Monitoring & Evaluation (M&E) Plan and Impact Statement Template

Objective of the M&E Plan and Impact Statement:

- The M&E Plan and Impact Statement must be designed based on the Technical Assistance Response Plan and must enable the Implementer to complete the Closure Report at the end of the assistance.

Process for filling in the template:

- The Implementer must identify relevant quantitative and qualitative indicators as specified in the Closure Report. A sub-set of indicators to monitor and assess must be chosen among these.
- The Implementer may also identify other specific, measurable, achievable, relevant, and time-bound indicators suitable to monitor Activities, Outputs and anticipated Outcomes from the technical assistance and add to the M&E Plan and Impact Statement.
- During implementation of the TA or FTA, the Implementer must collect all relevant data as described in the Monitoring & Evaluation Plan. Aggregated data on selected indicators as well as an updated version of the Impact Statement will be presented in the Closure Report at the end of the assistance.

Basic Information	
Title of response plan	Implementation of Water-Food-Energy nexus using digital technologies for local communities in Mozambique
Technical assistance reference number	2022000005
Country/ countries	Mozambique
NDE focal point and organisation	Mr. António Jorge Raul Uaissone, Ministry of Science and Technology Cell: +258 84 3097592 Email: tonyraul13@hotmail.com; antonio.uaissone@mct.gov.mz
Project Proponent	Agencia de Desenvolvimento do Vale do Zambeze Mr. Nelson Rodrigues Antonio. Technical and Financial Assistance Director Email: nelorod2006@gmail.com Address: Tete, Av. da Liberdade n067 Telephone: +258843136792/+258864009461

Sector(s) addressed	Adaptation
Technologies supported	Agriculture, Marine and Fisheries and Water
Implementation period and total duration	15 months (March 2024- May 2025)
Total budget for implementation	221, 780 USD
Designer of the response plan	CTCN
Implementer of response plan	HUB & Practica

(A) Outputs and Activities as described in the Response Plan	(B) Indicator	(C) Expected results	(D) Method and frequency for data collection	(F) Comments
Whole project	1) Anticipated number of direct and indirect beneficiaries as a result of the TA	-20 smallholder farmers participate in the workshop to present the system and the business model for the farm in the Zambezi Valley having a fit-for-purpose design that includes aquaponic, biodigester, bio composting and hydraulic management systems (including water storage and solar pumping integrated systems for drip irrigation). -15 investors, private sector and banking institution participate in the	1) Training minutes submission, attendance registers and photos included, including gender differentiation between the participants	Gender challenges- ensuring that women truly involve in the whole planning and decision-making process. Aim to have to the possible extent gender balance within all the participatory meetings, and set equal floor for participation.

		workshop to introduce the business model. -15 National and municipal officers participate in a workshop to present the technical assistance.		
Mandatory Output	1) Total number of deliverables	1) The following deliverables will be produced: a) Detailed work plan b) M&E Plan and Impact statement (March 2024) c) CTCN Closure and data collection report (end of the project)	1) Deliverable submission and validation/ once	-There are no unforeseen events that cause delay in the implementation of the activities (pandemic outbreak, cyclones, etc.) The project proponent is responsive and support the smooth implementation of the activities in the field
Output 1: TA coordination mechanism established and inclusive stakeholder working group formed	1) Total number of deliverables (tools and technical documents)	1) The deliverables for this output are: a) Stakeholder report mapping document b) Stakeholder working group constitution document c) Inception meeting minute	1) Report submission and validation/once	-There is interest from all the identified stakeholders to be part of the project -There is willingness from the participants in the inception meeting to sign the working group constitution document -There are no restrictions due to a new pandemic outbreak
Activity 1.1 Map relevant stakeholders and establish a stakeholder working group	1) Total number of deliverables (tools and technical documents)	1) Stakeholder report mapping document	1) Report submission and validation	N/A
Activity 1.2 Create	1) Total number of	1) Stakeholder	1) Constitution	There is willingness

a stakeholder working group for the implementation of the Technical Assistance	deliverables (tools and technical documents)	working group constitution document	document submission and validation	from the participants in the working group to sign the group constitution document
Activity 1.3 Conduct an inception meeting with the stakeholder working group	1) Total number of deliverables (tools and technical documents) 2) Number of workshop/ trainings organized	1) One inception meeting minute with materials, list of participants disaggregated by gender, photos.	1) Minute submission, attendance registers and photos included.	N/A
Output 2: Diagnose the need of the local farmers and benchmark international best practices	Total number of deliverables (tools and technical documents)	1)The deliverables for this output are: a) One benchmark document with the best international practices of smart agriculture processes including the 4 components: aquaponics, biodigester, bio composting and hydraulic management b) One report with the information on the on-site farm visits to understand the context of the local farmers and understand their needs	1) Report submission and validation/once	-It is possible to conduct fieldwork in the pre-selected farms in the Zambezi Valley during the international mission There is willingness to collaborate and share information from the actual conditions from the local stakeholders There is enough input and response from key stakeholders There is data available to perform the mapping of the selected farm

		and expectations on energy, water, and animal food c) Excel gathering primary data d) Minute of the stakeholder consultation at local level to select the farm for which the holistic system will be designed e) One map of the selected farm		
Activity 2.1 Benchmark international best practices of this king of holistic systems, including 4 components: aquaponic, biodigester, bio composting, and hydraulic management systems (including water storage and solar pumping integrated systems for drip irrigation)	1) Total number of deliverables (tools and technical documents)	1) One benchmark document with the best international practices of smart agriculture processes including the 4 components: aquaponics, biodigester, bio composting and hydraulic management	1) Document submission and validation/once	
Activity 2.2 Assess the needs of the future users	1) Total number of deliverables (tools and technical documents)	1) One report with the information on the on-site farm visits to understand the context	1) Document submission and validation/once	Accessibility to the pre-selected farms is possible during the mission, there is willingness from the farmers and involved stakeholders to share information

		of the local farmers and understand their needs and expectations on energy, water, and animal food 2) Excel gathering primary data		
Activity 2.3 Organize a stakeholder consultation meeting at local level to select the unique farm for which a fit-for purpose system will be designed.	1) Total number of deliverables (tools and technical documents)	1) Minute of the stakeholder consultation at local level to select the farm for which the holistic system will be designed	1) Document submission and validation/once	N/A
Activity 2.4 Map the selected area	1) Total number of deliverables (tools and technical documents)	1) One map of the selected farm	1) Document submission and validation/once	N/A
Output 3: Develop a complete flowchart of the system that will include the collection and pumping of the water through photovoltaic system, the use of integrated reservoirs for fish production coupled with horticulture (Aquaponics), the generation of compost, and the generation of biogas and biofertilizers as well as organic	1) Total number of deliverables (tools and technical documents)	1) The deliverables for this output are: a) One document with the draft design of the infrastructure for the system for the selected farm b) One document with the minute of the meeting to present the draft architecture	1) Document submission and validation/once	-There is cooperation from the working group to review the design of the system for the selected farm. -It is possible to conduct fieldwork as presented in the working plan (no affectations from rainy season)

food for the selected farm		of the system presented c) One document with the revised architecture of the system designed d) One set of technology fact sheets of all the components that are necessary for the system.		
Activity 3.1 Draft the possible architecture of the system for the selected farm	1) Total number of deliverables (tools and technical documents)	1) One document with the draft design of the infrastructure for the system for the selected farm	1) Document submission and validation/ once	There is sufficient cooperation from all the relevant stakeholders in the revision of the first designs of the system for the selected farm
Activity 3.2 Conduct a stakeholder working group meeting	1) Total number of deliverables (tools and technical documents)	1) One document with the minute of the meeting to present the draft architecture of the system presented	1) Document submission and validation/ once	There is sufficient cooperation from all the relevant stakeholders in the revision of the first designs of the system for the selected farm
Activity 3.3 Review the selected architecture	1) Total number of deliverables (tools and technical documents)	1) One document with the revised architecture of the system designed	1) Document submission and validation/ once	There is cooperation from the relevant stakeholders in the revision rounds to finalize and agree on the configuration of the system for the selected farm
Activity 3.4 Select appropriate technologies and elaborate fact	1) Total number of deliverables (tools and technical	1) One set of technology fact sheets of all the	2) Document submission and validation/ once	There is cooperation from the relevant stakeholders providing sufficient feedback on

sheets of each component of the system	documents)	components that are necessary for the system.		the fact sheets per technology.
Output 4. Define a cost estimation of the fit-for-purpose system	1) Total number of deliverables (tools and technical documents)	1) The deliverables for this output are: a) One cost estimation Excel file for the components of the identified technologies for the farm selected b) One document with the minute of the workshop with the stakeholder working group c) One document with the business model d) One document with the minute of the workshop to validate the business model with the working group.	Document submission and validation/ once	N/A
Activity 4.1 Define cost estimation of the identified technologies under the configuration	1) Total number of deliverables (tools and technical documents)	1) One cost estimation Excel file for the components	1) Document submission and validation/ once	There is cooperation from the relevant stakeholders to gather data for the estimation of the

designed		of the identified technologies for the farm selected		identified technologies under the configuration designed.
Activity 4.2 Organize a workshop with the stakeholder working group and the owner of the farm	1) Total number of deliverables (tools and technical documents)	1) One document with the minute of the workshop with the stakeholder working group	1) Minute submission, attendance registers and photos included	There is cooperation from the working group and the owner of the farm to review the design of the system
Activity 4.3 Design a business model in cooperation with the selected farm	1) Total number of deliverables (tools and technical documents)	1) One document with the business model	1) Document submission and validation/once	
Activity 4.4 Business model validation workshop	1) Total number of deliverables (tools and technical documents)	1) One document with the minute of the workshop to validate the business model with the working group.	1) Minute submission, attendance registers and photos included.	Challenge to develop a model that can balance the needs of potential finance partners/ stakeholders, farmers (esp women) as well as the marketing side of products off the farm.
Output 5: Elaborate and disseminate training materials and workshops	1) Total number of deliverables (tools and technical documents)	1) The deliverables for this output are: a) One compendium with 3 sets of disseminatio n materials to share knowledge about the components of the system designed targeting the users, investors and municipal	1) Document submission and validation/once	N/A

		officers b) One minute of the stakeholders meeting to consult the results. Targeting smallholder farmers c) One minute of the stakeholders meeting to consult the results. Targeting investors, private sectors and banking institutions. d) One minute of the stakeholders meeting to consult the results. Targeting municipal and national officers.		
Activity 5.1 Prepare 3 sets of dissemination materials to spread knowledge about the system designed for the selected farm to the users, investors and to municipal officers	1) Total number of deliverables (tools and technical documents)	1) One compendium with 3 sets of disseminatio n materials to share knowledge about the components of the system designed targeting the users, investors and municipal officers	1) Document submission and validation/once	-Positive support from the key stakeholders for the process based of an adequate consultation process done by the consortium

Activity 5.2 Organize a stakeholder consultation targeting smallholder farmer s	1) Total number of deliverables (tools and technical documents)	1) One minute of the stakeholders meeting to consult the results. Targeting smallholder farmers	1) Minute submission, attendance registers and photos included.	-Positive support from the key stakeholders for the process based of an adequate consultation process done by the consortium
Activity 5.3 Organize a stakeholder consultation workshop targeting the investors, private sector, and banking institutions	1) Total number of deliverables (tools and technical documents)	1) One minute of the stakeholders meeting to consult the results. Targeting investors, private sectors and banking institutions.	1) Minute submission, attendance registers and photos included.	-Positive support from the key stakeholders for the process based of an adequate consultation process done by the consortium
Activity 5.4 Organize a training to Municipal and National officers	1) Total number of deliverables (tools and technical documents)	1) One minute of the stakeholders meeting to consult the results. Targeting municipal and national officers.	1) Minute submission, attendance registers and photos included.	-Positive support from the key stakeholders for the process based of an adequate consultation process done by the consortium

Note: The information in the table below will be used by the CTCN for public communication of the achieved and expected results of the Technical Assistance through the CTCN website www.ctc-n.org and other communication channels. See for example: https://www.ctc-n.org/sites/www.ctc-n.org/files/benin_a_ag_forestry.final_.pdf

Impact Statement	
Challenge	Climate change is currently presenting a challenge for the agricultural economy in Mozambique, with recurrent cyclonic and drought spells making it difficult for farmers to respond to the agricultural targets set by the government. The use of smart agriculture systems is seen as one of the main solutions for farmers to increase their food security and productivity and restore degraded agro-systems. With failed donor-driven interventions, it is imperative to develop a technically sound climate-smart design (including aquaponics, biogas, biofertilizers and compost) and a clear and realistic business model that will support smallholder farmers production systems.
CTCN assistance	The TA will support through the following outputs: 1) Diagnose the need of local farmers and benchmark international best

	practices. 2) Develop a complete flowchart of the system including the 4 technologies (aquaponics, biodigester, irrigation and composting) 3) Define a business case of the fit-for-purpose system *4)* Elaborate and disseminate training materials and workshops
Anticipated impact	-20 smallholder farmers participate in the workshop to present the system and the business model for the farm in the Zambezi Valley having a fit-for-purpose design that includes aquaponic, biodigester, bio composting and hydraulic management systems (including water storage and solar pumping integrated systems for drip irrigation). -15 investors, private sector and banking institutions participated in the workshop to introduce the business model. -15 National and municipal officers participate in a workshop to present technical assistance.
Anticipated co-benefits from the TA	The co-benefits for this project include but are not limited to: -Increase awareness on the importance of implementing and learning from the Water-Energy-Food (WEF) Nexus projects. -Development of a strong and clear business case for the establishment of agro-systems that can increase the resilience of the country to the impact of climate change. - In the long-term increase food and nutrition security, specially to the smallholder farmers in rural and remote areas in Mozambique.
Gender aspects of the TA	Women are among those in Mozambique who are most vulnerable to food insecurity and the negative effects of climate change on agriculture. For that reason, the technical assistance will be gender inclusive and respond to the expectations of the partners. The gender expert will ensure a good inclusion of women in the activities of the project and make sure that their perspectives are well represented in the output and deliverables of the project. As well as to guide the key gender empowerment and financial inclusion component of the technical assistance. Ensuring consultation and inclusion of the female beneficiaries through adequate gender models and focus group discussions to make sure that the best technical configuration and payment model are designed focusing on women's capacities, strengths and needs.
Anticipated contribution to NDC	The TA will support to the **Estratégia Nacional de Adaptação e Mitigação de Mudanças Climáticas (ENAMMC**) 2013-2025 where mitigation is being recognized as an opportunity to reduce vulnerability of the country to the impacts of climate change. According to the **Gender, Environment and Climate Change Strategy**, low carbon mitigation represents an opportunity for Mozambique to reduce GHG emissions in the long term. This TA also aligns with the **Plano Estratégico para Desenvolvimento do Sector Agrário (PEDSA-2011-2020)** with a priority on identifying water management practices to improve smallholder farmers' resilience.
The narrative story	The need to enhance food security in Mozambique is imminent. The use of smart agriculture systems is seen as one of the main solutions for farmers to increase their food security and productivity and restore degraded ecosystems. Solar-powered aquaponics is believed to address the problem of climate change affecting agricultural production. Integrated systems will lead to

	greater yields and increased income for farmers. The connection with animal production and using the generated biogas, biofertilizers and organic compounds is believed to close the circle for smallholder farmers who are used to mixed farming. The agricultural sector in Mozambique does not completely lack the technologies and technical capacity to enhance these practices. However, the current market introductions and donor-driven initiatives are not often scaling. They are not tailored to meet the context of Mozambican farmers, especially women. This technical assistance aims to enable unbanked smallholder farmers to plan, procure and implement smart agricultural technologies, including solar-powered aquaponics, biogas, biofertilizers and compost, in a sustainable way. The project will consider making cost-effective investments in a situation of climate unpredictability and with help of the business model support smallholder farmers' economic conditions.
Contribution to SDGs	The technical assistance contributes directly to the following SDGs: **SDG 1:** Aiming to eradicate poverty in all its forms worldwide. Specifically, target 1.5 by building resilience among the impoverished and those in vulnerable situations, reducing their exposure and vulnerability to climate-related extreme events, as well as other economic, social and environmental shocks and disasters. **SDG 6:** This TA strives to substantially increase water-use efficiency across various subsectors, ensuring sustainable withdrawals, and significantly decreasing the number of people suffering from water scarcity. **SDG 7:** Affordable and clean energy. The incorporation of solar irrigation and biogas in the project contributes to the goal of ensuring access to affordable, reliable, sustainable and modern energy for all. **SDG 13:** By fostering resilience to climate change through integrated approaches. By recognizing the interconnectedness of water, energy and food systems, this TA promotes resource efficiency, renewable energy integration, adaptive water management and sustainable agriculture, ultimately mitigating greenhouse waste emissions and enhancing climate resilience.