration, two other villages of Nyamisati and Kikale will be engaged to make five. Specific methods for each proposed activity are described in the Table below.

| Activity | Method |
|---|--|
| Output 1: To design and demonstrate a business model and guide for sustainable community-based harvesting for Rufiji Delta | |
| 1.1 Community sensitization, awareness raising and securing willingness on sustainable utilization of mangrove resources | Interactive Focus Group Discussion meetings with community groups (including village leaders) in the project area. Village General Assemblies will be called upon for |

| Activity | Method |
|--|---|
| | approval of decisions and agreements on community engagements (participation and responsibilities). |
| 1.2 Update land use/cover changes, status and projections | Remote sensing data from open sources will appropriately analysed. A recent analysis by Monga et al. (2018) ¹¹ will be used as baseline for projections. |
| 1.3 Validation of the available ecological, socio-economic and governance baseline data relevant to the project 1.3.1 Validation of ecological characteristics 1.3.2 Validation of socio-economic characteristics 1.3.3 Validation of governance status including harvesting regime | Participatory mangrove forest assessment will be done using: <ul style="list-style-type: none"> ○ The rapid assessment technique by moving through the forest, stopping at representative spots for quasi-quantitative observations with respect to structural attributes of density, height, health, presence of seedlings, presence of stumps (as an indication of cutting pressure) with data recorded on ordinal scale to warrant detailed plot assessment. ○ Quantitative Assessment to assess mangrove vegetation and benthic macro-fauna Standard participatory socio-economic assessment tools: questionnaire survey, Key Informant interviews and focus group discussions with 8-10 representatives of different community social groups (men, women, youth) in separate and mixed |
| 1.4 Identify, demarcate and map community-based harvesting demonstration blocks in selected communities | Use of updated data and information from activity 1.3: <ul style="list-style-type: none"> - Land use/cover maps - Forest inventory, socio-economic and governance data |
| 1.5 Development of sustainable community-based harvesting guide | Community consultations through respective Village Natural Resource Management Committees (VNRC) |
| 1.6 Community training and demonstration for capacity development on effective rotational selective harvesting | including training workshops. Sub-committees will be formed to align with the designated harvested and restoration (Output 2) blocks. |
| 1.7 Development of community agreements to support and enforce implementation of the designated harvesting scheme | Provision of technical guidance by Project Experts and District Forest Officers and Managers (KDC and TFS) in drafting of the guide Presentation of the draft guide to respective VNRCs for comments and Village Assemblies for endorsement. Approval of agreements by respective Village General Assembly Ratification of the agreement by the District Council |

¹¹ Monga E., Mangora M.M. and Mayunga J.S. (2018). Mangrove cover change detection in the Rufiji Delta in Tanzania. WIO Journal of Marine Science 17(2): 1-10.

| Activity | Method |
|--|---|
| | as per the Local Government Authority legislation. |
| Output 2: To develop and demonstrate restoration for Rufiji Delta | a model for sustainable community-based mangrove |
| 2.1 Analysis and mapping of stakeholders and their roles | Identify all stakeholders and actors with interests in conservation of mangrove in Rufiji Delta. Prioritize stakeholders according to interests and power relations. Assess and understand willingness to participate and contribute to project implementation. |
| 2.2 Community sensitization, awareness raising and determination of willingness to participate on restoration | Combined activity with that of Activity 1.1 |
| 2.3 Assessment, selection, demarcation and mapping of at least 100 ha of contrasting demonstration sites for community-based mangrove restoration in each selected community | Combined activity with Activity 1.2, 1.3 and 1.4 |
| 2.4 Expert study visit to Gazi Bay – Kenya on experiences and lessons from Mikoko Pamoja project that operate on community agreements including community-based mangrove restoration | Two project experts (ecologist and socio-economist) visit Gazi Bay to gauge experiences and lessons from Mikoko Pamoja governance and practice. |
| 2.5 Expert facilitation in development and approval community agreements to support and safeguard designated demonstration restorations sites | Combined activity with that of Activity 1.4, 1.5, 1.6 and 1.7 Specifically, for restoration - a step by step WIO Mangrove Restoration Guide recently developed and approved by UN Environment – Nairobi Convention |
| 2.6 Execution of mangrove restoration schemes in the designated sites in selected communities | will be put in practice. |

VI. SUSTAINABILITY AND REPLICABILITY

Project activities are designed to contribute to capacity development of grass root beneficiaries through Village Councils, local government at district and the state agency TFS. Accordingly, the project will empower communities who will be engaged with basic expertise on management of mangrove forests so that they are able to maintain the operations beyond project life span. Upon completion, the demonstration plots will be handled over to a joint arrangement of TFS and KDC for integration into their planning procedures. Specific features of the project implementation that will ensure sustainability include:

- Taking an integrated approach to land-use planning that includes sectoral interests, and local communities.
- Leveraging the power of different levels of actors and their interests.

Rufiji Delta represents the diverse habitats of mangroves in the country and so successes from this project will equally make replicability objective.

VII. PROJECT MONITORING AND EVALUATION

The main focus of the monitoring and evaluation exercise will be to understand what is working and what is not and to learn and adapt. The main purpose of this monitoring plan therefore is to measure the outcome of the project activities in achieving the specified targets or Objectively Verifiable Indicator (OVI). In the course of implementation of the activities regular assessments will be undertaken. The major method for evaluating the activities of the project will be through reporting. Before the implementation of the project activities commence, an inception report will be produced. This contain details of the planned activities, including the detailed methodology for implementing the activities, timing and project milestones. Apart from the inception report, project three interim reports will be produced each covering six-month periods. During the interim reporting, progress in the implementation of the various activities will be measured and evaluated against the targets and milestone set forth in the inception report. Apart for the interim/progress report various other reports will be produced to corresponding to specific activities. These will include report on sensitization and awareness raising campaign on sustainable utilization of mangrove resources and community willingness to participate in mangrove restoration; report on the development of land use and land cover change maps and validation of forest inventory data specific for designated harvesting blocks; report on the updating of socio-economic and governance information on community dependence on mangrove resources for improved livelihoods; report on the development and approval of by-laws to support implementation of the harvesting guide; report on the development of sustainable community-based harvesting guide; report on community training on effective selective harvesting; stakeholder analysis report; report on revision of different past restoration models in the Rufiji delta; and report on mangrove restoration. Field visits, interviews and stakeholder consultations will be the main tools for gathering information to assist in evaluating progress.

VIII. BUDGET (Total budget for the Output applied for MUST NEVER exceed the ceiling given in the background document)

The total amount requested from WIOSAP is USD 119,350, with counterpart contribution (co-financing in monetary terms and staff-time) being USD 20,500 making a total amount of USD 139,850.

| Category | WIOSAP Support | Co-financing | Total |
|-------------------|----------------|---------------|----------------|
| Personnel | 37,000 | 4,000 | 41,000 |
| Equipment | 15,750 | 3,000 | 18,750 |
| Operating costs | 7,000 | 6,000 | 13,000 |
| Contract Services | | | |
| Travel | 42,900 | 0 | 42,900 |
| Sum | 102,650 | 13,000 | 115,650 |

Annex 1: Project Logical Framework

| Project title: Designing Sustainable Community-Based Mangrove Harvesting and Restoration Models in Rufiji Delta, Tanzania | | | |
|--|--|--|----------------------|
| Project overall objective: To nurture sustainable co-existence of the coupled human-mangrove ecosystem in Rufiji Delta and provide demonstrated lesson for up-scaling over the country and the WIO region at large. | | | |
| Project Results | Outputs | Activities | Costs /output (US\$) |
| Outcome: Appropriate tools and methodologies are used to manage mangrove habitats in order to enhance their resilience and long-term sustainability | Output 1: Designed and demonstrated business model and guide for sustainable community-based harvesting for Rufiji Delta | 1.1 Community sensitization, awareness raising and securing willingness on sustainable utilization of mangrove resources 1.2 Update land use/cover changes, status and projections 1.3 Validation of the available ecological, socio-economic and governance baseline data relevant to the project 1.3.1 Validation of ecological characteristics 1.3.2 Validation of socio-economic characteristics 1.3.3 Validation of governance status including harvesting regime 1.4 Identify, demarcate and map community-based harvesting demonstration blocks in selected communities 1.5 Development of sustainable community-based harvesting guide 1.6 Community training and demonstration for capacity development on effective rotational selective harvesting 1.7 Development of community agreements to support and enforce implementation of the designated harvesting scheme | 56,950 |
| | Output 2: Developed and demonstrated a model for sustainable community-based mangrove restoration for Rufiji Delta | 2.1 Analysis and mapping of stakeholders and their roles 2.2 Community sensitization, awareness raising and determination of willingness to participate on restoration 2.3 Assessment, selection, demarcation, mapping at least 100 ha of demonstration sites for community-based mangrove restoration in selected community 2.4 Expert study visit to Gazi Bay – Kenya on experiences and lessons from Mikoko Pamoja project that operate on community agreements including community-based mangrove restoration 2.5 Expert facilitation in development and approval community agreements to support and safeguard designated demonstration restorations sites 2.6 Execution of mangrove restoration in the designated sites in selected communities | 58,950 |

Annex 3: Project Monitoring Plan

| Project Title: Designing Sustainable Community-Based Mangrove Harvesting and Restoration Models in Rufiji Delta, Tanzania | | | | |
|---|---|---|--|--|
| Project overall objective: To nurture sustainable co-existence of the coupled human-mangrove ecosystem in Rufiji Delta and provide demonstrated lesson for up-scaling over the country and the WIO region at large | | | | |
| Project Results | Output | Indicator | Target/baseline | Method |
| Outcome: Appropriate tools and methodologies are used to manage mangrove habitats marine habitats in order to enhance their resilience and long-term sustainability | Output 1: Designed and demonstrated business model and guide for sustainable community-based harvesting for Rufiji Delta | Designated community-based harvesting demonstration block for each selected community | Target: At least 100 ha designated demonstration block for each selected community embedded in the produced land use/cover maps | Project reports will be used to verify the development and publication of the community-based harvesting guide and associated agreements |
| | | Community agreements to support and enforce implementation of the designated harvesting scheme | Baseline: There are no community agreements and guidelines for mangrove harvesting in the Rufiji Delta Target: A community guide is produced and appended by community agreement made and operational for each selected community | |
| | | A field guide for sustainable community-based harvesting schemes | | |
| | Output 2: Developed and demonstrated a model for sustainable community-based mangrove restoration for Rufiji Delta | Community-based restoration demonstration plots totalling 100 ha designated for each selected community | Target: To designated at least 2 contrasting demonstration plots totalling 100 ha designated for each selected community where different restoration schemes performed | |
| Community agreements to support and safeguard demonstration sites for community-based restoration | Baseline: Restoration initiatives have been undertaken in the delta, the latest being by the Vice President's Office which targeted to plant 1000 ha, but such initiatives have consistently lacked sustainability. | | | |

Annex 4: Budget (Total budget for the Output applied for MUST NEVER exceed the ceiling given in the background document)

| Category | Quantity | Unit Cost (US\$) | Total Cost (US\$) | WIOSAP Support | Co-financing | |
|--|----------|------------------|-------------------|----------------|--------------|--|
| Personnel (man days for PI, co-PIs) | | | | | | |
| Output 1. Sustainable community-based harvesting guide developed for in Rufiji Delta | | | | | | |
| 1.1 Community sensitization, awareness raising and securing willingness on sustainable utilization of mangrove resources | 10 | 200 | 2,000 | 2,000 | | |
| 1.2 Update land use/cover changes, status and projections | 10 | 200 | 2,000 | 1,000 | 1,000 | |
| 1.3 Validation of the available ecological, socio-economic and governance baseline data relevant to the project | 10 | 200 | 2,000 | 1,000 | 1,000 | |
| 1.4 Identify, demarcate and map community-based harvesting demonstration blocks in selected communities | 10 | 200 | 2,000 | 2,000 | | |
| 1.5 Development of sustainable community-based harvesting guide | 10 | 200 | 2,000 | 1,000 | 1,000 | |
| 1.6 Community training and demonstration for capacity development on effective rotational selective harvesting | 10 | 200 | 2,000 | 2,000 | | |
| 1.7 Development of community agreements to support and enforce implementation of the designated harvesting scheme | 15 | 200 | 3,000 | 3,000 | | |
| Output 2. Collaborative mangrove ecosystem restoration and sustainable utilization model in the Rufiji Delta | | | | | | |
| 2.1 Analysis and mapping of stakeholders and their roles | 10 | 200 | 2,000 | 2,000 | | |
| 2.2 Community sensitization, awareness raising and determination of willingness to participate on restoration | 10 | 200 | 2,000 | 2,000 | | |
| 2.3 Assessment, selection, demarcation and mapping of at least 100 ha of contrasting demonstration sites for community-based mangrove restoration in each selected community | 10 | 200 | 2,000 | 2,000 | | |
| 2.4 Expert study visit to Gazi Bay – Kenya on experiences and lessons from Mikoko Pamoja project that operate on community agreements including community-based mangrove restoration | 2 | 1000 | 2000 | 2,000 | | |
| 2.5 Expert facilitation in development and approval | 15 | 200 | 3,000 | 3,000 | | |

| Category | Quantity | Unit Cost (US\$) | Total Cost (US\$) | WIOSAP Support | Co-financing | |
|---|-----------------------------|------------------|-------------------|----------------|--------------|---------------|
| community agreements to support and safeguard designated demonstration restorations sites | | | | | | |
| 2.6 Execution of mangrove restoration schemes in the designated sites in selected communities | 30 | 200 | 6,000 | 5,000 | 1,000 | |
| Field technician salary | 2 technicians for 18 months | 250 | 9,000 | 9,000 | | |
| SUB-TOTAL | | | | | | 41,000 |
| Equipment | | | | | | |
| Laptops | 2 | 2000 | 4,000 | 4,000 | | |
| Field tablets | 5 | 450 | 2,250 | 2,250 | | |
| GPS | 6 | 250 | 1,500 | 1,500 | | |
| Field boots, measuring tapes, calipers, protective gear | Lot | 2000 | 2,000 | 1,000 | 1,000 | |
| Printing, photocopying | 24 months | 250 | 6,000 | 4,000 | 2,000 | |
| Expendables | Lot | 3000 | 3,000 | 3,000 | | |
| SUB-TOTAL | | | | | | 18,750 |
| 3 Operating costs | | | | | | |
| Hire of halls for meetings (including refreshments) | 20 days | 500 | 10,000 | 5,000 | 5,000 | |
| Stationery | Lot | 3000 | 3,000 | 2,000 | 1,000 | |
| SUB-TOTAL | | | | | | 13,000 |
| 4 Contract Services | | | | | | |
| SUB-TOTAL | | | | | | |
| 5 Travel | | | | | | |
| Travel to Rufiji region | 18 | 350 | 18,900 | 18,900 | | |
| Local travel | 18 trips x 5 days | 100 | 9,000 | 9,000 | | |

| Category | Quantity | Unit Cost (US\$) | Total Cost (US\$) | WIOSAP Support | Co-financing | |
|----------------------------|-----------------------------|------------------|-------------------|----------------|--------------|----------------|
| Travel to Gazi Bay - Kenya | 2 | 750 | 1200 | 1500 | | |
| DSA for local trips | 18 trips x 5 days x 3 | 50 | 13,500 | 13,500 | | |
| SUB-TOTAL | | | | | | 42,900 |
| TOTAL (FROM WIOSAP) | | | | | | 102,650 |
| CO-FINANCING | | | | | | 13,000 |
| GRAND TOTAL | | | | | | 115,650 |

Annex 4.1: Budget justification

| | Category | Justification |
|----|--------------------------|--|
| 1. | Personnel | As per section IV D, core project team will consist of 5 expert (mangrove ecologist, socio-economist, benthic ecologist, fisheries ecologist and primary productivity ecologist) members from IMS, 2 managers from TFS and 2 KDC. This multidisciplinary project core team will adequately ensure that ecological integrity as well as socio-economic and governance dimension of the project operations are objectively kept on track. Two field-based technicians/assistants will be assigned to the project on a permanent basis to oversee day to day project operations, monitoring and reporting |
| 2. | Equipment | A number of equipment will be procured. These will include two laptops, three external hard drives, one printer, three voice recorders and 6 GPS (5 for each project village and one for the technical team). These will be stationed at the TFS field operating base to be designated at TFS Nyamisati Field Station. Other equipment such as inventory and environmental monitoring gadgets are already in place. |
| 3. | Operating costs | Consumables to be purchased for implementing project activities shall include: printing/photocopying papers (A4); flip charts; marker pens; notebooks; ball pens; printer toners, USB drives, relevant software licences, internet bundles etc. Field operations in Rufiji Delta solely relies on the use boats and therefore fuel will be a substantial expenditure item. |
| 4. | Contract Services | TFS and KDC as project partners will provide conference/meeting facilities as in-kind contribution to the project. |
| 5. | Travel | Trips to and within the study area Travel by the researchers will include round trips between Zanzibar – Dar es Salaam – Kibiti/Rufiji. At least 2 scheduled trips per month with divided core project team members. Two project expert members (mangrove ecologist and socio-economist) will travel to Gazi Bay Kenya for a study visit on the experiences and lessons from Mikoko Pamoja project. |