Commissioned by:	UN Environment, CTCN, Adaptation Fund
Project Title:	Solar based irrigation business mode 'pay as you irrigate' for women empowerment, water management and food security in Mozambique
Implemented by:	Practica & HUB
Country:	Mozambique
Deliverable:	3.3 Minute of the second stakeholder consultation workshop to present the (revised) architecture of the solar-powered irrigation system in Pangalata, Moamba, Mozambique.

Solar-based irrigation business model' pay as you irrigate' for women empowerment, water management and food security in Mozambique

Minute of the second stakeholder consultation workshop to present the revised architecture of the solar-powered irrigation system for Pangalata association in Mozambique, including materials, list of participants disaggregated by gender and photos.

PRACTICA HUB

May 2024

This project has been proposed by Universidade Pedagógica de Maputo

With the support of the Ministry of Science and Technology and High Education

Implemented by PRACTICA & HUB

Commissioned by UN Environment, CTCN, Adaptation Fund

Disclaimer:
This document is an output of the Technical Assistance Response in Mozambique. The present report is the output of the project 'Solar based irrigation business model 'pay as you irrigate' for women empowerment, water management and food security in Mozambique. The views and information contained herein are a product of the international TA implementation team led by PRACTICA & HUB.

Table of contents

List of Figures

1. Introduction

This report is part of the deliverables for the project *Solar-based irrigation business model' pay as you irrigate' for women empowerment, water management and food security in Mozambique* implemented by the consortium PRACTICA and HUB. The project's overall objective is to identify the best Solar Powered Irrigation System (SPIS) for the Pangalata association in Moamba that could be deployed using groundwater, surface water, and the possibility for rainwater harvesting. The system's design will be reinforced by the definition of a clear *pay-as-you-irrigate* business model that will be customized for the lowest-income farmers.

This deliverable provides an description with the activities conducted during the second consultation workshop, where the improved SPIS system design was presented and discussed with the working group.

2. Objectives

The overarching objectives of the second consultation were:

1. To present the revised architecture of the solar-powered irrigation system for the Pangalata association in Moamba, Mozambique.
2. Conduct a field demonstration to showcase the location of each component in the irrigation system designed for the Pangalata fields.
3. Collect feedback from the stakeholder working group to improve the final design.

2.1 Agenda

Agenda

Second workshop for stakeholder consultation project 'Solar-based irrigation business model *pay-as-you-irrigate* for women empowerment, water management and food security in Mozambique

3.

Objective: To present the revised architecture of the solar-powered irrigation system and collect comments from the community.

Local time: Mozambique (GMT+2)
Date: Monday 29th April 2024
Location: Pangalata association field in the morning and SDAE Moamba afternoon

Time	Activity
08:30-09:00	Gathering at the Pangalata association fields, and welcoming of participants and introduction
09:00-10:30	Demonstration directly in the field, where the irrigation system will be installed, components and operation & maintenance Inacio Nhancale (HUB) & Aldo Zamarroni (PRACTICA)
10:30-11:30	Discussion session directly in the field using visualization materials Inacio Nhancale (HUB) & Aldo Zamarroni (PRACTICA)
11:30-12:00	Travel from the field to SDAE Moamba All
12:00-12:30	Open for UP to update on their approach to rural development in Mozambique Arsenio Mindú (Universidade Pedagógica de Moçambique)
12:30-13:30	Action points and conclusion on the field visit, Q&A Inacio Nhancale (HUB) & Aldo Zamarroni (PRACTICA)
13:30-14:30	Lunch

The materials used during the workshop (in Portuguese) and pictures can be accessed at the following link: https://drive.google.com/drive/folders/1NTW4xE46cxQ-sz3O9Bh2swOVlvfW13Rp?usp=sharing

2.2 List of Attendants

No	Name	Institution	Gender
1	Mauta Isais	Smallholder farmer Pangalata	F
2	Elisa Ngomane	Smallholder farmer Pangalata	F
3	Lidia Timane	Smallholder farmer Pangalata	F
4	Virginia Mate	Smallholder farmer Pangalata	F
5	Ana Maria	Smallholder farmer Pangalata	F
6	Cremildo Zunguze	Smallholder farmer Pangalata	M
7	Saibo Buanamade	SDAE Moamba	M
8	Acacio Queldo Zunguze	Smallholder farmer Pangalata	M
9	Elias Chiribuza	Smallholder farmer Pangalata	M
10	Olaxio Messa	SDAE Moamba	M
11	Adelino M	Smallholder farmer Pangalata	M
12	Domingos	SAEJT	M
13	Nelson Mzunguane	INIR	M
14	Manuel P Miquitaio	INIR	M
15	Herieta Massango	UP Maputo	F
16	Aderito Muanda	FUNAE	M
17	Ezar Esau	UP Maputo	M
18	Tania Mabete	IIA/MCTES	F
19	Arsenio Jose Mindu	UP Maputo	M

3. Main outcomes of the second consultation workshop

19 participants (of which 12 were male and 7 female) + 3 HUB staff, and 1 Practica staff participated during the field demonstration and the workshop. Participants belong to the Pangalata Farmer's Association, district directorates of Agriculture (SDAE), District Service for Education, Youth and Technology (SDEJT), District Service for Health, Women and Social Action (SDSMAS), District Service for Planning and Infrastructure (SDPI).

3.1 Field demonstration

The objective of meeting directly in the field was to demonstrate the location of where the components of the solar-powered irrigation system should be installed.

Figure 1. Consortium team, presenting the overall scheme of the SPIS.

During the field demonstration, lime was used to indicate the expected location of the borehole to be drilled and the location, installation and guidelines for the main pipe. This was followed by the geolocation of the control valve units and the demonstration of the precise direction in which the drip lines will be installed and, thus, in which the water will flow within the irrigation system.

Once the general set-up of the irrigation system's components was clear, this allowed a practical demonstration of how the solar irrigation system would be operated and managed. Providing clarity to the farmers that the subplots will be 30 m wide and the length of the drip line will be 100 m.

Figure 2. Discussion with participants of the field session.

INIR technicians raised doubts about how the control valves would function to allow water to flow between different subplots. A step-by-step explanation clarified the activities required for operating, managing, and maintaining the valves.

Finally, smallholder farmers refered to the long term maintenance need for the system. Farmers expressed their request that during the next phase, when the system gets installed, there should be proper training for at least a group of the association to make minor repairs to the system.

3.2 Discussion session in Moamba

After the field, a discussion session occurred in the SDAE facilities in Moamba. Using a PowerPoint presentation (in Portuguese) and translations to Changana (the local language), the focus was to reinforce the smallholder farmers' understanding of how the system has been designed.

Figure 3. Project proponent (Arsenio Mindu) facilitating the discussion session.

One main objective during the discussion session in Moamba was to present the possibility of incorporating the internet of things components into the overall design of the solar irrigation system. These components, as explained in deliverable 3.2, are: i) agricultural sensors (soil moisture, pH sensor, light sensor), ii) weather station, and iii) hydraulic sensors. The main advantages and disadvantages of using these sensors in the overall operation of the system were presented and discussed in the session. As an overall comment from INIR technician (Manuel Miquitao), he pointed out that even though, in principle, these sensors are made to facilitate the operation and improve the overall system's functioning. These are not yet tailored to the actual conditions of rural Mozambique; therefore, these should not be included to avoid problems and cut expenses. This opinion was seconded by the consortium, which has made explicit its position regarding having the simplest design to increase the chances of a successful implementation. Finally agreed by the participants of the working group to include it in the following documents but separated from the bill of quantities.

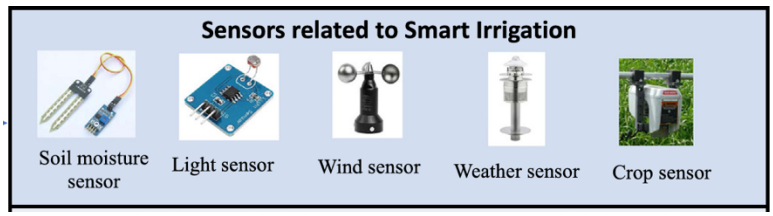
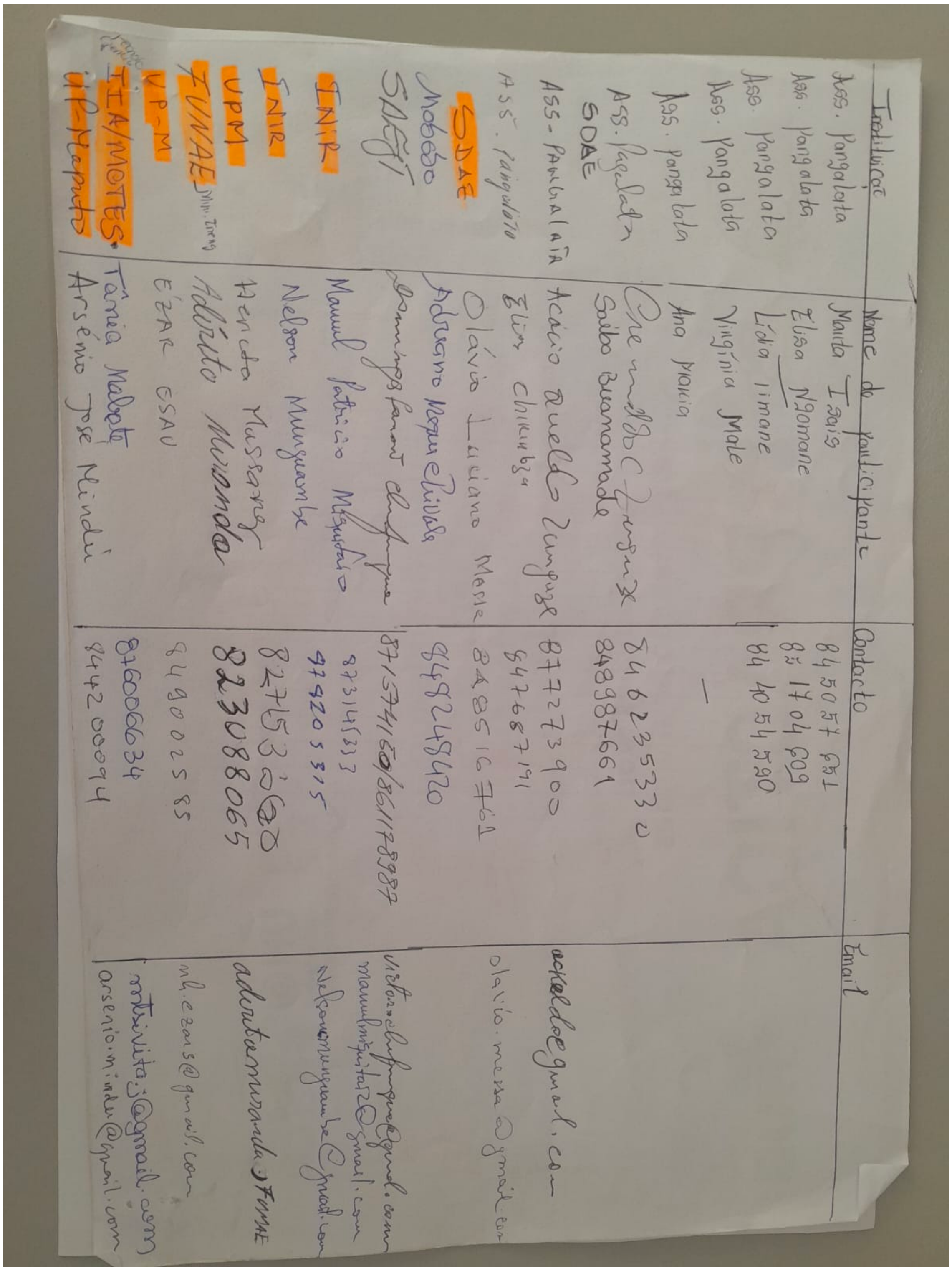


Figure 4. Sensors related to climate smart irrigation.

To close the sessions, the project proponent, represented by Arsenio Mindu, explained the importance of the Pangalata association farmers engaging in the co-design phase and posing all the questions they might have regarding the proposed design. The participants expressed their eagerness to implement the project as soon as possible as they are already convinced of the multiple technical, economic and social advantages the system can trigger in their daily activities.

Annexes

Annex 1. List of participants



Instituição	Nome do participante	Contacto	Email
Ass. Pangalata	Marta Isaías	845057671	
Ass. Pangalata	Elisa Ngomane	821704609	
Ass. Pangalata	Lídia Timane	844054590	
Ass. Pangalata	Virgínia Mate	—	
Ass. Pangalata	Ana Maria		
Ass. Pangalata	[illegible]	846235330	
SDAE	Saíde Buanamade	848987661	
Ass. Pangalata	Acácio Quelolo Zunguze	877273900	[illegible]@gmail.com
Ass. Pangalata	Elim Chicumbza	847687191	
SDAE	Olávio Luciano Messe	848516761	olavio.messa@gmail.com
Mobebo	Adriano Noque [illegible]	848248420	
SDAE	Domingos Fanuel Chafuque	871574160/861173987	victor.chafuque@gmail.com
INIR	Manuel Patrício Mfaputazo	873145333 / 874205315	manuelmfaputaz2@gmail.com
INIR	Nelson Munguambe	827453020	nelsonmunguambe@gmail.com
UPM	Hercídio Massango		
FUNAE Min. Energ.	Adelito Muianda	823088065	adelitomuianda@FUNAE
UP-M	Ezar Esau	849002585	ml.ezaus@gmail.com
TIA/MOTES	Tânia Mabote	876006634	mtivita.j@gmail.com
UP-Maputo	Arsénio José Mindu	844200994	arsenio.mindu@gmail.com