



AGENZIA ITALIANA
PER LA COOPERAZIONE
ALLO SVILUPPO



Deliverable N.: D2.1.3

Title: One (1) consolidated report on awareness events held in Egypt, Sudan, Ethiopia, and Kenya

Funding source: EU Initiative on Climate-relevant Development Smart Innovation Through Research in Agriculture in developing countries – DeSIRA

Project Acronym: WATDEV

Project Full Title: Climate Smart WATER Management and Sustainable DEVELOPMENT for Food and Agriculture in North-East Africa

CRIS Ref.: FOOD/2021/425-767

Project duration: 48 months

Published by the WATDEV Consortium
Dissemination Level: Public



This project has received funding from the European Union's DeSIRA Initiative (Development Smart Innovation through Research in Agriculture)

WATDEV CONSORTIUM

The project consortium is comprised of:

| | |
|------------------------|---|
| EGYPT | Heliopolis University (HU) |
| ETHIOPIA | Water and Land Resources Institute (WLRI) |
| FINLAND | Finnish Environment Institute (SIKE) |
| ITALY | Centro Internazionale di Alti Studi Agronomici Mediterranei di Bari (CIHEAM-Bari) |
| ITALY | Italian Research Council (CNR) |
| KENYA | Kenya Agricultural & Livestock Research Organization (KALRO) |
| SUDAN | Water Research Centre (WRC) |
| THE NETHERLANDS | International Soil Reference Center (ISRIC) |
| UGANDA | Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) |

DISCLAIMER

This publication was produced with the financial support of the European Union.

Its contents are the sole responsibility of the Author(s) and do not necessarily reflect the views of the European Union

DOCUMENT INFORMATION

| | | | |
|------------------------------|--|---------------------|--------|
| Project number | FOOD/2021/425-767 | Acronym | WATDEV |
| Full title | Climate Smart WATER Management and Sustainable DEVELOPMENT for Food and Agriculture in North-East Africa | | |
| Project URL | www.watdev.eu | Document URL | |
| Implementation Agency | AICS (Italian Agency for Development Cooperation) | | |

| | | | | |
|-------------------------|---------------|--------|--------------|---|
| Deliverable | Number | D2.1.3 | Title | One (1) consolidated report on awareness events held in Egypt, Sudan, Ethiopia, and Kenya |
| Project Activity | Number | A2.1 | Title | Awareness sessions for farmers and local actors s |

| | | | | |
|----------------------------|--|-------------------|---------------|-----|
| Date of delivery | Contractual | M30 | Actual | M21 |
| Status | Version 1.0 | | Final | |
| Final review | 30/09/2023 | AICS check | mm.dd.aaaa | |
| Type of document | <input type="checkbox"/> prototype <input type="checkbox"/> report <input type="checkbox"/> demonstration <input type="checkbox"/> other | | | |
| Dissemination level | <input type="checkbox"/> public <input type="checkbox"/> confidential | | | |

| | | | | |
|---|----------------|-------------|--------------|---------------------|
| Authors (Partner) | ASARECA | | | |
| Responsible Authors and contributors | Name | Moses Odeke | Email | m.odeke@asareca.org |
| | Partner | ASARECA | Phone | +256-772605478 |

| | |
|-------------------------------------|--|
| Abstract (for dissemination) | <p>The awareness meetings were held in four countries (Kenya, Ethiopia, Sudan and Egypt). The meetings aimed to: (i) communicate to local communities WATDEV project goals and activities; (ii) increase farmers and local communities' awareness of the impacts of adopting in a non-sustainable way certain practices; (iii) increase farmers' and community awareness of potential BMPs impacts; (iv) share with farmers' ways of how to improve sustainability, efficiency and productivity of selected BMPs; and (v) collect feedback, perceptions, and information needed to define BMPs goals, means, and expected impacts and prioritize, the BMPs objectives for different sustainability dimensions. This was expected to guide the definition of indicators to measure BMPs achievements. Based on the outcomes of the Awareness meetings the following conclusions are made: (i) smallholder farmers across all the target countries are interested in adopting and applying the BMPs; (ii) farmers need to be trained and given access to knowledge resources to support the uptake and application of the BMPs; (iii) farmers and other stakeholders look at the WUAs as one of the tools that will help them learn about the BMPs. The WUAs are also seen as important in terms of ensuring sustainable supply of water for agricultural production; conflict resolution and equitable distribution of the water resources; (iv) use of improved seed has a great potential in enhancing farmers' yields and production, which in-turn can translate into improved food security, incomes, and nutrition of the target communities. However, access to improved seed is still limited since most farmers cannot afford to buy improved seed because of the high costs; (v) across all the target countries, stakeholders prioritized safe water flow and enhancing water quality. This is critical in ensuring that water is safe for both domestic and agricultural use; (vi) knowledge sharing is very important in increasing awareness of the BMPs and should be done through available knowledge sharing platforms and social media channels such as twitter, face-book etc.; and (vii) to support training of stakeholders, there is need to develop brochures and training manuals on the selected BMPs which will used as a tool for training. It's recommended that: (i) the project undertakes a training of stakeholders to enhance uptake and utilization of the BMPs, (ii) prioritize knowledge sharing amongst the stakeholders to enhance learning, (iii) integrate local indigenous knowledge for sustainable application of the BMPs; and (iv) where policies need to be introduced to support application of BMPs, the project should prioritize those legislations or regulations that are supported by the government to ensure wider adoption and implementation..</p> |
|-------------------------------------|--|

| | |
|-----------------|---|
| Keywords | Best Management Practices (BMPs), Stakeholders, Dissemination |
|-----------------|---|

Table of Contents

| | |
|--|----|
| Executive Summary | 7 |
| 1. Introduction..... | 8 |
| 1.1 Background..... | 8 |
| 1.2 Purpose, Context and Scope of this Deliverable | 8 |
| 1.3 Structure and Content of the Deliverable | 9 |
| 2. Context | 10 |
| 2.1 Local Awareness Meetings | 10 |
| 2.2 Target Audience..... | 10 |
| 3. Methodology | 11 |
| 3.1 Approach | 11 |
| 3.2 Workshop Methodology..... | 11 |
| 3.3 Stakeholders | 13 |
| 4. Key Outcomes from Local Awareness Meetings | 14 |
| 4.1 BMP Sensitization and dissemination | 14 |
| 4.2 Feasibility of the selected BMPs..... | 17 |
| 4.3 Stakeholder Feedback | 17 |
| 4.4 Prioritization of Objectives | 18 |
| 5. Conclusions..... | 21 |
| 6. References | 23 |
| 7. Annexes | i |
| Annex 1: Egypt Local Awareness Meeting Report | i |
| Annex 2: Sudan Local Awareness Meeting Report | 14 |
| Annex 3: Ethiopia Local Awareness Meeting Report | 25 |
| Annex 4: Kenya Local Awareness Meeting Report..... | 3 |

Acronyms and Abbreviations

| | |
|----------|--|
| AICS | Italian Agency for Development Cooperation |
| ASARECA | Association for Strengthening Agricultural Research in Eastern and Central Africa, Uganda |
| AU-EU | Africa-Europe |
| CIHEAM | Centre International de Hautes Etudes Agronomiques Méditerranéennes, Italy |
| CNR- | Consiglio Nazionale delle Ricerche, Italy |
| DG DEVCO | The Commission's Directorate-General for International Cooperation and Development |
| EARI | Ethiopian Institute of Agricultural Research, Ethiopia |
| EU | European Union |
| FAO | Food and Agricultural Organization of the United Nations |
| HRC | Hydraulics Research Center- Ministry of Water and Irrigation- Gezira, Sudan. |
| HU | Heliopolis University, Egypt |
| ISRIC | International Soil Reference Center, The Netherland |
| IWUA | Irrigation Water Users Association |
| KALRO | Kenya Agricultural & Livestock Research Organization, Kenya |
| KU | Khartoum University, Sudan |
| NRC | National Research Council, Sudan |
| R&I | Research and Innovation |
| WRC | Water Research Centre, Sudan |
| SACCO | Savings Credit and Cooperative Organizations |
| STI | Science, Technology, and Innovation |
| SYKE | Finnish Environment Institute, Finland |
| WATDEV | Climate Smart WATER Management and Sustainable DEVELOPMENT for Food and Agriculture in North and East Africa |
| WLRC | Water and Land Resources Center, Ethiopia |

Executive Summary

The awareness meetings were held in four countries (Kenya, Ethiopia, Sudan and Egypt). The meetings aimed to: (i) communicate to local communities WATDEV project goals and activities; (ii) increase farmers and local communities' awareness of the impacts of adopting in a non-sustainable way certain practices; (iii) increase farmers' and community awareness of potential BMPs impacts; (iv) share with farmers' ways of how to improve sustainability, efficiency and productivity of selected BMPs; and (v) collect feedback, perceptions, and information needed to define BMPs goals, means, and expected impacts and prioritize, the BMPs objectives for different sustainability dimensions. This was expected to guide the definition of indicators to measure BMPs achievements in A2.3 Feasibility studies).

Based on the outcomes of the Awareness meetings the following conclusions are made: (i) smallholder farmers across all the target countries are interested in adopting and applying the BMPs; (ii) to support the uptake and application of the BMPs, farmers need to be trained and given access to knowledge resources; (iii) Smallholder farmers and other stakeholders look the Water Users Associations (WUAs) as one of the key community based organizations that will help them learn about the BMPs. The WUAs are also seen as important in terms of ensuring sustainable supply of water for agricultural production; conflict resolution and equitable distribution of the water resources; (iv) use of improved seed has a great potential in farmers' yields and production, which in-turn can translate into improved incomes and well-being of the target communities. However, access to improved seed is still limited since most farmers cannot afford to buy improved seed because of the high costs; (v) across all the target countries, stakeholders prioritized safe water flow and enhancing water quality. This is critical in ensuring that water is safe for both domestic and agricultural use; (vi) knowledge sharing is very important in increasing awareness of the BMPs and should be done through available knowledge sharing platforms and social media channels such as Twitter, Facebook etc.; and (vii) to support training of stakeholders, there is need to develop brochures and training manuals on the selected BMPs which will used as a tool for training.

It's recommended that: (i) the project undertakes a training of stakeholders to enhance uptake and utilization of the BMPs, (ii) prioritizes knowledge sharing amongst stakeholders to enhance knowledge on the BMPs and other project interventions; (iii) where there is need to introduce legislation or regulation, the project should focus on those legislations that are supported by the government; and (iv) project should leverage on WUAs to: address key issues such as land tenure that might affect adoption of certain BMPs such as agroforestry in some countries (Kenya), boost agricultural productivity and access to markets in target areas, address potential resource conflicts, and ensure equitable distribution of water resources.

1. Introduction

1.1 Background

The Climate Smart **WAT**er Management and Sustainable **DEV**elopment for Food and Agriculture in East Africa (WATDEV) aims to enhance sustainability of agricultural water management and resilience of agro ecosystems to climate change in Easter Africa and Egypt. Agenzia Italiana per la Cooperazione e lo Sviluppo (AICS) is the executing agency, while CIHEAM-BARI is the leading scientific institution, working closely with the Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), the Kenya Agricultural and Livestock Research Organization (KALRO), Water, Land Resources Centre – Ethiopia (WLRC), Water Research Centre (WRC), Sudan and Heliopolis University (HU), Egypt.

The project aims to develop an in-depth understanding of small to large-scale water and agricultural resource dynamics and management and people's resilience to climate change through innovative research, modelling, and capacity building approaches. The overarching objective of the project is to enhance sustainability of agricultural water management and resilience of agro ecosystems to climate change in East Africa and Egypt. The specific objectives of the project include: (1) National Ministries and Research Institutions improve their knowledge and management of water in agriculture; and (2) Farmers and local actors, cooperatives and Water User Associations implement innovative/sustainable solutions and skills on water management. The project has four (4) key results namely: (i) Best fitting BMPs and Innovations selected by 4 countries (R1); (ii) Enhanced implementation of BMPs/innovations in study areas (R2); (iii) BMPs /Innovations upscale and out-scale scenarios performed (R3); (iv) A water planning/management toolbox available for Researchers and Institutions (R4); and (v) Strengthened knowledge and capacity building and established regional "Water Knowledge" Hub (R5).

Under R1, selection of the candidate Best Management Practices (BMPs) was done during the A1.3 Multi-Actors' Regional Meeting that was held on 8 March 2023 in Nairobi, Kenya; paving the way for sharing the "selected" BMPs with potential end-users / local communities through awareness meetings. These meetings were held in each of the target countries (Egypt, Ethiopia, Kenya, Sudan), with at least one (1) meeting held in each country (activity A2.1).

The awareness meetings were organized by the local partners (KALRO, WLRC, WRC and HU) in partnership with ASARECA and CIHEAM-BARI. To ensure that right stakeholders are targeted for the local awareness meetings, analysis of target groups (farmers/stakeholders) was conducted prior to the awareness events to generate a list of stakeholders to be invited to participate in the awareness sessions. The target group analysis was carried out by the local partners between April and June 2023 and was undertaken concurrently with the design of the structure and contents of the awareness meetings. More details about the stakeholder's analysis conducted in the four case study areas are collected in the deliverable *D2.1.1 – One detailed report on stakeholder analysis*.

1.2 Purpose, Context and Scope of this Deliverable

The **overall objective** of the local awareness meetings is to enhance the implementation of selected BMPs and Innovations by the local communities in the study areas where BMPs and Innovations will be studied and analyzed with models for their possible implementation and upscaling.

The major focus of the awareness sessions was to present and explain to stakeholders selected BMPs /Innovations, outlining possible impacts arising from their (BMPs) implementation. The awareness events also collected reactions/feedback, perceptions from local farmers in terms of specific needs and technical solutions required to adapt the selected BMPs to the local context.

The **specific objectives** of the awareness sessions included the following:

- 1) Communicate to local communities WATDEV project goals and activities.
- 2) Increase farmers and local communities' awareness of the impacts of adopting in a non-sustainable way certain practices.
- 3) Increase farmers' and community awareness of potential BMPs impact/s
- 4) Share with farmers' ways of how to improve sustainability/efficiency/productivity of selected BMPs.
- 5) Collect feedback, perceptions, and information needed to define BMPs goals, means, and expected impacts and prioritize, for different sustainability dimensions, the BMPs objectives (to guide the definition of indicators to measure BMPs achievements in A2.3 Feasibility studies).

The local awareness sessions aimed to deliver the following outputs: (i) preliminary list of on-site stakeholders involved in the BMPs implementation identified and documented; (ii) completed "survey" on BMPs objectives, means and impacts; (iii) completed list of prioritized "sustainability" objectives; and (iv) report on site-level awareness meeting (to be collected in D2.1.2).

The **scope** of the D2.1.3 deliverable covers the events that relate to: (i) organization of the awareness sessions; and (ii) actual awareness sessions to raise awareness on "selected" BMPs, collect feedback on "selected BMPs" and disseminate the BMPs.

The deliverable therefore covers the outcomes of the local awareness meetings in Kenya, Ethiopia, Sudan, and Egypt expected to increase farmers' awareness of the potential impacts of the BMPs among other things.

1.3 Structure and Content of the Deliverable

Deliverable D2.1.3 Consolidated Report of the Local Awareness Meetings in Kenya, Ethiopia, Sudan and Egypt

The structure for the D2.1.3 report is as follows: (i) executive summary, (ii) introduction (purpose, context and scope of the deliverable; and structure, content of the deliverable), (iii) context (local awareness meetings and impacts, and target audience), (iv) conclusion; (v) references; and (vi) annexes (individual country reports). The deliverable provides content generated from the implementation of local awareness meetings in Kenya, Ethiopia, Sudan, and Egypt during this reporting period.

2. Context

2.1 Local Awareness Meetings

(a) Organization of the Awareness Sessions

A total of four (4) awareness sessions were implemented (one in each country) and were facilitated by (i) ASARECA; (ii) the local partners in the countries (KALRO, WLRC, WRC and HU), and (iii) CIHEAM-BARI. The awareness meetings were expected to deliver the following deliverables:

- D2.1.1 - Four (4) reports summarizing the outcomes of stakeholder analysis exercise, one by each focus country (ASARECA) (due date: 30/06/2023);
- D2.1.2 - Interim reports on awareness events held in target countries (ASARECA) (due date: 31/08/2023)
- D2.1.3 - One (1) consolidated final report on awareness events held in target countries (ASARECA) (due date: 30/09/2023)

Due to acute time constraints related the deadlines of the two last deliverables, a unanimous decision was made by the partners during the 1st Annual Partners' Meeting (Nairobi, KE – 09/03/2023) to merge D2.1.2 and D2.1.3 and present it as one consolidated deliverable (D2.1.3).

(b) Project Impacts

Activities under D2.1.3 will contribute to the delivery of the following early and long term outcomes:

- 1) Increased awareness of farmer associations and local communities of the potential impacts of adopting the BMPs.
- 2) Improved sustainability, efficiency, and productivity of selected BMPs.

2.2 Target Audience

The awareness events were designed to target mainly farmers (and other relevant stakeholders) potentially involved in BMPs or Innovations implementation, local communities at large (with a preference for young people and women), and smallholders' organizations.

Because the adoption of and/or adaptation to a new or an improved practice represents a learning process that should be carried on into a well-established group of actors that interact regularly (as it can be a village or a community), thus this group of stakeholders can potentially be described as a Community of Practice (CoP)¹.

The activities implemented under this deliverable (local awareness meetings in the study areas) targeted audience drawn from the following stakeholder categories: (i) farmers/local communities, (ii) community-based organizations, (iii) research and extension, (iv) financial/economy, (v) policy makers, and (vi) students.

¹ Etienne Wenger (Leave and Wenger, 1991) summarizes Communities of Practice (CoP) as “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.” This learning that takes place is not necessarily intentional. The purpose of a CoP is to provide a way for practitioners to share tips and best practices, ask questions of their colleagues, and provide support for each other.

3. Methodology

3.1 Approach

The implementation approach for the awareness events entailed the presentation of selected BMPs or Innovations, outlining goals, means, and possible impacts.

The awareness events focussed on gathering reactions and responses from local farmers and stakeholders on specific needs and the adoption of technical solutions embedded in BMPs and innovations.

The events laid the foundation for continuous consultation with farmers and other stakeholders in the study areas to collect feedback, perceptions, and information needed to support the participatory feasibility studies of selected BMPs and Innovations envisaged by WATDEV.

During the organization and implementation, ASARECA shall ensure the overall coordination of the events, working closely with CIHEAM-BARI who developed awareness and sensitization messages on BMPs and Innovations and reviewing country reports of awareness events.

ASARECA also worked with the local partners (HU, WLRC, WRC, and KALRO) who participated in the organization and facilitation of the events, development of the reports as well as undertaking stakeholder analysis in the study areas.

The following specific actions were undertaken to accomplish the awareness process:

- 1) Final revision of “selected” BMPs (Undertaken by ASARECA)
- 2) Target groups analysis of farmers/stakeholders to which the Awareness event is addressed (Local partners)
- 3) Developing structure/contents of Awareness event (CIHEAM-Bari, local partners)
- 4) Carrying the four awareness meetings (ASARECA, local partners)
- 5) Reporting and preparation of deliverables (D2.1.2 – D2.1.3) (ASARECA)

3.2 Workshop Methodology

The local Awareness Meetings (AMs) were held in a day in each country (Egypt, Sudan, Ethiopia and Kenya). The meetings were attended by both physical and online participants via Zoom platform. The AMs were facilitated by ASARECA, HU, WRC/KU, WLRC and KALRO in collaboration with CIHEAM-BARI Team.

A typical Awareness session was implemented in three distinct steps (or phases) as follows.

Phase 1 – Presentation of WATDEV Project

This entailed presentation of the project objectives, methods and expected results and overview of activities in the country. This phase also involved “Communication and Dissemination” activities focussed on informing farmers and local communities at large about the project goals and how WATDEV activities can concretely influence their agricultural activities.

Phase 2 - Presentation of selected BMPs

This entailed a guided discussion to present the “selected” BMPs/Innovations, pointing on how practices are applied, their impacts on the environmental system (water, soil, crop, atmosphere) and how to improve their sustainability/efficiency/productivity. Easy-to-read communication materials such as leaflets/cartoons, info graphics were distributed to help to communicate/share such information. This phase also entailed collecting feedback from farmers using the following guiding questions:

- Is this the BMP feasible in this specific area?

- What are the merits and demerits of their implementation?
- Are there specific needs and technical solutions to adapt the selected BMPs to the local context?

The information on the merits, demerits, and suggestions were then collected by the facilitator(s) during the feedback session.

Phase 3 – Prioritization of BMPs (Sustainability) Objectives

This was last phase of the awareness event and entailed an exercise aimed at collecting their perceptions about the BMPs' objectives from local stakeholders.

During this exercise, the facilitator displayed the table (see Table 1 below) either on the screen or as a printed copy in which, the main objectives for different sectors that were listed for each selected BMP.

The stakeholders are asked to select one objective under each sector, by voting.

Table 1 - BMP sustainability objectives

| SECTORS | | OBJECTIVES |
|---------------|----------------|--|
| Socioeconomic | Socio-cultural | • To create job opportunities for locals. |
| | | • To contribute reducing/mitigating social conflicts. |
| | | • To respect traditional/historical practice(s) in the area. |
| | Policy | • It is supported by the Government. |
| | | • Legislations/Regulations are easy to understand. |
| | | • It is compliant with national legislation and regulations |
| | Governance | • There are organizations helping farmers to learn about BMPs. |
| | | • To improve cooperation among all value chain actors. |
| | | • To improve collaboration between institutions and value chain actors |
| | Economy | • Farm costs are manageable. |
| | | • To increase crop production. |
| | | • To increase farmer's income. |
| Environmental | Groundwater | • To avoid pollution. |
| | | • To enhance water quality. |
| | Soil | • To ease access to the groundwater. |
| | | • To keep the soil from washing away. |
| | | • To make the soil better for growing crops. |
| | Crop | • To help crops grow better. |
| | | • To make crops productive. |
| | | • To make crops healthier. |
| | Surface water | • To make crops resistant to pests and diseases. |
| | | • To avoid pollution. |
| | | • To enhance water quality. |
| | Atmosphere | • To keep the water flow safe. |
| | | • To reduce greenhouse gases emissions. |
| | | • To make the air cleaner. |
| | | • To ensure a healthier environment for the community. |

3.3 Stakeholders

A stakeholder analysis was conducted by Local Partners in the sites encompassed by the BMPs / Innovations to identify the most suitable and needed stakeholders to participate in the awareness meetings. The outcomes of the stakeholders' analysis were presented in another report as deliverable D2.1.1.

The awareness events were designed to target mainly farmers (and other relevant stakeholders) potentially involved in BMPs or Innovations implementation, local communities at large (with a preference for young people and women), and smallholders' organizations.

To achieve a good balance between wider communication, and direct engagement of the farmers, the number of participants was kept under 50 people. The participation of students was encouraged. Women participation was directly targeted because of their direct involvement in agricultural activities.

The awareness meeting in Sudan was held on 17 June, 2023 while the meeting in Ethiopia was held on 30 June, 2023. The meetings in Kenya and Egypt were held on July 18 and 31, 2023 respectively.

The total number of participants that participated in the local meetings as well as the meeting dates for the local events is shown in Table 2.

Table 2 - Number of Participants in Awareness Meetings (by **country and Stakeholder Category**)

| # | Stakeholder | Kenya | Ethiopia | Sudan | Egypt | Total |
|---|------------------------|-----------|-----------|-----------|-----------|------------|
| 1 | Farmers | 8 | 32 | 20 | 26 | 86 |
| 2 | Research and extension | 7 | 8 | 11 | 15 | 41 |
| 3 | Organization | 7 | 3 | 6 | 4 | 20 |
| 4 | Policy | 5 | 1 | 9 | 2 | 17 |
| 5 | Students | 0 | 0 | 2 | 7 | 9 |
| 6 | Finance/Economy | 1 | 1 | 1 | 2 | 5 |
| | Total | 28 | 45 | 49 | 56 | 178 |

4. Key Outcomes from Local Awareness Meetings

The WATDEV local awareness meetings were held in four countries (Kenya, Ethiopia, Sudan, and Egypt).

The awareness meetings aimed to: (i) share the “selected” BMPs with potential end-users / local communities; (ii) sensitize and train farmers and other stakeholders (extension workers and community development actors) on application of selected BMPs and innovations, outlining goals, means and possible impacts; and (iii) collect feedback from the local stakeholders especially their perceptions on feasibility, specific needs, and technical solutions to adapt the selected BMPs to the local context.

The highlights of the key outcomes that emerged from these meetings are discussed below.

4.1 BMP Sensitization and dissemination

(a) Sensitization

The outcomes from the local awareness meetings indicate that all the target countries carried out sensitization of stakeholders during the awareness sessions.

The sensitizations of the BMPs majorly focused on the following issues:

- Composting: (i) application of BMPs, access to knowledge and other resources for utilization of BMPs
- Water Users Associations: (i) water quality, (ii) water crop requirements, (iii) scaling of BMPs, management of irrigation infrastructure among others.
- Crop rotations: (i) appropriate rotations; and (ii) benefits of crop rotations.
- Agroforestry: (i) appropriate tree species for intercropping with crops; (ii) agro-forestry management; (iii) skills for agro-forestry management; (iv) trees for livelihood improvement etc.

Details of these observations are presented in Table 3 below:

Table 3 - Sensitization and Dissemination of BMPs

| # | Country | BMP | Key focus areas | Feasibility status (yes=1, no=2) | Recommendations for improvement |
|---|---------|---------------------------------------|---|----------------------------------|--|
| 1 | Egypt | Composting | <ul style="list-style-type: none"> – Application of compost manure- training of farmers to make compost, makes its application more cost effective. – Use of special bacteria to fasten decomposition of compost manure. – Knowledge and other resources required to make good compost. – Use of social media channels such as: WhatsApp, Twitter and Facebook to increase awareness. | 1 | On-farm demos to increase adoption of composting |
| | | Intercropping with trees/Agroforestry | <ul style="list-style-type: none"> – Suitable tree crops for intercropping with other crops. | 1 | Use fruit trees to increase benefits |

| # | Country | BMP | Key focus areas | Feasibility status (yes=1, no=2) | Recommendations for improvement |
|---|----------|-------------------------|---|----------------------------------|--|
| | | | <ul style="list-style-type: none"> – Sourcing of seedlings and planting. | | |
| | | Water Users Association | <ul style="list-style-type: none"> – Water quality issues. – Water requirements- training of farmers on how to know how much water the crop needs to avoid wastage. | 1 | <ul style="list-style-type: none"> - Need for a mobile app that can enable farmers to receive information on water quality on their phones - Support by government required to identify the water requirements of different areas and give this information to farmers so that there is efficient use of water |
| 2 | Sudan | Water Users Association | <ul style="list-style-type: none"> – Operation and maintenance, – Farmer's organizations, – Institutional governance, – Technology adoption | 1 | Need for a well-maintained irrigation system for efficient distribution of water |
| | | Improved Seed | <ul style="list-style-type: none"> – Agricultural operations, – Seed production and challenges, (Wheat seeds) | 1 | Government subsidies required to enable farmers acquire improved seed at affordable prices |
| 3 | Ethiopia | Agroforestry | <ul style="list-style-type: none"> – Role of Agro forestry in climate smart farming as a land use integrating trees, with crops and livestock – Home garden- a gender sensitive best practice, which involves combining fruit trees, annual crops and trees for fuel wood and construction. – Management of scattered trees on farmland by pruning and trimming, cutting down leaves to decompose and create manure. – Benefits of agro-forestry- (i) improves land productivity through soil fertility, additional of biomass and nitrogen fixing trees, (ii) soil and water conservation, (iii) provides diversified products in a unit of land such as fuel wood and timber, fodder for livestock, fruit production, vegetables and cereals, spices, coffee and herbal medicines, vegetables | 1 | Train farmers on the most suitable agroforestry system that benefit them and improve their livelihoods |
| | | Crop | <ul style="list-style-type: none"> – Best practices in the | 1 | - Use of vermi houses for |

| # | Country | BMP | Key focus areas | Feasibility status (yes=1, no=2) | Recommendations for improvement |
|---|---------|-------------------------|--|----------------------------------|--|
| | | Rotations/Soil Health | <p>preparation and use of organic fertiliser including formulation of compost and vermi-compost facilities.</p> <ul style="list-style-type: none"> – Benefits of vermi-composting. – Benefits of crop rotation- (i)break pest and disease cycles, (ii) improve soil fertility, (iii) improve water holding capacity, (iv) increase water holding capacity, and (v) improve crop yields. | | <p>better results</p> <ul style="list-style-type: none"> - Green manure provides good alternative source of organic manure |
| | | Water Users Association | <ul style="list-style-type: none"> – Management of the irrigation system, and infrastructure – Promotion of irrigation farming and enhancing productivity. – Scaling of selected BMPs. – Management of drainage systems and supply water to members. – Identifying and implementing measures to combat soil erosion, salinity, and pollution. – Prevention of wastage of water. – Ensuring compliance to system of cost recovery. | 1 | <ul style="list-style-type: none"> - Maintenance and servicing of irrigation facilities - Issuance of rules for use of water and collection of water user fees. - Setting of water tariffs - Ensuring fairness, equity, and non-discrimination in water allocation and distribution. |
| 4 | Kenya | Agroforestry | <ul style="list-style-type: none"> – Capacity building of the community members on the various BMPs, especially agroforestry: (i) skills for agroforestry management, (ii) suitable species for irrigation scheme, (iii) fruit trees for livelihood improvement, (iv) tree species for soil nutrient improvement, fodder, and woodlots, and (v) trees suitable for intercropping with other crops. | 1 | <ul style="list-style-type: none"> -Establish demos to showcase agroforestry demos -Agroforestry should be done in the areas designated for the households settlement (1 acre each) |
| | | Water Users Association | <ul style="list-style-type: none"> – Training of WUAs on water management issues. | 1 | <ul style="list-style-type: none"> -Water harvesting from Tana River into dams, reservoirs or water pans in times of plenty so that there can be a continuous supply for irrigation, even in the hinterland. -Engage policy and |

| # | Country | BMP | Key focus areas | Feasibility status (yes=1, no=2) | Recommendations for improvement |
|---|---------|-----|-----------------|----------------------------------|---------------------------------|
| | | | | | legislation on land use. |

(b) Dissemination

During the Awareness meetings, the information on BMPs were disseminated among the farmers and other stakeholders.

To enhance dissemination and uptake of the BMPs to other farmers, it was noted that establishment of on farm demonstrations in one of the farmer's farm would be very helpful in this case.

Farmers also noted that it was important to present information on the BMPs in the local language so that they are understandable, and this would facilitate rapid dissemination to all farmers.

4.2 Feasibility of the selected BMPs

Across the 4 countries (Egypt, Sudan, Ethiopia, and Kenya), farmers and other stakeholders unanimously appreciated the BMPs which were selected during the A1.3 regional multi-actor meeting in Nairobi, Kenya.

Stakeholders argued that the selected BMPs (composting, intercropping trees with crops/agroforestry, water users' association, and crop rotations) were adaptable to the local conditions, cost-effective, and have the potential to deliver multiple benefits.

4.3 Stakeholder Feedback

Whereas farmers and other stakeholders appreciated the selected best management practices (BMPs), they expressed some concerns that need to be investigated and addressed by the project.

Some of these concerns are highlighted in the Table below.

Table 4 - Concerns/Feedbacks from stakeholders (by country and BMP)

| # | Country | BMPs | Concern/Feedback |
|---|---------|--------------------------|--|
| 1 | Egypt | Composting | <ul style="list-style-type: none"> ▪ Efficiency of animal manure- there is not enough animal manure among farmers due to limited number of livestock owned by the farmers ▪ Generally limited use of compost- there is need to have a pilot/model demonstration in each village then other farmers/villages can copy ▪ Animal manure takes a longer time to decompose- need to look for innovative ways that facilitate faster decomposition of organic matter. ▪ Need to sensitize relatives and other social networks about BMPs |
| | | Intercropping with trees | <ul style="list-style-type: none"> ▪ There is gap between farmers and extension agents to advise on the best practice with regards to intercropping. ▪ Knowledge and knowledge sharing is very important to support dissemination and adoption. |
| | | Water Users Association | <ul style="list-style-type: none"> ▪ How to keep farmers engaged in the WUAs activities including attending meetings is a challenge. ▪ Sustainability of the WUA is also challenge. ▪ A lot of conflict with regards to the leadership of the association. Quarrels as to who should be in the leadership position. ▪ Some farmers still use conventional means of irrigation. Need for them to adopt modern means of irrigation. |

| # | Country | BMPs | Concern/Feedback |
|---|----------|----------------------------|---|
| | | | <ul style="list-style-type: none"> Incentives and penalties should be put in place as a way of addressing the challenges. |
| 2 | Ethiopia | Crop Rotations/Soil Health | <ul style="list-style-type: none"> Need to integrate including indigenous knowledge in the preparation of organic manure. |
| | | Water Users Association | <ul style="list-style-type: none"> Better rationing of water among plots at the head and tail. Rational water scheduling. Quality maintenance. Fair water distribution. Ensuring good governance through bye laws. Establishing a strong users' Association. Addressing marketing issues especially for vegetables. Addressing unique challenges of women headed households. Deal with issues around water pricing to rehabilitate infrastructure at dam and canal level. |
| | | Agroforestry | <ul style="list-style-type: none"> Limited access to tree seedlings, and agricultural extension for agroforestry practices. |
| 3 | Sudan | Improved seed | <ul style="list-style-type: none"> Need for government support to subsidize improved seed prices for the farmers. |
| | | Water Users Association | <ul style="list-style-type: none"> Hydraulic management and maintenance of the irrigation and drainage system of the scheme. |
| 4 | Kenya | Agroforestry | <ul style="list-style-type: none"> Limited skills among the various community members on agroforestry issues. Need to build capacity for agroforestry implementation. The irrigation scheme is expanding very fast, yet the issues of water availability have not been addressed. This poses a challenge is water availability. Climatic changes affecting water availability and creating competition in demand within the irrigation scheme. Conflicts within the irrigation scheme between the livestock keepers and crop farmers. |
| | | Water Users Association | <ul style="list-style-type: none"> The land tenure system (leasehold) within the irrigation scheme may limit how much farmers can do in terms of agroforestry. |

4.4 Prioritization of Objectives

The prioritization of the objectives (for different sustainability dimensions) was done to guide the definition of indicators to measure BMPs achievements in A2.3 Feasibility studies.

Summary findings from this exercise are presented in the following Tables.

Table 5 - WUAs: Overall Rankings (for selected sustainability dimensions)

| Sector | Sustainability Objective | | |
|----------------|---|---|--|
| | Ranked #1 | Ranked #2 | Ranked #3 |
| Socio cultural | To create jobs for the locals | To respect traditional / cultural practices | To enhance gender empowerment |
| Policy | It's supported by the government | It's compliant with national legislations and regulations | Legislations and regulations are easy to understand |
| Governance | There are organizations helping farmers to learn about BMPs | To improve cooperation among all value chain actors | To improve collaboration between institutions and value chain actors |
| Economy | To increase crop production | To make farm costs manageable | To increase farmers' income |
| Groundwater | To ease access to ground water (N/A for Sudan) | To enhance water quality | To avoid pollution |
| Soil | To help crops grow better | To make soil better for growing crops | To increase farmers' income |
| Crop | To make crops productive | To make crops healthier | To make crops resistant to |

| Sector | Sustainability Objective | | |
|---------------|---|--------------------------|------------------------------------|
| | Ranked #1 | Ranked #2 | Ranked #3 |
| | | | pests and diseases |
| Surface water | To keep the water flow safe | To enhance water quality | To avoid pollution |
| Atmosphere | To ensure a healthier environment for the community | To make the air cleaner | To reduce greenhouse gas emissions |

Table 6 - Agroforestry: Overall Rankings (for selected sustainability dimensions)

| Sector | Sustainability Objective | | |
|----------------|---|--|---|
| | Ranked #1 | Ranked #2 | Ranked #3 |
| Socio cultural | To create jobs for the locals | To respect traditional / cultural practices | To enhance gender empowerment |
| Policy | It's supported by the government | It's compliant with national legislations and regulations | Legislations and regulations are easy to understand |
| Governance | There are organizations helping farmers to learn about BMPs | To improve collaboration between institutions and value chain actors | To improve cooperation among all value chain actors |
| Economy | To increase farmers' income | To increase crop production | To make the farm costs manageable |
| Groundwater | To ease access to ground water | To enhance water quality | To avoid pollution |
| Soil | To keep the soil from washing away | To help crops grow better, make soil better for growing crops | To increase farmers' income |
| Crop | To make crops productive | To make crops healthier | To make crops resistant to pests and diseases |
| Surface water | To keep the water flow safe | To enhance water quality | To avoid pollution |
| Atmosphere | To ensure a healthier environment for the community | To make the air cleaner | To reduce greenhouse gas emissions |

Table 7 - Crop Rotations: Overall Rankings (for selected sustainability dimensions)

| Sector | Sustainability Objective | | |
|----------------|--|---|---|
| | Ranked #1 | Ranked #2 | Ranked #3 |
| Socio cultural | To create jobs for the locals | To respect traditional / cultural practices | To enhance gender empowerment |
| Policy | Legislations/Regulations are easy to understand | It's supported by the Government | It's compliant with national legislations and regulations |
| Governance | To improve collaboration between institutions and value chain actors | There are organizations helping farmers to learn about BMPs | To improve cooperation among all value chain actors |
| Economy | To increase farmers' income | To increase crop production | To make the farm costs manageable |
| Groundwater | To ease access to groundwater | To enhance water quality | To avoid pollution |
| Soil | To keep the soil from washing away | To help crops grow better, make soil better for growing crops | To increase farmers' income |
| Crop | To make crops productive | To make crops healthier | To make crops resistant to pests and diseases |
| Surface water | To keep the water flow safe | To enhance water quality | To avoid pollution |
| Atmosphere | To ensure a healthier environment for the community | To make the air cleaner | To reduce greenhouse gas emissions |

Table 8 - Composting: Overall Rankings (for selected sustainability dimensions)

| Sector | Sustainability Objective | | |
|----------------|---|--|---|
| | Ranked #1 | Ranked #2 | Ranked #3 |
| Socio cultural | To create jobs for the locals | To respect traditional / cultural practices | To enhance gender empowerment |
| Policy | It's supported by the Government | Legislations/Regulations are easy to understand | It's compliant with national legislations and regulations |
| Governance | There are organizations helping farmers to learn about BMPs | To improve collaboration between institutions and value chain actors | To improve cooperation among all value chain actors |
| Economy | To increase farmers' income | To make the farm costs manageable | To increase crop production |
| Groundwater | To enhance water quality | To ease access to ground water | To avoid pollution |
| Soil | To help crops grow better | To increase farmers' income | To keep the soil from washing away |
| Crop | To make crops healthier | To make crops resistant to pests and diseases | To make crops productive |
| Surface water | To keep the water flow safe | To enhance water quality | To avoid pollution |
| Atmosphere | To ensure a healthier environment for the community | To reduce greenhouse gas emissions | To make the air cleaner |

Table 9 - Improved Seed: Overall Rankings (for selected sustainability dimensions)

| Sector | Sustainability Objective | | |
|----------------|--|-----------|-----------|
| | Ranked #1 | Ranked #2 | Ranked #3 |
| Socio cultural | To create jobs for the locals | None | None |
| Policy | It's supported by the Government | None | None |
| Governance | To improve collaboration between institutions and value chain actors | None | None |
| Economy | To make farm costs manageable | None | None |
| Groundwater | N/A | N/A | N/A |
| Soil | To help crops grow better | None | None |
| Crop | To make crops productive | None | None |
| Surface water | To keep the water flow safe | None | None |
| Atmosphere | To ensure a healthier environment for the community | None | None |

Findings from the Awareness meetings show that the following sustainability objectives for the **Water Users Associations (WUAs)** were ranked as the most important for different sustainability dimensions: (i) to create jobs (socio-cultural); (ii) legislation or regulation supported by the government (policy); (iii) there are organizations helping framers to learn about BMPs (governance); (iv) to increase crop production (economy); (v) to ease access to groundwater (groundwater); (vi) to help crops grow better (soil); (vii) to make crops productive (crop); (viii) to keep the water flow safe (surface water); and (ix) to ensure a healthier environment for the community (atmosphere). These findings clearly indicate that WUAs are essential for providing sustainable water supply, which is critical for ensuring food security, while at the same time ensuring that agriculture remains economically viable (IWMI 2018).

Other reasons for promoting the WUA include (but not limited to): (i) dissemination of sustainable water use practices (UN Water, 2015); (ii) ensuring fair and equitable distribution of water resources among different user groups, reducing conflicts over water access; (iii) empowering local

communities to actively participate in water resource management decisions, thus fostering community ownership and development; (iv) ensuring that water use and management activities align with national and regional water laws and regulations; (v) provide a platform for conflict resolution and mediation, thus enhancing cooperation among different user groups and promoting social cohesion (IWMI, 2018).

For **Agroforestry**, the sustainability objectives ranked as most important included: (i) to create jobs for the locals (socio-cultural); (ii) legislations are supported by the government (policy); (iii) existence of organizations helping farmers to learn about BMPs (governance); (iii) to increase farmers' income; (iv) to ease access to groundwater (groundwater); (vi) to keep the soil from washing away (soil); (vii) to make crops productive (crop); (viii) to keep the water flow safe (surface water); and (ix) to ensure a healthier environment for the community (atmosphere).

It's important noting that farmers and other stakeholders appreciate the BMP on agroforestry for its potential benefits in protecting the soil from being washed away by runoff, improve soil fertility through nutrient recycling and nitrogen fixation (by leguminous trees) and ability to provide fruits.

In other BMPs (**crop rotations, composting, and improved seed**), the ranking followed nearly the same pattern for all the sustainability dimensions.

Across the BMPs, stakeholders prioritized the objectives on policy only if the legislation/ regulation was supported by the government and if the legislations were compliant with the national legislations and regulations.

This confirms the willingness of stakeholders to comply with the government regulations to avoid any penalties but also highlight the fact that legislations enacted by governments would easily be adopted and implemented.

5. Conclusions

The awareness meetings were held in four countries (Kenya, Ethiopia, Sudan and Egypt).

The meetings aimed to: (i) communicate to local communities WATDEV project goals and activities; (ii) increase farmers and local communities' awareness of the impacts of adopting in a non-sustainable way certain practices; (ii) increase farmers' and community awareness of potential BMPs impacts; (iii) share with farmers' ways of how to improve sustainability, efficiency and productivity of selected BMPs; and (iv) collect feedback, perceptions, and information needed to define BMPs goals, means, and expected impacts and prioritize, the BMPs objectives for different sustainability dimensions.

This was expected to guide the definition of indicators to measure BMPs achievements in A2.3 Feasibility studies.

Based on the outcomes of the Awareness meetings the following conclusions are made:

- 1) Smallholder farmers across all the target countries are interested in adopting and applying the BMPs.
- 2) To support the uptake and application of the BMPs, farmers need to be trained and given access to knowledge resources.
- 3) Smallholder farmers and other stakeholders look the WUAs as one of the key community-based organizations that will help them learn about the BMPs. The WUAs are also seen as important in terms of ensuring sustainable supply of water for agricultural production, conflict resolution and equitable distribution of the water resources.
- 4) Use of improved seed has a great potential in farmers' yields and production, which in-turn can translate into improved incomes and well-being of the target communities. However, access to improved seed is still limited since most farmers cannot afford to buy improved seed because of the high costs.

- 5) Across all the target countries, stakeholders prioritized safe water flow and enhancing water quality. This is critical in ensuring that water is safe for both domestic and agricultural use.
- 6) Knowledge sharing was highlighted as very important in increasing awareness of the BMPs especially through social media channels such as twitter, face-book and others
- 7) To support training of stakeholders, there is need to develop brochures and training manuals on the selected BMPs which will used as a tool for training.

It's recommended that the project:

- (a) Undertakes a training of stakeholders to enhance uptake and utilization of the BMPs,
- (b) Prioritizes knowledge sharing amongst the stakeholders to enhance learning,
- (c) Integrates local indigenous knowledge for sustainable application of the BMPs;
- (d) Prioritize those legislations or regulations that are supported by the government to ensure wider adoption and implementation (where policies need to be introduced to support application of BMPs).
- (e) Work closely with WUAs to address land tenure challenges in the target irrigation schemes as these have the potential to derail application of certain BMPs such as agro-forestry.
- (f) Work closely with the WUAs to address to address conflicts within the irrigation schemes, and other challenges such as *proposis julifora* spp and market access issues.

6. References

1. IWMI (2018). Water Users Associations: A Review of Approaches and Alternative Management Options for Sub-Saharan Africa. IWMI Working Paper 180.
2. UN FAO. (2005). Irrigation in Africa in Figures. AQUASTAT Survey- 2005
3. UN Water. (2015). The 2015 edition of the United Nations World Water Development Report (WWDR 2015): Water for a Sustainable World, launched at the official celebration of the World Water Day, on March 20.

7. Annexes

Annex 1: Egypt Local Awareness Meeting Report



Meeting for the Local Awareness Event in Egypt

Date: July 30, 2023
Hybrid (Physical and Virtual)

Meeting Report

By

ASARECA, HELIOPOLIS UNIVERSITY and CIHEAM Bari

July 2023



Contents

| | |
|--|--------|
| List of Figures | i |
| Acronyms | ii |
| Preamble | - 0 - |
| 1. Background | - 0 - |
| 2. Project Area | - 0 - |
| Purpose of the Dissemination Event and Awareness Meeting | - 1 - |
| 3. Methodology | - 2 - |
| 3.1 Awareness Methodology | - 2 - |
| 3.2 Workshop Methodology | - 4 - |
| 3.3 Stakeholders | - 4 - |
| 4. WorkshopDiscussions | - 4 - |
| 4.1 Raising Awareness and Sharing of BMPs | - 4 - |
| 4.1.1 Opening Session | - 4 - |
| 4.1.2 Remarks on Workshop Program | - 6 - |
| (a) Meeting Objectives and Agenda | - 6 - |
| 4.1.2 Sharing of Selected BMPs | - 6 - |
| 4.3 Prioritization of the BMP Objectives (by sector) | - 7 - |
| 4.4 Concerns and Recommendations | - 8 - |
| 5. Wrap-up and Closure | - 9 - |
| Annexes | - 10 - |
| Annex 1 - Meeting Agenda | - 10 - |

List of Figures

| | |
|--|-------|
| Figure 1: The Study area: SEKEM farm | - 1 - |
|--|-------|

Acronyms

| | |
|-------------|--|
| AICS | Italian Agency for Development Cooperation |
| ASARECA | Association for Strengthening Agricultural Research in Eastern and Central Africa |
| BMPs | Best Management Practices |
| CNR | Italian National Research Council |
| CIHEAM Bari | International Centre for Advanced Mediterranean Agronomic Studies – Institute of Bari |
| EU | European Union |
| EUR | Euro |
| GWS | Ground Water Sector |
| HU | Heliopolis University |
| SLM | Sustainable Land Management |
| SWC | Soil and Water Conservation |
| WATDEV | Climate Smart Water Management and Sustainable Development for Food and Agriculture in East Africa |

Preamble

WATDEV Sensitisation meeting held in Egypt.

ASARECA joined Egyptian partners, Heliopolis University, in a workshop that was held on July 30, 2023, to share and further refine the Best Management Practices that were selected for Egypt during the regional multi-actors meeting that was held in Nairobi- Kenya.

The dissemination and sensitization event was attended by Egyptian stakeholders, including farmers under the WATDEV Project, relevant ministries, private sector as well as staff and students from the Heliopolis University. The meeting held in Sekem Farm in Belbeis, Desert Road, attracted 48 (10 females: 38 male) participants.

The project *Climate Smart Water Management and Sustainable Development for Food and Agriculture in North-East Africa (WATDEV)* is implemented by CIHEAM-BARI, Italy in collaboration with European partners (SKYKE, CNR and ISRIC) and African partners to promote innovations at the water energy and agriculture nexus to enhance economic development and resilience to climate change in Kenya, Ethiopia, Sudan, and Egypt.

In Ethiopia, the Project is implemented in partnership with the Water and Land Resource Centre, Addis Ababa University; in Kenya, it is implemented in collaboration with the Kenya Agriculture and Livestock Research Organisation (KALRO), and in Sudan it is implemented in collaboration with the Water Research Centre. It brings together academia, policy, and private sector to create an environment conducive to agricultural innovation and modern transformation.

ASARECA is responsible for coordinating the implementation of the project activities in the four African partners, who mainly are part of its wide constituents in the National Agricultural Research Systems (NARS). The project is supported by DG International partnerships (INTPA) of the European Union under the Development of Smart Innovation through Research in Agriculture (DeSIRA) initiative and led by the Italian Agency for Development Corporation. (AICS).

1. Background

The Climate Smart Water Management and Sustainable Development for Food and Agriculture in East Africa (WATDEV) project aims to enhance sustainability of agricultural water management and resilience of agro-ecosystems to climate change in East Africa and Egypt. The project is being implemented in partnership with AICS, CIHEAM-BARI and four African partners (Kenya Agricultural, and Livestock Research Organization, Water Land Resource Center, Water Research Center and Heliopolis University). ASARECA is coordinating the implementation of the activities by the African partners. The project aims to develop an in-depth understanding of small to large-scale water and agricultural resource dynamics and management and people's resilience to climate through innovative research, modelling, and capacity building approaches. The project is supported by DG International partnerships (INTPA) of the European Union under the Development of Smart Innovation through Research in Agriculture (DeSIRA) initiative.

The Italian Agency for Development Corporation (IACs) is the executing agency, while CIHEAM-Bari is the Technical Scientific Lead and is implementing the project in collaboration with European partners (SKYKE, CNR and ISRIC) and African partners (KALRO, WLRC, WRC, HU) to promote innovations at the water energy and agriculture nexus to enhance economic development and resilience to climate change in Kenya, Ethiopia, Sudan, and Egypt. ASARECA is responsible in coordinating the implementation of the project activities in the four African partners, who mainly are part of its wide constituents in the National Agricultural Research Systems (NARS). Implementation of the project started in April 2022.

The overarching objective of the project is to enhance sustainability of agricultural water management and resilience of agro-ecosystems to climate change in East Africa and Egypt. The specific objectives include: (1) National Ministries and Research Institutions improve their knowledge and management of water in agriculture; and (2) Farmers and local actors, cooperatives and Water User Associations implement innovative/sustainable solutions and skills on water management.

The Egyptian WATDEV local awareness event was held on 30th July 2023, in Sharqia, Belbis – Egypt and was hosted by the Heliopolis University.

2. Project Area

Belbies district is located 20 km south of El Zagazig city between Long. 31°24' and 31° 39' E and Lat. 30°19' and 30°29' N. Belbies district, bounded at the north by El Zagazig, at the east by Abu Hammad, at the west by Minia El Kammh and in the south by the Tenth of Ramadan City districts. In the centre of Belbies there is the Ismailia Canal and Belbies drain which is subsidiary of Bahr El Baqar drain system. Belbies district, as a part of the east Nile Delta, constitutes a portion of an arid belt of north Egypt. It is characterized by a long dry summer and short temperate winter with a rainfall period from October to March. The climate is hot in summer; the average temperature is in the range of 19.7oC and 34.7oC, while during winter it ranges from 7.4°C and 18.4°C.

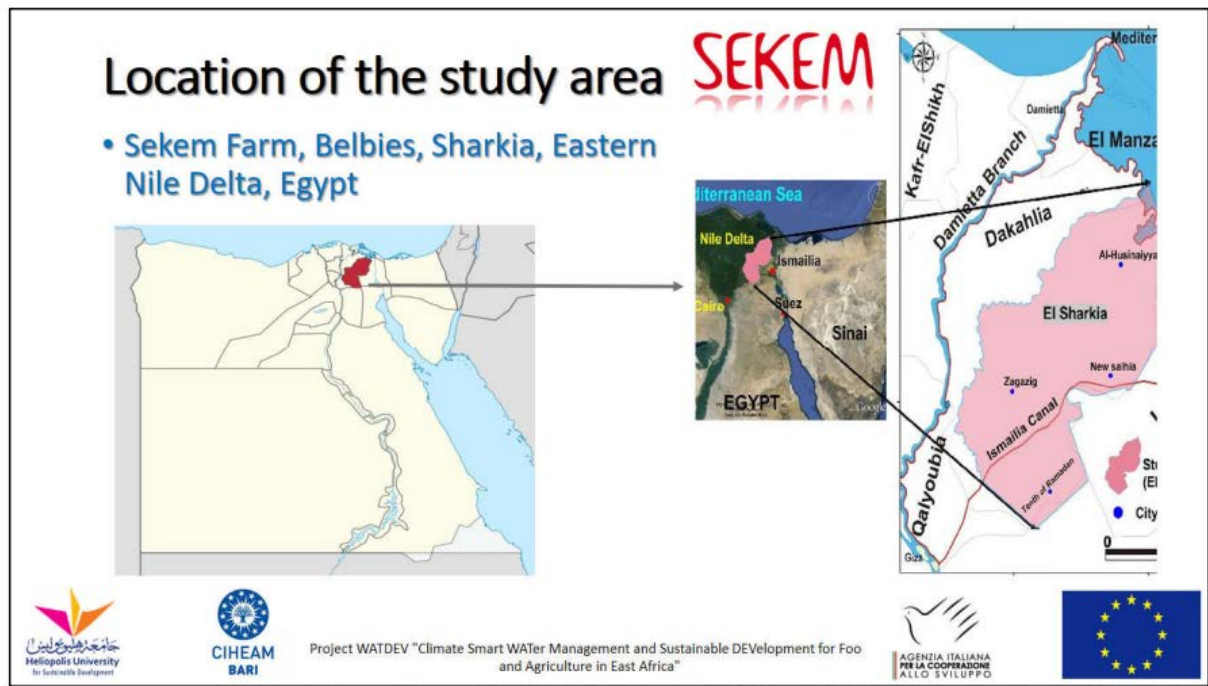


Figure 1: The Study area: SEKEM farm

Purpose of the Dissemination Event and Awareness Meeting

The purpose of the dissemination event and awareness meeting was to share the Best Management Practices (BMPs) which were selected during the Multi-Actors' Regional Meeting held in Nairobi, Kenya on 08/03/2023. The overall objective is to enhance the implementation of selected BMPs and Innovations in the local communities. The specific objectives of the Awareness workshop were to:

- Share the “selected” BMPs with potential end-users / local communities.
- Train farmers and other stakeholders (extension workers and community development actors) on application of selected BMPs and innovations, outlining goals, means and possible impacts.
- Collect feedback from the local stakeholders especially their perceptions on feasibility, specific needs, and technical solutions to adapt the selected BMPs to the local context.
- Conduct a stakeholder analysis of the local stakeholders engaged in the implementation of the BMPS and innovations.

The Awareness meeting was facilitated by ASARECA and Heliopolis University and was attended by stakeholders drawn from SEKEM Farm, Heliopolis University; CIHEAM-BARI (virtually) physically); ASARECA; Farmers, Belbies Community members, NGOs, and Local Government. The meeting was well attended by both men and women and their participation throughout the meeting was equally good.

3. Methodology

3.1 Awareness Methodology

The Awareness session was conducted in three inter-related steps (or phases) as follows:

Phase 1 – Presentation of WATDEV Project: Objectives, methods and expected results and overview of activities in the country. The “communication and dissemination” activities were addressed to inform farmers and local communities at large about the project goals and how WATDEV activities can concretely influence their agricultural activities.

Phase 2 - Presentation of selected BMPs. This was a guided discussion to present the “selected” BMPs/Innovations, pointing on how practices are applied, their impacts on the environmental system (water, soil, crop, atmosphere) and how to improve their sustainability/efficiency/productivity. The leaflets/infographic were distributed to stakeholders to help to communicate/share the information. This phase also aimed at gathering feedback from farmers. In this regard, farmers and stakeholders were asked a series of questions including:

- (i) What could be your role and how would you support in helping and making the implementation of this BMPs more feasible?
- (ii) What are the major obstacles of their implementation?
- (iii) Are there specific needs and technical means to implement the selected BMPs to the local context? Answers will be collected by the facilitator(s) (e.g., using a paperboard and post-it).

Phase 3 – Prioritization of BMPs (sustainability) objectives. This was the last exercise of the meeting. It was aimed collecting perceptions/feedback from local stakeholders, about the BMPs objectives.

Table 1 – BMP sustainability objective

| SECTORS | | OBJECTIVES |
|---------------|----------------|---|
| Socioeconomic | Socio-cultural | 1. To create job opportunities for locals. |
| | | 2. To contribute reducing/mitigating social conflicts. |
| | | 3. To respect traditional/historical practice(s) in the area. |
| | Policy | 4. It is supported by the Government. |
| | | 5. Legislations/Regulations are easy to understand. |
| | | 6. It is compliant with national legislation and regulations |
| | Governance | 7. There are organizations helping farmers to learn about BMPs. |
| | | 8. To improve cooperation among all value chain actors. |
| | | 9. To improve collaboration between institutions and value chain actors |
| | | |
| Environmental | Economy | 11. To increase crop production. |
| | | 12. To increase farmer's income. |
| | Groundwater | 13. To avoid pollution. |
| | | 14. To enhance water quality. |
| | | 15. To ease access to the groundwater. |
| | Soil | 16. To keep the soil from washing away. |
| | | 17. To make the soil better for growing crops. |
| | | 18. To help crops grow better. |
| | Crop | 19. To make crops productive. |
| | | 20. To make crops healthier. |
| | | 21. To make crops resistant to pests and diseases. |
| | Surface water | 22. To avoid pollution. |
| | | 23. To enhance water quality. |
| | | 24. To keep the water flow safe. |
| | Atmosphere | 25. To reduce greenhouse gases emissions. |
| | | 26. To make the air cleaner. |
| | | 27. To ensure a healthier environment for the community. |

It is important to clearly illustrate the meaning of the listed objectives thus make aware participants about the differences between them. Then, the stakeholders are asked to select one objective under each sector, by voting. Such an exercise should be carried out using a score card, to avoid that individual stakeholder may be influenced by the other participants' judgment or evaluation. Other voting system are possible, according with the people habits. The facilitator collects the votes and share with all the participant the final score. Note: it is important to underline that the choice should not be made among different sustainability dimensions because all of them need to be fulfilled to ensure a sustainable management of the resources.

The results of the prioritization exercise will represent a guide for the sustainable management of the area in which the BMP is applied and, moreover, the objectives should be the basis for the selection of a set of indicators to evaluate the achievement of BMPs goals in the frame of the feasibility studies as well as the target for the modelling simulations.

3.2 Workshop Methodology

The WATDEV awareness event was held on 30th July 2023 (See workshop programme in annex 1). The workshop was attended by both physical and online participants via zoom platform. The physical meeting entailed power point presentations and discussions in the plenary. The workshop sessions included: (i) Welcome and introduction (Session 1); (ii) Preparing the ground for discussion (Session 2); Presentation of selected BMPs (Session 3); (iv) Public consultation exercise (Session 4) and wrap up (Session 5). Session 1; entailed welcome remarks and introduction of participants; while Session 2 involved presentations of WATDEV Project (objectives, methods and expected results), meeting objectives and agenda. Session 3 focussed on presentation of selected BMPs (water users' association, agroforestry, and composting). Other key guiding questions included: (i) what is the feasibility of the selected BMPs in the local community? (ii) what are the pros and cons of their implementation and suggestions? (iii) what are the specific needs and technical solutions to adapt the selected BMPs to the local context? and (iv) participatory prioritization of the objectives for BMPs.

3.3 Stakeholders

A total of 56 (11 females, 45 male) participants attended the meeting and were drawn from the following stakeholder categories: (i) Academia (Heliopolis University and Zagazig University); (ii) Farmers; (iii) Local Government; (iv) Sekem Farm; (v) CIHEAM-Bari (through zoom link); (vi) ASARECA, and (iii) Students from Heliopolis University.

4. Workshop Discussions

4.1 Raising Awareness and Sharing of BMPs

4.1.1 Opening Session

(a) Coordinator WATDEV Project in Egypt: Prof. Sherif Elsayed

Prof. Sherif welcomed all the participants to the awareness event that the meeting is intended to listen to the stakeholders and get feedback from them regarding the BMPs that were chosen. According to Prof. Dr. Sherif Mohamady Elsayed, the coordinator the Project, the objective of the awareness meeting is to enhance the implementation of selected Best Management Practices and innovations in the local communities of the study areas where Best Management Practices and Innovations will be studied and analysed for implementation and upscaling under the WATdev Project. Prof. Elsayed heads the project by virtue of his position as the Vice Dean for Community Services and Environmental Development in the Faculty of Engineering, Heliopolis University. Prof Elsayed noted that, the awareness sessions are meant to explain selected BMPs and innovations, outline goals, means and possible impacts.

(b) Technical Scientific Lead: Dr. Claudio Bogliotti

The WATDEW Scientific Lead, Dr. Claudio Bogliotti thanked HU and ASARECA for organizing the meeting. He also thanked all the participants for turning up to participate in the meeting. He noted that the expectation on the project from the meeting is to learn, take on

board comments, suggestions and wishes of the stakeholders. He noted that, there is need to get suggestions from the stakeholders to proceed with the development of the project, and that more awareness events will be organized to ensure continuity in dialogue.

Dr. Bogliotti thanked the local participants for the enthusiasm in analysing the BMPs, ASARECA for coordination of actors across the continent, and Heliopolis University for mobilising stakeholders. “This is the 4th of a series of awareness events organised under the WATDEV Project through which we hope to learn, share and take up comments from stakeholders on BMPs,” he noted. “We expect the Consultations in Egypt to give us critical and clear recommendations to provide continuity to the project content, which will enable us develop the project further.”

(c) WATDEV Project: Dr. Gaetano Ladisa

The WATDEV Project Manager, delivered special thanks to the farmers. He noted that the awareness meeting to define priorities and the goals that the farmers need to achieve in the implementation of the best management practices, leading to the modelling and selection of models. He concluded his remarks by wishing participants a very successful meeting.

Dr. Ladisa thanked the farmers and government stakeholders for their keenness. “Egypt was the first place where stakeholder consultations were held in September 2022, which set off a research process where BMPs were selected,” said Dr. Ladisa. “The meeting will define priorities and goals that farmers need to achieve in the implementation of the BMPs, which will in turn inform the tools to be provided to local authorities to refine the BMPs in Egypt.”

(d) Dean Faculty of Engineering, Heliopolis University: Prof. Wael Khairy

In an opening address Prof Wael Khairy (PhD), Head of Civil Engineering Department (Water Programme) Heliopolis University for Sustainable Development, who spoke on behalf of the

Dean Faculty of Engineering affirmed the commitment of the Faculty of Engineering, Heliopolis University, with its four branches, Water Engineering - Energy Engineering - Mechatronics Engineering and Green Architecture Engineering to serve the rural community within the university's scope in Belbies in particular, by developing sustainable applied solutions that reduce competition for water and clean energy among farmers.

“These solutions are also useful in increasing the productivity of a cubic meter of water. Here comes the role of the individual farmers in conserving water from loss, waste, and pollution because it is an existential source without which life cannot continue,” he noted.

(e) Remarks from ASARECA WATDEV Coordinator: Mr. Moses Odeke

In remarks, ASARECA’s Acting Head of Programmes, Mr. Moses Odeke who is currently coordinating the initiative at the regional level, explained that following the first round of awareness sessions in Egypt, Ethiopia, Sudan, and Kenya in 2022, a multi-actor stakeholder meeting held in the Kenyan capital, Nairobi, selected a combination of BMPs for each intervention country to pilot under the WATDEV Project. “The second round of intervention meetings which have now been carried out in all intervention countries is therefore meant to validate the selected BMPs by reviewing their benefits, feasibility, practicability and challenges in application and further prioritise objectives for each BMPs,” said Mr. Odeke. “This exercise will bring forward specific needs and technical solutions to adapt the selected BMPs to the local content.”

4.1.2 Remarks on Workshop Program

(a) Meeting Objectives and Agenda

Mr. Moses Odeke (ASARECA) noted that meeting was organized to collect feedback from the stakeholders. He encouraged participants to speak out and provide feedback as requested by the workshop organizers. He then took the participants through the meeting objectives and agenda.

(b) WATDEV Project Objectives

Prof. Sherif made a presentation on WATDEV project objectives highlighting the need for partnerships for implementation of the project. He also highlighted the various study areas where the project is being implemented in the four African countries (Kenya, Ethiopia, Sudan and Egypt). He concluded his presentation by sharing the expected project results noting that the BMPs selected for Egypt will be scaled up with help of a modelling toolbox.

Stakeholders meeting is meant to provide feedback on the best way to apply best practices in the intervention areas. It is aimed at improving productivity at the level of the ultimate beneficiaries—the farmers. Best Management Practices (BMPs) have been selected for all implementing countries, namely, Kenya, Ethiopia, Sudan, and Egypt. For Egypt, the selected best management practices include: Water resources management (ground water, user associations), Intercropping and Composting.

The meeting is meant to share the selected BMPs with stakeholders or beneficiaries and in a way of validating the BMPs through feedback by the participants. The meeting will also select and validate members to be trained as trainers to train others on BMPs.

4.1.3 Sharing of Selected BMPs

Session 2 was dedicated to presentations on selected best management practices with the aim of sharing and raising awareness on selected BMPs. The selected BMPs for Egypt included: (i) Water users association; (ii) Intercropping; and (iii) Composting.

Key highlights of the presentation included the following:

(a) Composting

- There is a specific bacterium that fastens decomposition of compost manure.
- Because of the high demand and interest in compost making, there is need for a field visit for participants to physically see how compost is made. On farm demonstration in one of the farmers farms would be very helpful to the rest of the farmers.
- Most farmers still use conventional means of irrigation, there is need for them to adapt the non-conventional means of irrigation.
- Farmers should not only be availed with the knowledge but also with the resources needed to make compost.
- Once farmers are taught how to make compost, it becomes more cost effective.
- When using compost, it is important to have farms separated because some farmers use inorganic fertilizers.
- Awareness for the BMPs can be increases through social media such as WhatsApp, Facebook and twitter.

(b) Intercropping/ Agroforestry

- Types of crops in Sekem farm include, tomatoes, olives, lemon, avocado, papaya, lettuce, zucchini, cabbages.

(c) Water user associations

- There is need for farmers have access to water sensors or an application in farmer's phones to enable them to test the water requirements of their soils.
- Water requirements/ water needs: Farmers needs the skill to know how much water the crop needs to avoid wastage. Government should identify the water requirements of different areas and give this information to farmers so that there is efficient use of water. There is need for a line of communication between stakeholders to share information. Information should be centralised in each area, to ease communication.
- The 3 BMPs presented should be presented in the local language so that they are understandable and should be disseminated to all farmers.

4.2 Prioritization of the BMP Objectives (by sector)

The results on prioritization of the Objectives for BMPs are shown on Table 1 below:

Table 2: Prioritization of the Objectives for BMPs- Composting, Intercropping and Water Users Association

(a) Socio-economic sub-Sector

| Sub sector | Objectives | Count | Rank |
|----------------|---|-------|------|
| Socio-cultural | 1. To create job objectives | 25 | 1 |
| | 2. To enhance gender empowerment | 1 | 3 |
| | 3. To respect traditional/historical practice(s) | 9 | 2 |
| Sub sector | Objectives | Count | Rank |
| Policy | 1. It's supported by the Government | 18 | 1 |
| | 2. Legislations/Regulations are easy to understand | 0 | 3 |
| | 3. It's compliant with national legislations and regulations | 13 | 2 |
| Sub sector | Objectives | Count | Rank |
| Governance | 1. There are organizations helping farmers to learn about BMPs | 22 | 1 |
| | 2. To improve cooperation among all value chain actors | 0 | 3 |
| | 3. To improve collaboration between institutions and value chain actors | 15 | 2 |
| Sub sector | Objectives | Count | Rank |
| Economy | 1. To make farm costs manageable | 4 | 2 |
| | 2. To increase crop production | 3 | 3 |
| | 3. To increase farmer's income. | 31 | 1 |

(b) Environmental sub-Sector

| Sub sector | Objectives | Count | Rank |
|---------------|---|-------|------|
| Ground water | 1. To avoid pollution | 8 | 3 |
| | 2. To enhance water quality | 18 | 1 |
| | 3. To ease access to the ground water | 11 | 2 |
| Soil | 1. To keep the soil from washing away | 0 | 3 |
| | 2. To help crops grow better. | 37 | 1 |
| | 3. To increase farmer's income. | 3 | 2 |
| Crop | 1. To make crops productive. | 1 | 3 |
| | 2. To make crops healthier. | 19 | 1 |
| | 3. To make crops resistant to pests and diseases | 13 | 2 |
| Surface water | 1. To avoid pollution | 2 | 3 |
| | 2. To enhance water quality | 4 | 2 |
| | 3. To keep the water flow safe. | 31 | 1 |
| Atmosphere | 1. To reduce greenhouse gases emissions | 7 | 2 |
| | 2. To make the air cleaner | 0 | 3 |
| | 3. To ensure a healthier environment for the community. | 38 | 1 |

4.3 Concerns and Recommendations**(a) Concerns**

The following concerns were raised by the stakeholders regarding the feasibility of implementation of the selected BMPs.

Composting

- Efficiency of animal manure- there is not enough animal manure among farmers due to limited number of livestock owned by the farmers.
- Generally limited use of compost- there is need to have a pilot/model demonstration in each village then other farmers/villages can copy.
- Animal manure takes a longer time to decompose- need to look for innovative ways that facilitate faster decomposition of organic matter.
- Need to sensitize relatives and other social networks about BMPs.

Water Users Association

- The farmers get bored easily and do not come to the meetings, then things go into sleep mode.
- Sustainability is a challenge.
- A lot of conflict with regards to the leadership of the association. Quarrels as to who should be in the leadership position.
- Some farmers still use conventional means of irrigation. Need for them to adopt modern means of irrigation.
- Incentives and penalties- as a way of addressing the challenges.

Intercropping with trees (agroforestry)

- There is gap between farmers and extension agents to advise on the best practice with regards to intercropping. Knowledge and knowledge sharing is very important.
- Trees should also be planted at the plot boundaries for wind protection.

(b) Recommendations (for improving application of BMPs)

The following recommendations were given by stakeholders for improving the application of BMPs:

- 1) Development of a WUA and empowering it.
- 2) Training and expert knowledge sharing.
- 3) Design brochure or training manual on compositing as a training tool.
- 4) Increase awareness of the BMPs through social media channels such as Twitter, Facebook and others.

5. Wrap-up and Closure

Prof. Sherif took participants through the next steps of actions which will include practical trainings and getting advice from authorities. He encouraged participants to go and share the lessons learnt from the meeting, with the other farmers who did not come for the meeting.

He encouraged stakeholders to work together and emphasised the need for quality farming to improve livelihoods.

Mr. Odeke Moses officially closed the meeting by appreciating all participants for attending the meeting and for being active. He added that ASARECA, CHEAM Bari, AICS and Heliopolis University look forward to continuously engaging with the participants to ensure that the objectives of the project are met.

Annexes

Annex 1 - Meeting Agenda



LOCAL STAKEHOLDERS DISSEMINATION EVENT & AWARENESS MEETING

BELBIS, SHARQIA (Egypt)

JULY 30TH, 2023 | AGENDA

| | |
|----------------------|--|
| 08:30 - 9:00 | <i>Arrival and registration of participants</i> |
| SESSION 1 | WELCOME AND INTRODUCTION |
| 09:00 - 9:30 | <ul style="list-style-type: none"> • Welcome (Dean, Faculty of Engineering, Heliopolis university) • Short presentation of participants (name and role/activity) |
| SESSION 2 | PREPARING THE GROUND FOR DISCUSSION |
| 09:30 - 10:00 | <i>The WATDEV Project: Objectives, methods and expected results (HU)</i> |
| | <i>Meeting objectives and agenda (ASARECA)</i> |
| 10:00 - 10:30 | <i>Coffee break & Group photo</i> |
| SESSION 3 | PRESENTATION OF SELECTED BMPs |
| 10:30 - 12:30 | <p><i>Presentation of selected BMPs: guided discussion on how practices are applied, their impacts on the environmental system (water, soil, crop, atmosphere).</i></p> <ul style="list-style-type: none"> • Water resources management (ground water, user associations) • Intercropping • Composting <p><i>(Facilitator: HU / ASARECA)</i></p> <p><i>Buffet lunch (1h30')</i></p> |
| 12:30 - 14:00 | |
| SESSION 4 | THE PUBLIC CONSULTATION EXERCISE |
| 14:00 - 15:30 | <p><i>Consultation with stakeholders to prioritize BMPs objectives for each sustainability dimension (Social, Economic, Environmental, Governance), to enhance feasibility study of BMPs.</i></p> <p><i>(Facilitator: HU / ASARECA)</i></p> |
| SESSION 5 | WRAP-UP AND CONCLUSION |
| 15:30 - 16:00 | <ul style="list-style-type: none"> • Wrap-up and closure (ASARECA) • Next steps: starting implementation of BMPs (HU). |



Funded by
the European Union



ITALIAN AGENCY
FOR DEVELOPMENT
COOPERATION



CIHEAM
BARI



Heliopolis University
for Sustainable Development



Annex 2 – Attendance Sheet

| # | Name | G | Institution | Email | Stakeholder Category | Country | | |
|----|-----------------------------|---|---|--|--|---------------------------------|-----------------|-----------------|
| 1 | Dr. Sherif Mohamady Elsayed | M | HU | Sherif.mohamady@hu.edu.eg | | Egypt | HU & SEKEM | |
| 2 | Dr. Wael Khairy | M | HU | Wael.khairy@hu.edu.eg | | Egypt | | |
| 3 | Dr. Marmar Badr | F | HU | Marmar.badr@hu.edu.eg | | Egypt | | |
| 5 | Dr.Mohammed Daowd | M | HU | mohamed.aawd@hu.edu.eg | | | | |
| 6 | Dr.Heba Mosalam | F | HU | Heba.mosalam@hu.edu.eg | | | | |
| 7 | Dr.Ghada abelzaher | F | HU | Ghada.abdelzaher@hu.edu.eg | | | | |
| 8 | Eng. Salma Eladly | F | HU | Salma.wael@hu.edu.eg | Research Assistant | Egypt | | |
| 9 | Eng.Aya Yasser | F | HU | Aya.yasser@hu.edu.eg | Research Assistant | | | |
| 10 | Mr. Gamal Abdelhamid | M | Rural Development Centre, HU | gamal.abdelhamed@hu.edu.eg | Community representatives / NGO | Egypt | | |
| 11 | Dr. Amr Sabahy | M | Sekem for land Reclamation | Amr.sabahy@sekem.com | Business & commercial enterprises | Egypt | | |
| 12 | Dr. Mohamed Anwar | M | Rural Development Centre, HU | mohammed.anwar@hu.edu.eg | Director of Centre for Rural Development | | | |
| 13 | Prof. Dr. Abdelazim Ali | M | National water Research Centre | Azim1@hotmail.com | Policy/ Research Institution | Egypt | | Research |
| 14 | Dr. Ahmed Nosair | M | Zagazig University | ahmed_nosair2003@yahoo.com | Policy / University | Egypt | | |
| 15 | Dr. Manal el Sayed | F | Zagazig University | dr_manalalnaimy@yahoo.com | Policy / University | Egypt | | |
| 16 | Haj Sayed Shaheen | M | Vice Mayor & Farmer | | 1280971117 | Local authority | Egypt | Local Community |
| 17 | Dr. Ahmed Elfalougy | M | Consultant of environmental economics and sustainab | | 0 122 703 3676 | Local community decision makers | Egypt | |
| 18 | Eng . Ahmed Elshahat | M | Agricultural Engineer | | 1112220619 | Staff working in area | Egypt | |
| 19 | Mohamed Elsaady | M | NGO Member | | 0 120 006 6096 | Community representative | Egypt | |
| 20 | Mahmoud Salah | M | Farmer from the area | | 1288664273 | Community representative | Egypt | |
| 21 | Samar Mohamed | F | Student at O.A Heliopolis university | | 1271505847 | Community representative | Egypt | |
| 22 | Shimaa Hany Ahmed | F | Females leader in the 13 Villages | | | Community representative | Egypt | |
| 23 | Mohamed Saber | M | Organic agriculture teacher (SEKEM School) | | 1225395492 | Community representative | Egypt | |
| 24 | Mohamed Mohamed Ahmed | M | Student at Asout university | | 1022806355 | Feild worker | Egypt | |
| 25 | Ashraf Abo Liela | M | Farmer & has Land | | | Land owner | Egypt | |
| 26 | Mohamed Abdelkawi | M | Lecture Assisant at the of Engineering at Al-zhar unive | | 1015315388 | Community representative | Egypt | |
| 27 | Yasmine Khaled El Sayed | F | EBDA | | 1090786793 | Researcher from the AUC | | |
| 28 | Ahmed Soltan Hussein | M | Farmer -Next to Mr. hossam' Land | | 1224227506 | land owner | | |
| 29 | Eng. Mahmoud Abdel Fattah | M | EBDA | | 1272223052 | Organic Agriculture Experts | | |
| 30 | Abdelrahman Mohamed | M | Student at the Faculty of Engineering AinShams univers | | 1204135080 | Community representative | Egypt | |
| 31 | Ahmed Ashraf Kamel | M | Zagazig University | | 1021852042 | Power Engineer | Egypt | |
| 32 | Gamal Elmowafy | M | Deputy Editor-in-Chief of Al-Gomhoria newspaper | | 1281928428 | Community representative | Egypt | |
| 33 | Mohamed Mohamady | M | Farmer | moh.s.mohamedy@gmail.com | | Community representative | | |
| 34 | Poula Adel | M | water engineer | poula180123@hu.edu.eg | | Community representative | | |
| 35 | Mohamed mesalam | M | Farmer | mmesalam11@gmail.com | | Community representative | | |
| 36 | Gaber Abdelsalam Younes | M | Farmer -Next to Mr. hossam' Land | | 1224227506 | land owner | | |
| 37 | Mohamed mostafa | M | | mohammed.mostafa@hu.edu.eg | | | | |
| 38 | Fares Gomaa Gomaa | M | 13 villages | | 1211439031 | Farmer | | |
| 39 | Yousef Ashraf Kamel | M | Faculty of Technology | | 1559155783 | Community representative | | |
| 40 | Ashraf ghazal | M | Elgomhorya newspaper | | 1011165048 | Social media | | |
| 41 | Mohamed Rady | M | Student at Heliopolis university | mohamed221181@hu.edu.eg | | Community representative | | |
| 42 | Mostafa Ahmed | M | Student at Heliopolis university | mostafa180991@hu.edu.eg | | Community representative | | |
| 43 | Sherif salah | M | Student at Heliopolis university | Sherif1807862@hu.edu.eg | | Community representative | | |
| 44 | Mohamed Ramdan | M | Accountant | | 1206392890 | working in Agriculture | Egypt | |
| 45 | Eng.Ibrahim saad | M | EBDA | ibrahim.saad@sekem.com | | Organic Agriculture Experts | | |
| 46 | Mohamed rady | M | Student at Heliopolis university | mohamed221181@hu.edu.eg | | Community representative | | |
| 47 | Essam elsayed | M | Armed forces lieutenant | | 1005572797 | Community representative | | |
| 48 | Ahmed Hassan | M | EBDA | ahmed.sobeh@sekem.org | | Organic Agriculture Experts | | |
| 49 | Hossam Tahawi | M | Farmer | | 1224227506 | land owner | Egypt | |
| 50 | Mahmoud Elaasar | M | projects development agency | | 1221818355 | financial / economy | Egypt | |
| 51 | Dr. Tarek Elsayed | M | Agriculture | tarek.ragab@agr.cu.edu.eg | Farm4Climate | Egypt | | |
| 52 | Kamal wasfy | M | Agriculture | kamal.wasfy@hu.edu.eg | | | | |
| 53 | Dr. Eman Nour | F | Agriculture | eman.nour@hu.edu.eg | Farm4Climate | Egypt | | |
| 54 | Mr. Moses Odeke | M | ASARECA | m.odeke@asareca.org | | Uganda | Project Partner | |
| 55 | Ms.Blaise Amony | F | ASARECA | b.amony@asareca.org | | Uganda | | |
| 56 | Mr.Ben Ilakut | M | ASARECA | b.ilakut@asareca.org | | Uganda | | |



Annex 3 - Program

08:30 - 08.45

- Participants Arrival and Registration

SESSION 1

WELCOME AND INTRODUCTION

08:45 - 09:00

- Participants Introductions (Role and Activity) - Dr. Alice Murage - KALRO

09:00 - 09:30

- Welcome Remarks - Dr. Eliud Kireger - DG KALRO; AICS Representative; CIHEAM BARI; County Representative

09:30 - 09:50

- The WATDEV Project: Objectives, Methods and Expected Results - Dr. Michael Okoti

09:50 - 10:00

- Meeting Objectives and Agenda - Mr. Joshua Okonya - ASARECA

10:00 - 10:30

Coffee Break & Group Photo

SESSION 2

PRESENTATION OF SELECTED BMPs

10:30 - 13:00

Presentation of selected BMPs:

- a) Water Users Association
- b) Agroforestry
 - Guided discussion on how practices are applied, their impacts on the environmental system.
 - Discussions on how to improve sustainability, efficiency, productivity of selected BMPs.
 - Consultation with local actors on overall feasibility of the selected BMPs.

Facilitators: Dr. Michael Okoti - KALRO
Mr. Joshua Okonya - ASARECA
Dr. Alice Murage - KALRO

13:00 - 14:00

Lunch & Health Break

PUBLIC CONSULTATION EXERCISE

14:00 - 15:30

- Consultation with stakeholders to prioritize BMPs objectives for each sustainability dimension (Social, Economic, Environmental, Governance), to enhance feasibility study of BMPs.

Facilitators: Dr. Michael Okoti - KALRO
Dr. Alice Murage - KALRO

SESSION 4

WRAP-UP AND CONCLUSION

15:30 - 16:00

- Wrap-up and Closure - Mr. Joshua Okonya - ASARECA
- Next steps: starting implementation of BMPs - Dr. Alice Murage - KALRO





Annex 2: Sudan Local Awareness Meeting Report



Meeting Report:

AWARENESS SESSIONS FOR FARMERS AND LOCAL ACTORS SUDAN

Venue: The Hydraulics Research Center, Medani, Sudan - Hybrid (Physical and Virtual)
Date: Saturday, June 17th 2023.



June 2023



Contents

| | | |
|---|--|----|
| 1 | Introduction..... | 3 |
| 2 | Background..... | 3 |
| 3 | Objectives | 3 |
| 4 | Participants..... | 4 |
| 5 | Workshop program | 5 |
| 6 | General remarks..... | 10 |
| 7 | Main outcomes..... | 11 |
| 7.1 | Prioritization of BMPs (sustainability) objectives | 11 |
| 7.2 | Stakeholders Matrix..... | 13 |
| Annex 1: Meeting Agenda | | 16 |
| Annex 2: Attendance sheet..... | | 17 |
| Annex 3: Awareness Meeting Photos | | 25 |

1 Introduction

The Climate Smart WATER Management and Sustainable DEVELOPMENT for Food and Agriculture in East Africa (WATDEV) aims to enhance the sustainability of agricultural water management and resilience of agroecosystems to climate change in Easter Africa and Egypt. The project aims to develop an in-depth understanding of small to large-scale water and agricultural resource dynamics and management and people’s resilience to climate change through innovative research, modelling, and capacity-building approaches.

Agenzia Italiana per la Cooperazione e lo Sviluppo (AICS) is the executing agency, while CIHEAM-BARI is the leading scientific institution, working closely with the Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), the Kenya Agricultural and Livestock Research Organization (KALRO), Water, Land Resources Centre – Ethiopia (WLRC), Water Research Centre (WRC), Sudan and Heliopolis University (HU), Egypt.

2 Background

Moving from the selection of candidate Best Management Practices (BMPs), made during the A1.3 Multi-Actors’ Regional Meeting that was held on 8 March 2023 in Nairobi, Kenya; it’s planned that the “selected” BMPs will be shared with potential end-users / local communities through four Awareness meetings, with at least one (1) meeting held in each country (Egypt, Ethiopia, Kenya, Sudan) (activity A2.1).

The analysis of target groups (farmers/stakeholders) for the Awareness sessions will be carried out by the local partners between April and June 2023. The analysis of the target groups will run concurrently with the design of the structure and contents of the Awareness meetings.

There will be four (4) Awareness meetings which will be facilitated by ASARECA (and CIHEAM-Bari).

The Awareness meetings are expected to deliver the following deliverables:

- D2.1.1 - Four (4) reports summarizing the outcomes of stakeholder analysis exercise, one by each focus country (ASARECA) (due date: 30/06/2023);
- D2.1.2 - Interim reports on awareness events held in target countries (ASARECA) (due date: 31/08/2023)
- D2.1.3 - One (1) consolidated final report on awareness events held in target countries (ASARECA) (due date: 30/09/2023)

3 Objectives

The main goal of this first stakeholder meeting in Sudan was to carry out a participatory assessment of the state of agricultural water and soil practices currently applied in the study area, with the objective of examining the community’s gaps and needs. Based on this participatory approach, a thorough evaluation was made on the BMPs evaluation and their suitability for selection and implementation.

The overarching objective of the project is to enhance the sustainability of agricultural water management and the resilience of agro-ecosystems to climate change in East Africa and Egypt.

The specific objectives include: (1) National Ministries and Research Institutions improve their knowledge and management of water in agriculture; and (2) Farmers and local actors, cooperatives, and Water User implement innovative/sustainable solutions and skills on water

management.

The Specific Objectives are:

- Communicate to local communities WATDEV project goals and activities.
- Increase farmers and local communities' awareness of the impacts of adopting in a non-sustainable way certain practices.
- Increase farmers' and community awareness of potential BMPs impact/s.
- Share with farmer's ways of how to improve sustainability/efficiency/productivity of selected BMPs.
- Collect feedback, perceptions, and information needed to define BMPs goals, means, and expected impacts and prioritize, for different sustainability dimensions, the BMPs objectives (to guide the definition of indicators to measure BMPs achievements).

4 Participants

Despite the civil war in progress, **nearly 50 participants** attended the meeting, representing all the actors involved in the process of building sustainable agriculture models.

Attendees consisted of public authorities, associations, and members from the private sector involved in water management and agriculture in the Gezira Irrigation Scheme – a study area for Sudan in the framework of the **WATDEV project**. Representatives from the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and the Mediterranean Agronomic Institute of Bari (CIHEAM Bari), the international partners of the project, also attended the meeting and connected remotely.

The meeting was attended by 49 participants representing different categories of stakeholders. The local partners included policy makers (i.e., Ministry of Agriculture, Ministry of Irrigation and Water Resources, Ministry of Finance and Economic Planning, Sudan Meteorological Authority, Gezira Scheme Board); research and educational institutions (i.e., Hydraulics Research Center, UNESCO, Higher Council for Environment and Natural Resources, Water Management and Irrigation Institute, Faculty of Civil Engineering, University of Khartoum, Sudan University of Science & Technology - College of Water and Environmental Engineering); Sudan Youth Parliament for Water (SYPW), development partners and NGOs working the area.

The local community organizations were represented by water users' organization, landowners, village elders (both men and women), local lead farmer leaders, local producers' association (see annexes).

5 Workshop program

On June 17th, 2023, the Water Research Centre (WRC) of the University of Khartoum organized the Awareness Sessions for Farmers and Local Actors in Sudan on best management practices (BMPs) selection and evaluation.

The opening session was led by Dr. Omar Muhammad Marzouq, Governor of the Gezira Project. Dr. Marzouq announced the readiness of the **Gezira scheme** management to embrace the outputs and recommendations of the meeting and to collaborate for its implementation in the field.



Dr. Omar Marzouq

Welcome remarks were also addressed by Prof. Abdin Salih from the WRC, Prof. Abdel Moneim Taha Director General of the Agricultural Research corporation, Prof. Younes Gasmallah the Director General of the Hydraulics Research Center, and Mr. Omar Youssef the representative of the Taiba Farmer Association.



First session: online participants.

CIHEAM Bari representatives (Mr. Claudio Bogliotti and Dr. Gaetano Ladisa) provided a brief overview of the project's activities considering the current situation in Sudan. They discussed the significance of the WATDEV project at both the national and regional levels.

Dr. Ahmed Hayaty Elshaikh (WRC) introduced the local stakeholders of the Gezira scheme and explained the WATDEV project's activities, objectives, methodology, research phases, main goals, and expected outcomes. He also highlighted the connections between farmers, researchers, and policymakers regarding the collection and implementation of BMPs. Then he presented the Meeting goals and schedule, also providing a brief overview of WATDEV main goals and expected outcomes.



First session: Dr. Ahmed Elshaikh presentation.



Group Photo

Awareness sessions: After the break, participants successfully involved in the Awareness presentation and discussion of selected BMPs (Improved Seeds and Water Users), several stakeholders from various backgrounds and institutions actively participated to the debate and brought their valuable contributions to the discussion.

In particular, the farmers gave engaging insights into their everyday struggles and routines regarding perspective topics:

- i. **Improved Seeds:** Discussion triggers (Eng. Kamal Abdallah, Dr. El-Zebir Ibrahim, and Dr. Amani Idres) in many relevant concepts mainly: Agricultural Operations, Seeds, Production and challenges, Wheat seeds as an Example, others.)
- ii. **Water Users:** Discussion triggers (Prof. Younis Gismalla, Prof. Abu Obida Babiker, Dr. Hassan Abu Elbasher) in many relevant concepts mainly: operation and maintenance, farmer’s organizations, institutional, governance, technology adoption, others)



Consultation sessions, wrap-up, and discussions: Consultation with stakeholders to prioritize BMPs objectives for each sustainability dimension (Social, Economic, Environmental, Governance), to enhance the feasibility study of BMPs. on the brokerage.

Three Focus Group Discussion (FGD) represent different actors discussed BMPs and its Social, Economic, Environmental, Governance aspects, and identified clear path for improvement in practices productivity.



Photos form Consultation sessions

Prioritization of BMPs (sustainability) objectives: This last exercise is aimed to collect from local stakeholders, their perceptions about the BMPs objectives.

Facilitator should move showing a table (see an example in **Table 1**) in which, for each selected BMP, the main objectives for different sectors are listed.

Table 1 – BMP sustainability objectives

| SECTORS | | OBJECTIVES |
|---------------|----------------|---|
| Socioeconomic | Socio-cultural | 1. To create job opportunities for locals. |
| | | 2. To contribute reducing/mitigating social conflicts. |
| | | 3. To respect traditional/historical practice(s) in the area. |
| | Policy | 4. It is supported by the Government. |
| | | 5. Legislations/Regulations are easy to understand. |
| | | 6. It is compliant with national legislation and regulations |
| | Governance | 7. There are organizations helping farmers to learn about BMPs. |
| | | 8. To improve cooperation among all value chain actors. |
| | | 9. To improve collaboration between institutions and value chain actors |
| | Economy | 10. To make farm costs manageable. |
| | | 11. To increase crop production. |
| | | 12. To increase farmer’s income. |
| Environmental | Groundwater | 13. To avoid pollution. |
| | | 14. To enhance water quality. |
| | | 15. To ease access to the groundwater. |
| | Soil | 16. To keep the soil from washing away. |
| | | 17. To make the soil better for growing crops. |
| | | 18. To help crops grow better. |
| | Crop | 19. To make crops productive. |
| | | 20. To make crops healthier. |
| | | 21. To make crops resistant to pests and diseases. |
| | Surface water | 22. To avoid pollution. |
| | | 23. To enhance water quality. |
| | | 24. To keep the water flow safe. |
| | Atmosphere | 25. To reduce greenhouse gases emissions. |
| | | 26. To make the air cleaner. |
| | | 27. To ensure a healthier environment for the community. |

Plenary sessions, wrap-up, and discussions on the BMPs evaluation event were chaired by **Prof. AbdelMonem Taha**, who summarized the contributions, expectations, and suggestions collected from the participants.



Prof. AbdelMonem Taha

Dr. Ahmed Elshaikh, thanked all the participants for their proactive participation and useful contribution to the meeting. He also underlined the importance of the meeting outcomes for future program activities.

6 General remarks

- It is expected that the BMPs will be adopted and implemented on the ground by committee from the different stakeholders, to achieve the desired productive goals of sustainable development, increase in production, reduce water waste and combat climate change.
- Discuss further the BMPs potential to address the challenges of the communities.
- Review with different partners the BMPs requirement, adoption strategies and resources availability.

7 Main outcomes

7.1 Prioritization of BMPs (sustainability) objectives

This last exercise is aimed to collect from local stakeholders, their perceptions about the BMPs objectives.

Facilitator should move showing a table (see an example in **Table 1**) in which, for each selected BMP, the main objectives for different sectors are listed.

Table 2 – BMP sustainability objectives for Improved Seeds

| SECTORS | | OBJECTIVES |
|----------------------|------------------------|---|
| Socioeconomic | Socio- cultural | 1. To create job opportunities for locals. |
| | Policy | 2. It is supported by the Government. |
| | Governance | 3. To improve collaboration between institutions and value chain actors |
| | Economy | 4. To make farm costs manageable. |
| Environmental | Groundwater | 5. Not applicable |
| | Soil | 6. To help crops grow better. |
| | Crop | 7. To make crops productive. |
| | Surface water | 8. To keep the water flow safe. |
| | Atmosphere | 9. To ensure a healthier environment for the community. |

Table 3 – BMP sustainability objectives for water users

| SECTORS | | OBJECTIVES |
|----------------------|-----------------------|---|
| Socioeconomic | Socio-cultural | 1. To create job opportunities for locals. |
| | Policy | 2. It is supported by the Government. |
| | Governance | 3. To improve cooperation among all value chain actors. |
| | Economy | 4. To make farm costs manageable. |
| Environmental | Groundwater | 5. Not applicable |
| | Soil | 6. To help crops grow better. |
| | Crop | 7. To make crops productive. |
| | Surface water | 8. To keep the water flow safe. |
| | Atmosphere | 9. To ensure a healthier environment for the community. |

7.2 Stakeholders Matrix



Stakeholder matrix [Gezira Scheme, Sudan]: AWARENESS SESSIONS FOR FARMERS AND LOCAL ACTORS

| Name Stakeholders/Organization | Characteristics | Interests, and how affected by the problem(s) | Capacity & motivation to bring about change | Level of involvement |
|--|----------------------------|---|---|----------------------|
| Ministry of Agriculture | Government body (national) | Its Mandate is to promote and facilitate production of crop, livestock and fish products for food security and household incomes through value addition; and enhance sustainable use of land as a resource agriculture, Livestock, and fisheries, contributing over 80% both directly and indirectly to the livelihoods of the community. | Food security through development projects promoting improved agronomic practices in terms of land preparations, use of high-quality planting materials and farm inputs as well as promote irrigation in areas with reliable water sources; to increase marine and aquaculture catch and total incomes from fish and fish products. | HIGH |
| Gezira Scheme Board | Government body (Local) | The executive team and the scheme council | Agriculture management Rules and Regulations (R&R). | HIGH |
| Ministry of Irrigation and Water Resources - Irrigation services | Government body (national) | Responsible to supply water to the Gezira scheme. Responsibility also covers the operation and maintenance of the irrigation and drainage system of the scheme. | Water management through development projects promoting improved Policy & planning. Ensure that the scheme consistent with the optimum usage of the available water resources. | HIGH |
| Ministry of Finance and Economic Planning | Government body (national) | Drawing up and implementing strategies, financial, developmental, and monetary policies according to a rational financial management | Provides annual finance against water fees. Funding Agricultural inputs | HIGH |
| Farmers Organizations | NGOs | Local associations (e.g., farmers' association, producers' association, ...) | Beneficiaries | HIGH |



| Name Stakeholders/Organization | Characteristics | Interests, and how affected by the problem(s) | Capacity & motivation to bring about change | Level of involvement |
|--|----------------------------|--|--|----------------------|
| Hydraulics Research Center (HRC) | Education and Research | Execute research, capacity building and consultancy work to satisfy demands of irrigation and others water related issues. | To provide a technical capacity for appraising the overall design of schemes and structures related to the development or conservation of water resources. To provide a technical capacity for ensuring the satisfactory completion of irrigation scheme development. | HIGH |
| Sudan Meteorological Authority (SMA) | Government body (national) | Making observations of weather, climate and operational hydrology over Sudan. Promotion of knowledge, services, forecast, research, training and education in Sudan. | Climate change | MEDIUM |
| UNESCO-Chair in Water Resources | Education and Research | UNESCO-CWR mission is “to build, enhance and strengthen capacity for sustainable water resources development and management through education, research, consultancy, and knowledge dissemination.” | UNESCO-CWR serves the local, regional “the Nile Basin, Eastern and Central Africa, and Shared Aquifers” as well as international water community. | MEDIUM |
| Higher Council for Environment and Natural Resources (HCENR) | Government body (national) | The HCENR established primarily as a coordinating advisory body, it discharges its functions by a General Secretariat, headed by the Secretary General and in collaboration with all its member institutions | Laying down general policies and long- term plans for environmental protection and sustainable use of natural resources. Coordination of efforts among concerned government agencies and between Federal and State governments. | MEDIUM |



| Name Stakeholders/Organization | Characteristics | Interests, and how affected by the problem(s) | Capacity & motivation to bring about change | Level of involvement |
|--|------------------------|--|---|----------------------|
| Water Management and Irrigation Institute (WMII) | Education and Research | The water management program Foundation. Lately in 1995 the Water Management and Irrigation Institute (WMII) established for intensive training in water management. | To cater for the development of methods of water management and efficient use of the water resource, aiming at better production and a sustainable water use on a national scale. The aims of the institute are to be achieved through intensive, in-service short and long-term trainings and studies towards -postgraduate degrees "Diploma, Master and Doctorate | MEDIUM |
| Faculty of Civil Engineering, University of Khartoum, | Education and Research | | Education and Research -B.Sc in Civil Engineering-specialization Water and Irrigation Engineering M.Sc specialization resources Engineering | MEDIUM |
| Sudan University of Science & Technology College of Water and Environmental Engineering | Education and Research | The institute joined Sudan University of Science & Technology in 1994. | Education and Research -B.Sc in Water Resources and Environmental Engineering | MEDIUM |
| Dr. Ahmed Adam | Elected representative | Irrigation expert | Irrigation Policy and management | HIGH |
| International Institute of Tropical Agriculture | Privet sector | Provide services for farmers and companies | Improved seeds and Seeds management | MEDIUM |
| Youth parliament pf Water – Wad-Madani | NGOs | Youth representative for water and environment issues | Awareness and training Active participation | MEDIUM |

Annex 1: Meeting Agenda



WATDEV Awareness Meeting-Sudan

17/6/2023 Wad Madani, Sudan.

Venue: Hydraulics Research Center (HRC), Wad-Madani

Meeting Agenda

| | | |
|-------------------|---|--|
| 8:30-9:00am | Participants arrival and registration | |
| 9:00-9:30 am | Welcome speech: Water Research Center Ministry of Irrigation (HRC) Agriculture Research Corporation Farmers' Association CIHEAM Bari Gezira scheme Governor | Prof. Gamal Abdo/Prof. Abdin Salih Prof. Younis Gism-ALLA Prof. Abd-Elmonem Taha Mr. Omer Yousif Prof. Claudio Bogliotti (Online) Dr. Omer Marzog |
| 09:30-10:00 am | The WATDEV Project: Objectives, methods and expected results Meeting objectives and agenda (Dr. Ahmed Elshaikh) | |
| 10:00- 10:45 am | Group photo & Coffee Break /Health break | |
| 10:45 am-12:45 pm | Presentation and discussion of selected BMPs (Improved Seeds and Water Users) | |
| | Improved Seeds: Discussion triggers (Eng. Kamal Abdallah, Dr. El-Zebir Ibrahim, and Dr. Amani Idres) + Participants (Topics: Agricultural Operations, Seeds, Production and challenges, Wheat seeds as an Example, others, ...) | 20 minutes for improved seeds awareness 40 minutes for discussion |
| | Water Users: Discussion triggers (Prof. Younis Gism-ALLA, Prof. Abu Obida Babiker, Dr. Hassan Abu Elbasher) + Participants (Topics: operation and maintenance, farmers organizations, institutional, governance, technology adoption, others ...) | 20 minutes for Water Users awareness 40 minutes for discussion |
| 12:45-1:15 pm | Lunch and prayer | |
| 1:15-3:00 pm | Consultation with stakeholders to prioritize BMPs objectives for each sustainability dimension (Social, Economic, Environmental, Governance), to enhance feasibility study of BMPs. | |
| 3:00 – 3:30 pm | Next steps: starting implementation of BMPs (Local partner). NOTE: WATDEV does not implement BMPs. | |
| | Wrap-up and closing | |



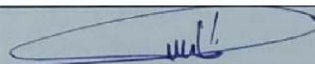



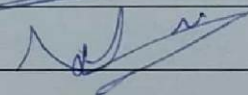
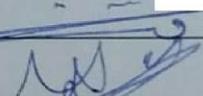
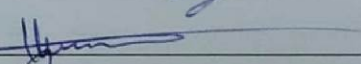
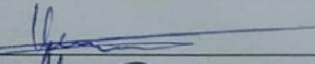
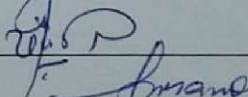
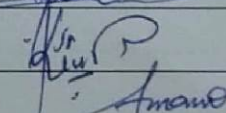
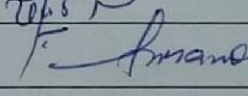
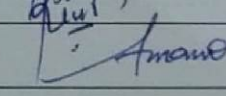
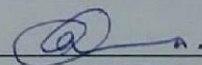
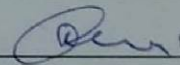
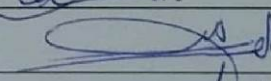
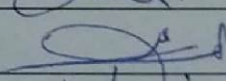
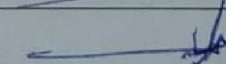
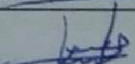
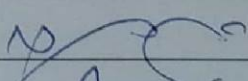
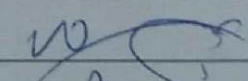
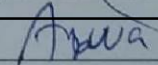
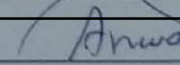


Annex 2: Attendance sheet

WATDEV Awareness Meeting-Sudan

Attendance list, date

Sudan, Wad Madani, June ,17/6/2023

| NAME (IN CAPITAL LETTERES) | SURNAME (IN CAPITAL LETTERES) | E-MAIL/ Phone (IN CAPITAL LETTERES) | ORGANIZATION (IN CAPITAL LETTERES) | SIGNATURE TO AUTHORIZE THE PROCESS OF PERSONAL DATA* | SIGNATURE TO AUTHORIZE SHOOTING/AUDIO/ VIDEO RECORDING** |
|-------------------------------|----------------------------------|--|---------------------------------------|---|---|
| | | hageltom@gmail.com | Sudan Forum MEMBER |  |  |
| ALFADIL | YOUSIF | MT SHAGID -123273066 | Gezira scheme |  |  |
| 3- Mohammed | BARSI | aug.mohammed.Barsi19@gmail.com | WRC |  |  |
| 4- Ibrahim | M. ALI | ALI M. | Gezira scheme |  |  |
| 5- Abu Obada | B. AHMED | hbs_ahmed@hotmail.com | HRC, |  |  |
| 6- Amami | IDRIS | amamiidris@gmail.com | ARC |  |  |
| 7- Omer | MARZOUQ | ymar3ouglaro@gmail.com | Gouverneur Gezira Scheme. |  |  |
| 8- Younis | Abdulla | Gismalla hbs.younis@hrc.org | HRC |  |  |
| 9- Hind | Abdallah | YOUSIF hindAlnojanio82@gmail.com | TAYBA |  |  |
| 10- Arwa | Abdelmaged | Mohamed Omar Arwamaged22@gmail.com | TAYBA |  |  |
| Arwa | Abdelmaged | Mohamed Damin | TAYBA |  |  |



الاسم

البريد / الهاتف

الجهة

توقيع



Funded by the European Union



AGENZIA ITALIANA PER LA COOPERAZIONE ALLO SVILUPPO



CIHEAM BARI



| | | | | | |
|----|-----------------------|------------------------|---|------|--|
| 12 | SZUBEIK MOHAMED | nilesun@hotmail.com | NIEL SUN SED W | | |
| 13 | Solara Adelrah | S.Asharkh@ci.gov.eg | IITA | | |
| 14 | Gazare Ibrahim | -123379789 | Redes | | |
| 15 | Hossain Alabdulrahman | 0912325145 | MGIWR | | |
| 16 | (IN CAPITAL LETTERS) | (IN CAPITAL LETTERS) | dahlia melgali2010@gmail.com/0908018331 | SYPW | |
| 17 | Roba | OSama | 0128740368 | SYPW | |
| 18 | Mohamed | MUSA | robaosama2012@gmail.com | SYPW | |
| 19 | Taher Abotalla | mahivraoof90@gmail.com | WRC-UofK | | |
| 20 | Sarah Ibrahim | Sarve32@gmail.com | HRC | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| | | | | | |
|----|-------------------------|------------|----------------------|--|--|
| 11 | Fathikherment Bibikou | 0910940722 | فاتيخمنت بيبكوف | | |
| 12 | Elgubair Ibrahim | 0912398542 | إلغوبير إبراهيم | | |
| 13 | Mohamed asma Ahi Babika | 0900343905 | محمد اسما احي بابيكا | | |
| 14 | Mohamed SAIED | 0100-71771 | محمد سعيد | | |
| 15 | HASSAN-M-1999 | 0974040010 | حسن محمد | | |
| 16 | Mahmoud Hane | 0100-9790 | محمود هاني | | |
| 17 | Gismelle Khelifalla | 0912133654 | جسملة خليفة | | |
| 18 | Mawid. Ahmed. Moh | 096464088 | مؤيد احمد محمد | | |
| 19 | Ahmed Abd. ALPaqi | 0911110019 | احمد عبد الباقي | | |
| 20 | Eltayeb Ibrahim Ahmed | 0126/85798 | إلتاييب إبراهيم احمد | | |
| 21 | Ahmed beg Elnon | 0100-9557 | احمد بيج النون | | |
| 22 | Abdelsalam mohd salih | 0912398754 | عبد السلام محمد صالح | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |



WATDEV

Climate Smart WATER Management and Sustainable DEVELOPMENT for Food and Agriculture in East Africa

WATDEV Awareness Meeting-Sudan

Attendance list, date Sudan, Wad Madani, June ,17/6/2023

| NAME (IN CAPITAL LETTERS) | SURNAME (IN CAPITAL LETTERS) | E-MAIL (IN CAPITAL LETTERS) | ORGANIZATION (IN CAPITAL LETTERS) | SIGNATURE TO AUTHORIZE THE PROCESS OF PERSONAL DATA* | SIGNATURE TO AUTHORIZE SHOOTING/AUDIO/ VIDEO RECORDING ** |
|------------------------------|---------------------------------|--------------------------------|--------------------------------------|---|---|
| 1- Mohamed Gb | Ebrahim | -128858470 | وزارة الري | | |
| 2- Osmo | Leino | 0123233552 | مكتب تخطيط | | |
| 3- Waleed | | 0121485623 | مكتب تخطيط | | |
| 4- Waleed Hashim | Mohammed | waleedhashim@gmail.com | UdK-WRC | | |
| 5- Suedig Ahmed | | 0914739778 | مكتب تخطيط | | |
| 6- Ahmed | ELShaiKh | ahmedhayaty@live.com | UdK-WRC | | |
| 7- Ali | Elhaj | ali-hrc@hotmail.com | HR | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Annex 3: List of participants and relevant Metadata.

| No. | Name | Surname | Organization | E-mail/phone |
|-----|----------------|-------------|---------------------------|--------------------------------|
| 1 | Kamal | Abdalla | Sudan stakeholders Forum | hageltom@gmail.com |
| 2 | Waleed | Mohammed | WRC | waleedhashim@gmail.com |
| 3 | Mohammed | Barsi | WRC | mohammed.barsi19@gmail.com |
| 4 | Ibrahim | M. Ali | Gezira Scheme | ibrahimkomeb@gmail.com |
| 5 | Abu-Obida | Ahmed | HRC | hrs-agdo@hotmail.com-900400404 |
| 6 | Amani | Idris | ARC | amaniidris@gmail.com |
| 7 | Omer | Marzoug | Gezira Scheme Governor | ymarzoug1950@gmail.com |
| 8 | Younis | Gismalla | HRC | hrs_younis@hotmail.com |
| 9 | Hind | Alnojomi | Farmer - Tayba | hindalnojomi082@gmail.com |
| 10 | Omer Yousif | Mohamed | Farmer - Tayba | omeryousif@gmail.com |
| 11 | Arwa | A.Maged | Farmer - Tayba | arwamaged22@gmail.com |
| 12 | Elzubeir | Mohamed | Niel Sun Seed CO | milesun@gail.com |
| 13 | Solara | Elsheikh | HIA | S.Elsheikh@gmail.com |
| 14 | Gazafi | Ibrahim | Farmer - Tayba | 123379787 |
| 15 | Hassan | Abo Bashar | Moiwr | abashar99999@gmail.com |
| 16 | ElFadil | Shigidi | Gizira Scheme | 123273066 |
| 17 | Fath-Elrahman | Babiker | Farmer - Tayba | 912935652 |
| 18 | Zubair | Ibrahim | PS | 912935642- |
| 19 | Mohomed | Othoman | Farmer - Tayba | 900343905 |
| 20 | Mohamed | Saeed | Farmer - Tayba | 122068668 |
| 21 | Hassan | Mohamed | Farmer - Tayba | 963298815 |
| 22 | Mohamd | Ahmed | Farmer - Tayba | 124009645 |
| 23 | Gismalla | khalafalla | MoIWR | 912133654 |
| 24 | Moawia | Ahmed | Farmer - Tayba | 96464088 |
| 25 | Ahmed | Abdelbagi | Farmer - Tayba | 918115514 |
| 26 | Eltayib | Ibrahim | Farmer - Tayba | 126185798 |
| 27 | Ahmed | Bag-Elnor | Farmer - Tayba | 128309726 |
| 28 | Abdelsalam | Salih | MoIWR | 912398754 |
| 29 | Mohamed Ali | Mustafa | Farmer - Tayba | 912636541 |
| 30 | Ahmed | Babiker | MoIWR | 912331295 |
| 31 | Mohamed | Eltayib | Tayba | 124096450 |
| 32 | Zuhair | Khaw | Media | 115791895- |
| 33 | Elmahdi | Mohamed | Farmer - Tayba | 910650106 |
| 34 | Moawia Al-Zian | Mohamed | Media and public relation | 122735065 |
| 35 | Amgad Osman | Abd-Ellatif | UoK | 193022996 |

| No. | Name | Surname | Organization | E-mail/phone |
|-----|--------------|----------|----------------------------------|--|
| 36 | Azhari | Ali | Farmer - Tayba | 917898980 |
| 37 | Mohammed | Ebrahim | Ministry of Irrigation | 123358470 |
| 38 | Abd Elmoneim | Taha | ARC | 123016257 |
| 39 | Sedeig | Ahmed | Farmer - Tayba | 914739772 |
| 40 | Mohammed | Mamon | Farmer - Tayba | 123233552 |
| 41 | Tahani | Gadalla | Media HRC | 121483823 |
| 42 | Ali | Elhaj | Sudan Youth Parliament for Water | ali_hrc@hotmail.com |
| 43 | Dahlia | Elgali | Sudan Youth Parliament for Water | dahliamelgali2010@gmail.com |
| 44 | Mohamed | Musa | Sudan Youth Parliament for Water | mohamedmusa772@gmail.com |
| 45 | Mohamed | Mirgani | Sudan Youth Parliament for Water | Mohammedmerghani655@gmail.com |
| 46 | Sara | Ibrahim | HRC | Sarra32@gmail.com |
| 47 | Maher | Abdalla | WRC | Mahirraoof910@gmail.com |
| 48 | Roba | Osama | Sudan Youth Parliament for Water | Robaosama2012@gmail.com |
| 49 | Ahmed | ElShaikh | WRC | ahmedhayaty@live.com |



Annex 4: Awareness Meeting Photos

Photos with high resolutions are available at the link below:

https://cloud.watdev.eu/index.php/s/HmjxbzKbkC6eDLH?path=%2FAgenda_WATDEV_Awareness_Meeting_with_Local_Stakeholders_Sudan%2017-6



Annex 3: Ethiopia Local Awareness Meeting Report

Report for the Dissemination Event and Awareness Meeting in Maerawi, Bahir Dar, Amhara Region - Ethiopia

July 01, 2023
Hybrid (Physical and Virtual)



Meeting Report

By

ASARECA, WATER LAND RESOURCES CENTER/ADDIS ABABA UNIVERSITY,
CIHEAM Bari, CNR

July 2023



Funded by the
European Union



AGENZIA ITALIANA
PER LA COOPERAZIONE
ALLO SVILUPPO



CIHEAM
BARI





Table of Contents

| | |
|--|-------|
| <u>Acronyms</u> | 27 |
| 1. <u>Introduction</u> | 28 |
| 1.2 <u>Background</u> | 28 |
| 1.2 <u>Project Area</u> | 28 |
| 1.3 <u>Purpose of the Awareness Event</u> | 30 |
| 3. <u>Meeting Sessions and Discussions</u> | 30 |
| 3.1 <u>Dissemination and Awareness Event</u> | 30 |
| 3.1.1 <u>Opening Session</u> | 30 |
| 3.1.2 <u>Selected Best Management Practices</u> | 32 |
| 3.1.3 <u>Stakeholder Feedback on selected Best Management Practices</u> | 34 |
| 3.1.4 <u>Stakeholder Prioritization of Objectives</u> | 35 |
| 3.1.5 <u>Wrap-up and Closure of the Meeting</u> | 37 |
| 4. <u>Annexes</u> | 38 |
| 4.1 <u>ANNEX 1 - Meeting Agenda</u> | 38 |
| 4.2. <u>ANNEX 2 - Attendance Sheet</u> | - 1 - |



Acronyms

| | |
|-------------|--|
| AARI | Amhara Agricultural Research Institute |
| AAU | Addis Ababa University |
| AICS | Italian Agency for Development Cooperation |
| ASARECA | Association for Strengthening Agricultural Research in Eastern and Central Africa |
| BOA | Bureau of Agriculture |
| BMPs | Best Management Practices |
| CNR | Italian National Research Council |
| CIHEAM BARI | International Centre for Advanced Mediterranean Agronomic Studies – Institute of Bari |
| EU | European Union |
| EUR | Euro |
| IWM | Irrigation Water Management |
| SLM | Sustainable Land Management |
| SWC | Soil and Water Conservation |
| WUA | Water Users Association |
| WATDEV | Climate Smart Water Management and Sustainable Development for Food and Agriculture in East Africa |
| WLRC | Water and Lands Resources Centre |



1. Introduction

1.2 Background

The Climate Smart Water Management and Sustainable Development for Food and Agriculture in East Africa (WATDEV) project aims to enhance sustainability of agricultural water management and resilience of agro-ecosystems to climate change in East Africa and Egypt. The project is being implemented in partnership with AICS, CIHEAM-BARI and four African partners (Kenya Agricultural, and Livestock Research Organization, Water Land Resource Center, Water Research Center and Heliopolis University). ASARECA is coordinating the implementation of the activities by the African partners. The project aims to develop an in-depth understanding of small to large-scale water and agricultural resource dynamics and management and people's resilience to climate through innovative research, modelling, and capacity building approaches. The project is supported by DG International partnerships (INTPA) of the European Union under the Development of Smart Innovation through Research in Agriculture (DeSIRA) initiative.

The Italian Agency for Development and Cooperation (AICS) is the executing agency, while CIHEAM-Bari is the Technical Scientific Lead and is implementing the project in collaboration with European partners (SKYKE, CNR and ISRIC) and African partners (KALRO, WLRC, WRC, HU) to promote innovations at the water energy and agriculture nexus to enhance economic development and resilience to climate change in Kenya, Ethiopia, Sudan, and Egypt. ASARECA is responsible in coordinating the implementation of the project activities in the four African partners, who mainly are part of its wide constituents in the National Agricultural Research Systems (NARS). Implementation of the project started in April 2022.

The overarching objective of the project is to enhance sustainability of agricultural water management and resilience of agro-ecosystems to climate change in East Africa and Egypt. The specific objectives include: (1) National Ministries and Research Institutions improve their knowledge and management of water in agriculture; and (2) Farmers and local actors, cooperatives and Water User Associations implement innovative/sustainable solutions and skills on water management.

The WATDEV local awareness event was held on 1st July 2023, in Maerawi, Bahir Dar, Amhara Region – Ethiopia and was hosted by the Water and Land Resource Centre, Addis Ababa University.

1.2 Project Area

The project area is located in the Koga Irrigation Catchment Area, which is crossed by Bahir Dar- Addis Ababa Highway. This site is located in the Koga River Valley, in the Gilgel Abbay catchment, Lake Tana Sub-basin, Abbay Basin.

The site provides a useful resource for compiling lessons learnt and scaling of the selected BMPs.

The area was selected because of its accessibility. It also acts a buffer zone of the dam and can reduce siltation in the dam. Moreover, Koga Irrigation Catchment Area is a key development project area that aims to improve the livelihoods of farmers through provision of agricultural irrigation water delivered through a large-scale irrigation scheme.

During the regional multi-actor meeting held in March 2023 in Nairobi, three BMPs were selected for Ethiopia. These include: (i) Agroforestry; (ii) Water Users Association; and (iii) Crop Rotation/Soil

Health. Thus, the awareness and training needs for the project stakeholders in the project area are highlighted below:

Table 1: Awareness and Training Needs for Selected BMPs in Ethiopia

| Selected BMP | Awareness Need | Training Need | Beneficiaries |
|---------------------------------------|---|---|---|
| Agroforestry/Catchment | -Soil awareness, -Integration of local knowledge with scientific knowledge | -Watershed management, -Agroforestry technologies -Nursery management Private Nursery Operators | -Extension Agents -Model farmers -Community Leaders -Scheme managers. -Policy & decision makers |
| Soil Health/ Crop Rotation | -Integration of local knowledge | -Agronomy -Crop sequencing, -Soil amendments, -Water management -Crop protection/Integrated Pest Management | -All farmers -Community leaders -Experts and researchers -Policy & decision makers |
| Governance/IWUA | -Community-command + catchment | -Irrigation by laws -Conflict management -Marketing -Financial management -Group dynamics/ -Management -Operation and maintenance | Leader of WUAs Policy and decision makers at different levels Policy & Decision |

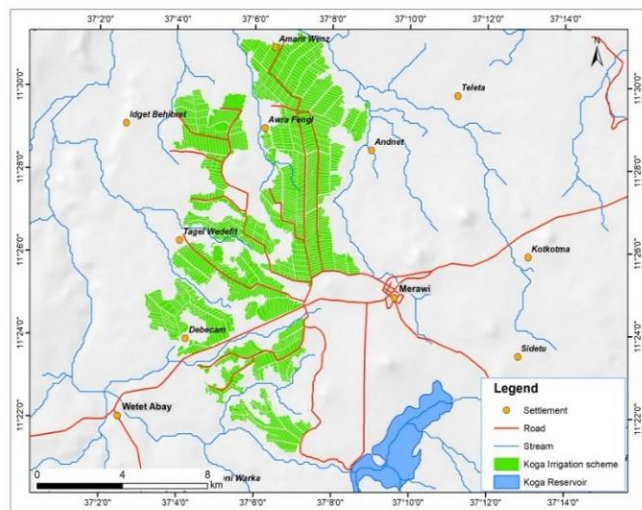
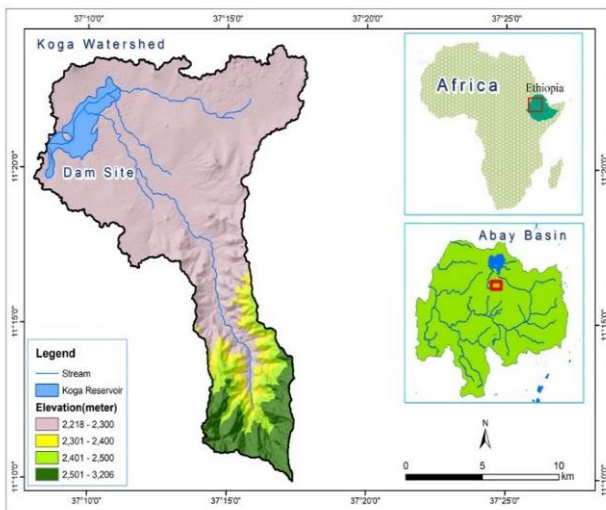


Figure 2: The Study area: Koga Catchment and irrigation Scheme



1.3 Purpose of the Awareness Event

The purpose of the awareness event was to share the Best Management Practices (BMPs) which were selected during the Multi-Actors' Regional Meeting held in Nairobi, Kenya on 08/03/2023. The overarching objective of the meeting was to carry out an awareness and training workshop on Best Management Practices for Water, land and climate change management thereby enhancing the implementation of selected BMPs and Innovations in the local communities.

The specific objectives of the Awareness workshop were to:

- (a) Share the “selected” BMPs with potential end-users / local communities.
- (b) Train farmers and other stakeholders (extension workers and community development actors) on application of selected BMPs and innovations, outlining goals, means and possible impacts.
- (c) Collect feedback from the local stakeholders especially their perceptions on feasibility, specific needs, and technical solutions to adapt the selected BMPs to the local context.
- (d) Conduct a stakeholder analysis of the local stakeholders engaged in the implementation of the BMPS and innovations.

1.4 Stakeholders

The event was attended by stakeholders from various categories including: policy makers, research and extension, community organization and local citizens. A total of 45 participants (38 Male and 7 Female) attended the meeting.

2. Meeting Sessions and Discussions

2.1 Dissemination and Awareness Event

2.1.1 Opening Session

The opening ceremony included welcome remarks from selected program officials who included the following:

- Dr. Tena Alimerwaw; Water and Land Resource Centre, Addis Ababa University
- Dr. Claudio Bogliotti, CIHEAM- BARI
- Dr. Gaetano Ladisa, CIHEAM- BARI
- Mr. Moses Odeke, ASARECA

The key highlights of the welcome ceremony included the following:

- Brief overview of the project in Ethiopia and the regional and international partnership of institutions and development partners that put together the Project.
- Stakeholders meeting is meant to provide feedback on the best way to apply best practices in the intervention areas. It is aimed at improving productivity at the level of the ultimate beneficiaries—the farmers.



- Best Management Practices (BMPs) have been selected for all implementing countries, namely, Kenya, Ethiopia, Sudan and Egypt.
- For Ethiopia, the selected best management practices include: Promotion of Agro-forestry, promotion of crop rotation and soil health, and promotion of water user association for proper governance.
- The meeting is meant to share the selected BMPs with stakeholders or beneficiaries and in a way of validating the BMPs through feedback by the participants.
- The meeting will also select and validate members to be trained as trainers to train others on BMPs.

(a) Remarks from WATDEV Project Leader- Ethiopia: Dr. Tena Alimeraw

Dr. Tena Alimeraw welcomed all the participants from the various partner institutions (CIHEAM-BARI, ASARECA, AARI) and extended a special welcome to all the smallholder farmers who came to attend the event. He then provided a brief overview of the project in Ethiopia and the regional and international partnership of institutions and development partners that developed the Project. He noted that the project aims to address the water, land and soil management challenges that farmers are grappling with. He encouraged all the stakeholders to participate actively during the meeting noting that the outcomes were meant to benefit them especially small holder farmers in terms of raising their awareness and training them on utilization of the selected BMPs for Ethiopia.

(b) Remarks from Scientific Lead- CIHEAM-BARI: Dr. Claudio Bogliotti

Dr. Bogliotti, speaking through an online platform thanked and apologized for not being at the meeting physically but quickly hastened to add that CIHEAM was well represented by the Consultant- Andrea Bozzetto. He reiterated the fact that the meeting was meant to raise the awareness of the stakeholders on the BMPs that were selected during the regional multi-actors meeting in Nairobi. He therefore encouraged all stakeholders to speak out their feelings and express their concerns with regards to the selected BMPs as well as the problems of food and environment so that the project can provide solutions (BMPs) that will benefit all the stakeholders (in terms of incomes and healthy diets, market linkage, efficient water management and allocation etc). Dr. Claudio concluded his remarks by wishing all participants a fruitful meeting.

(c) Remarks from Scientific Administrator- CIHEAM- BARI: Dr. Gaetano Ladisa

Dr. Gaetano Ladisa informed participants that the meeting was meant to receive input from the stakeholders to refine the selected BMPs according to the local conditions. He also noted that the meeting was meant to raise awareness about the selected BMPs and train stakeholders especially smallholders on their application. He concluded his remarks by wishing all the participants a very successful meeting.

(d) Remarks from ASARECA: Mr. Moses Odeke, ASARECA

Mr. Moses Odeke noted that the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) is a sub-regional organization with a membership of 15 member countries. He noted that ASARECA is part of the consortium partners participating in the implementation of the WATDEV project; and that ASARECA works closely with CIHEAM-BARI, the scientific lead of the project. He noted that the role of ASARECA is to coordinate the implementation of the project activities by the 4 African Partners namely: Heliopolis University (HU); Water Research Council (WRC)/University of Khartoum; Water, Land Resources Centre (WLRC); and Kenya Agricultural and Livestock Organization (KALRO).

Mr. Odeke noted that, ASARECA was happy to participate in the awareness meeting aimed at sensitizing and raising awareness of all stakeholders about the BMPs that were selected during the regional multi-



actors meeting in Nairobi- Kenya. He added that “through this meeting we hope to share with the stakeholders about the implementation plans for the next set of activities” including: (i) training of the selected stakeholders as TOTs (extension workers, farmer leaders); (ii) feasibility studies; (iii) modelling to identify which areas to scale the BMPs; which BMPs are suitable for which areas; and (iv) promotion of the BMPs (scaling in target/identified areas) among other activities.

Mr. Odeke concluded his remarks by thanking all the stakeholders for turning up in large numbers to attend the meeting, noting that the WATDEV project consortium counting on their active participation and commitment for the successful implementation of the project.

2.1.2 Selected Best Management Practices

Presentations were made on selected best management practices: soil health; agroforestry and water users’ association to raise awareness and train stakeholders. These presentations were made by Dr. Tesfaye Feyesa (AARARI); Dr. Minale, (AARARI) and Dr. Amare Baritinder (WLRC) respectively.

(a) Soil Health

Presentation on Soil health focussed on Integrated soil acidity and fertility management combined use of organic and inorganic fertiliser which are major soil management issues in the target areas. The presentation highlighted the following issues:

- Integrated soil fertility management (ISFM) is a soil management approach which incorporates options such as use of both inorganic and organic fertiliser as well as local management options such as weeding, planting in rows, crop rotation etc.
- Best practices in the preparation and use of organic fertiliser including formulation of compost and vermin compost facilities,
- Outlined the advantages of using organic fertiliser.
- Integrated use of chemical and organic fertilizers- involving use of equal proportions of organic and inorganic fertiliser for better results and improved soil health.
- Benefits of crop rotation- breaks the cycle of diseases and pest and Improves soil fertility, improves water holding capacity, increases water holding capacity, increases crop yields.
- The farmers also shared their own experience in in preparation of making of organic manure including indigenous knowledge on the vermi compost house, green manuring. They also exhibited deep and long-term knowledge on crop rotation and asked questions of how to overcome some of the challenges they face such as the complexity in using combinations of organic and inorganic manure.
- Benefits of vermi composting which included the following: **(i)** improves soil health, fertility and water holding capacity and water irrigation efficiency; **(ii)** improves soil texture and structure, **(iii)** supplies all essential nutrients for plant health thereby increasing crop yield, **(iv)** improves infiltration capacity of vertisoles, **(v)** reduces amount of inorganic fertiliser use, **(vi)** reduces environmental pollution, **(vii)** reduces soil acidity and alkalinity, **(viii)** improves the quality of compost, and **(ix)** creates jobs for landless youth and women.

(b) Agroforestry

Presentation on Agro-forestry Systems focused on how Agroforestry can play a critical role in climate change mitigation, as well as increasing livestock, soil and land productivity. Dr. Minali highlighted the following issues:

- Role of Agro forestry in Climate Smart farming as a land use integrating trees, with crops and livestock.



- Silvopastoral system- involves integrating trees with livestock and crops mainly Sesbania Sesban and Tephrosia spp which are known to be nitrogen fixing, fast growing, provides high biomass, and is fast decomposing, thereby helping in replenishing organic content to the soil.
- Home garden- a gender sensitive best practice, which involves combining fruit trees, annual crops and trees for fuel wood and construction.
- Scattered trees on farmland- practice which involves management of scattered trees on farmland by pruning and trimming, cutting down leaves to decompose and create manure.
- Moringa- a good medicinal as well as nutritional tree resource. It can be eaten as food, tea and as medicine for its wealth in Vitamin A, calcium, phosphorus, potash and regulating diabetes.

Benefits of agro-forestry- Improves land productivity through soil fertility, additional of biomass and nitrogen fixing trees, soil and water conservation, provides diversified products in a unit of land such as fuel wood and timber, fruit production, vegetables and cereals, spices, coffee and herbal medicines, vegetables including tomatoes, carrot, and ginger.

(c) Water Users' Association

Presentation on Water Users' Association (WUA) focused on equitable water allocation, governance, and conflict management as well as the roles of the WUA. The presentation highlighted the role of the WUA in the following areas:

- Management of the irrigation system, and infrastructure.
- Maintenance and servicing of irrigation facilities.
- Promotion of irrigation farming and enhancing productivity.
- Scaling of selected BMPs.
- Management of drainage systems and supply water to members.
- Identifying and implementing measures to combat soil erosion, salinity, and pollution.
- Issuance of rules for use of water and collection of water user fees.
- Setting of water tariffs
- Ensuring fairness, equity, and non-discrimination in water allocation and distribution.
- Prevention of wastage of water,
- Ensuring compliance to system of cost recovery



Figure 2. Participants are taken through the Best Management Practices through power point presentations.

2.1.3 Stakeholder Feedback on selected Best Management Practices

(a) Concerns

This workshop session was dedicated to gathering feedback from stakeholders on issues of concern. The session sought to collect from stakeholders their perceptions/feelings with regards to the practicability or feasibility of the BMPs, their thoughts on what can be done to improve or refine the BMPs as well as other challenges related to their food/farming systems as well as the overall health of the environment. In this regard, the stakeholders raised the following issues as feedback:

- Need for better rationing of water among plots at the head and tail;
- A system should be put in place to facilitate rational water scheduling;
- There should be quality maintenance of irrigation infrastructure;
- Fair water distribution;
- Ensuring good governance through bye laws;
- Establishing a strong users' Association;
- Need for addressing marketing issues especially for vegetables;
- The project should address unique challenges of women headed households;
- The project should also deal with issues around water pricing to rehabilitate infrastructure at dam and canal level.

(b) Recommendations

In their submissions, the stakeholders articulated the following recommendations:

- 1) The project should carry out a comprehensive training of stakeholders on the application of the selected BMPs to enhance their application
- 2) The should identify model farmers who can be used for demonstration purposes. This will enhance the adoption of the BMPs
- 3) There is need to put in place a mechanism for better rationing of water among plots at the head and tail;
- 4) Income is important to farmers and hence need to address marketing issues especially for vegetables;

- 5) The project should help in addressing issues around water pricing and rehabilitate infrastructure at dam and canal level.

2.1.4 Stakeholder Prioritization of Objectives

The results on prioritization of the Objectives for BMPs are shown on Table 2 below:

Table 2: Prioritization of the Objectives for BMPs- Crop rotations, agroforestry and water users' association

(a) Socio-economic Sector

| Sub sector | Objectives | No. | Rank |
|----------------|---|-----|------|
| Socio-cultural | 1. To create job opportunities for local communities | 19 | 1 |
| | 2. To enhance gender empowerment | 2 | 3 |
| | 3. To respect traditional/historical practice(s) | 4 | 2 |
| Sub sector | Objectives | No. | Rank |
| Policy | 4. Its supported by the Government | 8 | 2 |
| | 5. Legislations/Regulations are easy to understand | 23 | 1 |
| | 6. It's compliant with national legislations and regulations | 0 | 3 |
| Sub sector | Objectives | No. | Rank |
| Governance | 4. There are organizations helping farmers to learn about BMPs | 12 | 2 |
| | 5. To improve cooperation among all value chain actors | 0 | 3 |
| | 6. To improve collaboration between institutions and value chain actors | 22 | 1 |
| Sub sector | Objectives | No. | Rank |
| Economy | 4. To make farm costs manageable | 2 | 2 |
| | 5. To increase crop production | 26 | 1 |
| | 6. To increase farmer's income. | 26 | 1 |

(b) Environmental Sector

| Sub sector | Objectives | No. | Rank |
|--------------|---------------------------------------|-----|------|
| Ground water | 4. To avoid pollution | 1 | 3 |
| | 5. To enhance water quality | 4 | 2 |
| | 6. To ease access to the ground water | 23 | 1 |
| Soil | 4. To keep the soil from washing away | 27 | 1 |
| | 5. To help crops grow better. | 8 | 2 |
| | 6. To increase farmer's income. | 0 | 3 |
| Crop | 4. To make crops productive. | 26 | 1 |
| | 5. To make crops healthier. | 2 | 2 |

| Sub sector | Objectives | No. | Rank |
|---------------|---|-----|------|
| | 6. To make crops resistant to pests and diseases | 0 | 3 |
| Surface water | 4. To avoid pollution | 0 | 3 |
| | 5. To enhance water quality | 1 | 2 |
| | 6. To keep the water flow safe. | 30 | 1 |
| Atmosphere | 4. To reduce greenhouse gases emissions | 1 | 3 |
| | 5. To make the air cleaner | 15 | 2 |
| | 6. To ensure a healthier environment for the community. | 16 | 1 |



Figure 3. Facilitators during the feedback Session

Results from the prioritization exercise show that stakeholders prioritized the following objectives under each sub sector category:

- Socio-cultural- To create jobs/job creation
- Policy- Legislation or regulations are easy to understand
- Governance- To improve collaboration between institutions and value chain actors
- Economy- Increase crop production and increase farmers' income
- Ground water- To ease access to ground water sources
- Soil- To keep the soil from washing away
- Crop- To make crops productive
- Surface water- To keep the water flow safe
- Atmosphere- To ensure a healthier environment and community.

The key take away messages from this exercise are:

- (i) Stakeholders will prioritize adoption/uptake of BMPs that will stabilize the soil and prevent soil erosion and subsequent degradation of the land resource in their communities;



- (ii) With regards to governance, farmers would want to improve the collaboration between institutions with value chain actors. This is quite surprising considering that water management and allocation among farmers in the Koga Irrigation scheme has been a number one priority for the community members. This perhaps highlights the need by the farmers to improve value chain development in prioritized value chains thereby contributing to improved incomes earned by the farmers. This seems to corroborate the farmers' prioritization of the objectives under the sub sector category on economy and socio-cultural issues.
- (iii) It's also very clear that the stakeholder communities will likely adopt policies, legislations, regulations and guidelines if they are easy to understand. This highlights the need to sensitize, and explain to the farmers and other stakeholders any policy, regulation or legislation that the government may intend to introduce into the intervention areas for purposes of promoting soil, water and land management.

2.1.5 Wrap-up and Closure of the Meeting

(a) Key Outputs

In wrapping up the workshop, it was noted that the workshop was very successful and had achieved its objectives. The following workshop outputs were delivered:

- 1) Stakeholders including smallholder farmers, field extension agents, leaders of the farmers' cooperative union were sensitized about the WATDEV project and the selected BMPs for Ethiopia
- 2) Stakeholders were trained on application of the BMPs selected for Ethiopia.
- 3) Feedback received from stakeholders on their perceptions about the feasibility of the BMPs. Stakeholders made proposals regarding various strategies on how to improve implementation of the BMPs and shared their experiences.
- 4) Stakeholders prioritized objectives for selecting BMPs under the different agro ecology sectors.

(b) Workshop Closure

The workshop was officially closed by the Deputy District Administrator and Head of Agriculture, Mr. Bekel Hayilu, who pledged the Government's support for the WATDEV project through the Woreda Administration.

He thanked the consortium partners and development partners for putting together the WATDEV intervention and highlighted the benefits of adopting BMPs to the communities.

On behalf of the Government, he committed to minimize siltation at the dam to ensure availability of more irrigation water for both upstream and downstream communities in the project intervention area.



3. Annexes

3.1 ANNEX 1 - Meeting Agenda



| WATDEV – Ethiopia Dissemination Event & Awareness Meeting Bahir Dar – Saturday July 1 2023 | |
|---|---|
| Welcome and introduction (30') | |
| 09.00-09.30 | <ul style="list-style-type: none"> • Welcome Remarks – WLRC -ASARECA-CIHEAM BARI • Round of introductions |
| 09.30-10.00 | <ul style="list-style-type: none"> • WATDEV Project: Objectives, methods and expected results – WLRC- ASARECA • Meeting objectives and agenda ASARECA |
| Coffee break & Group photo (30') | |
| BMPs Presentation (2h) | |
| 10.30 – 12.30 | <ul style="list-style-type: none"> • Soil Health - lntegrated soil aacidity and fertility management (combined use of organic and inorganic fertilizer) – ASARECA/ARARI • Agroforestry Systems – ASARECA /WLRC • Water User Association - Allocation, governance and conflict management- WLRC/ASARECA • Consultation with local actors on overall feasibility of the selected BMPs – ASARECA |
| Lunch (1h30') | |
| Public consultation exercise (1h30') | |
| 14.00 – 15.30 | <ul style="list-style-type: none"> • Consultation with stakeholders to prioritize BMPs objectives for each sustainability dimension (Social, Economic, Environmental, Governance), to enhance feasibility study of BMPs. <p>Facilitator : WLRC/ASARECA</p> |
| Wrap-up and conclusion (30') | |
| 15.30 – 16.00 | <ul style="list-style-type: none"> • Next steps: starting implementation of BMPs WLRC - CIHEAM BARI • Wrap-up and closure WLRC – ASARECA |



3.2. ANNEX 2 - Attendance Sheet (Attached as a separate document)



Annex 4: Kenya Local Awareness Meeting Report

WATDEV AWARENESS SESSIONS FOR FARMERS AND LOCAL ACTORS

18th July 2023

Lower Tana River, Kenya



Workshop Report





Background

The Climate Smart **WATER** Management and Sustainable **DEVELOPMENT** for Food and Agriculture in East Africa (WATDEV) aims to enhance sustainability of agricultural water management and resilience of agro-ecosystems to climate change in East Africa and Egypt. Agenzia Italiana per la Cooperazione e lo Sviluppo (AICS) is the executing agency, while CIHEAM-BARI is the leading scientific institution, working closely with the Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), the Kenya Agricultural and Livestock Research Organization (KALRO), Water, Land Resources Centre – Ethiopia (WLRC), Water Research Centre (WRC), Sudan and Heliopolis University (HU), Egypt.

The project aims to develop an in-depth understanding of small to large-scale water and agricultural resource dynamics and management and people's resilience to climate change through innovative research, modelling, and capacity building approaches. The overarching objective of the project is to enhance sustainability of agricultural water management and resilience of agro-ecosystems to climate change in East Africa and Egypt.

The specific objectives include: **(1)** National Ministries and Research Institutions improve their knowledge and management of water in agriculture; and **(2)** Farmers and local actors, cooperatives and Water User Associations implement innovative/sustainable solutions and skills on water management.

OBJECTIVES OF THE AWARENESS MEETINGS

Overall objective

Enhancing the implementation of selected BMPs and Innovations towards the local communities of the study areas where BMPs and Innovations will be studied and analysed with models for their possible implementation and upscaling. The awareness sessions were focused on the explanation of selected BMPs /Innovations, outlining goals, means and possible impacts. The event also collected reactions, perceptions from local farmers in terms of specific needs and technical solutions to adapt the selected BMPs to the local context.

Specific Objectives

- a) Communicate to local communities WATDEV project goals and activities.
- b) Increase farmers and local communities' awareness of the impacts of adopting in a non-sustainable way certain practices.
- c) Increase farmers' and community awareness of potential BMPs impact/s
- d) Share with farmers' ways of how to improve sustainability/efficiency/productivity of selected BMPs.
- e) Collect feedback, perceptions, and information needed to define BMPs goals, means, and expected impacts and prioritize, for different sustainability dimensions, the BMPs objectives (to guide the definition of indicators to measure BMPs achievements in A2.3 Feasibility studies).

Meeting approach (methodology)

The awareness meeting was held through the following sessions: -

1. Presentation of WATDEV Project: Objectives, methods and expected results and overview of activities in the Tana River.



2. Presentation of selected BMPs. This was a guided discussion on the “selected” BMPs/Innovations, pointing on how practices are applied, their impacts on the environmental system (water, soil, crop, atmosphere) and how to improve their sustainability/efficiency/productivity. The meeting used PowerPoint and distributed materials printed in the local language. Discussions also elicited feedback from the participants.
3. Prioritization of BMPs (sustainability) objectives. This exercise, which was aimed at collecting from local stakeholders, their perceptions about the BMPs objectives, was discussed in plenary and the participants later scored individually their perceptions on the importance of the various BMPs vis-à-vis the objectives.

WORKSHOP DISCUSSIONS/RESULTS

Kenya’s first Awareness Meeting and Dissemination event was held on the 18th of July 2023, in Lower Tana River, Kenya, with the goal of increasing farmers’ involvement for a sustainable agriculture. The event was hosted and coordinated by the Kenya Agricultural & Livestock Research Organization (KALRO) and facilitated by Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) with the participation of representatives from institutional partners Agenzia Italiana per la Cooperazione allo Sviluppo (AICS) and CIHEAM Bari.

Opening remarks

Dr. Eliud Kireger, in his welcome remarks, emphasized the significance of the event and called for a collective effort to address the challenges facing the agricultural sector. Dr. Caludio Bogliotti and Dr. Gaetano Ladisa joined in the meeting online and reiterated the importance of the awareness meeting at the local level.

They noted that this was key in getting community knowledge that can bend with the scientific knowledge, with a focus of improving the effectiveness of the selected BMPs. They wished the meeting good deliberations.

Mr. Sironka Ole Masaa, from the Office of the County Commissioner reiterated the importance of the project and promised administrative support from the County. He advised that the project initiatives should link with other initiatives in agriculture, to increase impact and contribute sustainably to improved livelihoods.

MEETING OBJECTIVES

Dr. Michael Okoti, presented the program's objectives, methods, and expected results. The focus was on promoting selected Best Management Practices (BMPs) and innovations, namely "Water Users’ Association" and "Agroforestry” and their potential impacts on local community and environment. He indicated that the workshop will be participatory and encouraged all stakeholders to give in their inputs.

The heart of the event revolved around engaging with local farmers to collect their reactions and perceptions regarding specific needs and technical solutions for adapting Water Users’ Association and Agroforestry to local context. The active participation of farmers was essential in ensuring that the strategies put forward are tailored to meet the real challenges on the ground.

PRESENTATION OF SELECTED BMPs

This consultative session was facilitated Dr. Michael Okoti (KALRO) and Joshua Okonya (ASARECA). The guided discussion focused on the “selected” BMPs/Innovations, how the practices are applied, their impacts on the environmental system (water, soil, crop, atmosphere) and



how to improve their sustainability/efficiency/productivity. The participants were given printed copies of the BMPs for ease of read. Issues that were discussed can be summarized as:-

1. *Various stakeholder roles and support in the implementation of the selected BMPs*
 - a) KALRO and County Agriculture Extension on capacity building and skills development on various aspects of the BMPs.
 - b) County Government on legislation and management of land use.
 - c) National Irrigation Authority (NIA) will facilitate access to water and the management of the resource. They will also facilitate the access to areas that can be used for establishing agroforestry. NIA has established nurseries and targeting to have over 100,000 tree seedlings for planting within the irrigation scheme this year.
 - d) The Water Resource Users Association will be key on water administration and management of conflicts related to water use.
 - e) Tana and Athi River Development Authority (TARDA) have established nurseries that can supply some of the needed agroforestry trees.
 - f) The various farmer organization indicate that they will mobilize farmers to be part of the capacity building and also encourage the implementation of the practices.
2. *Major obstacles on the BMPs implementation*
 - a) The land lease system within the irrigation scheme may limit how much farmers can do in terms of agroforestry. The NIA however clarified that they have policies that support for agroforestry, and this should be used. It was also indicated that there are specific zones that were used for agroforestry before but over the years the initiatives went down. This needs to be implemented.
 - b) The irrigation scheme is expanding very fast, but the issues of water availability have not been addressed. This poses a challenge is water availability.
 - c) Limited skills among the various community members on agroforestry issues.
 - d) The invasion of the Prosopis in the irrigation scheme has adversely affected the land cover and environmental benefits.
 - e) Climatic changes affecting water availability and creating competition in demand within the irrigation scheme.
 - f) Conflicts within the irrigation scheme between the livestock keepers and crop farmers.
3. *Specific needs to implement the selected BMPs*
 - a) Capacity building of the community members on the various BMPs, especially agroforestry.
 - Skills on agroforestry management
 - The best species for the irrigation scheme – species that will not compete with the crops on water issues (water demand) and that will not destroy the water canals.
 - Focus on fruit trees for livelihood improvement
 - Trees that improve soil nutrients, source of fodder and woodlots will be good.
 - Consider trees that can be used for intercropping with crops in the irrigation scheme.
 - b) Capacity building of the WRUAs on water management issues.
 - c) Agroforestry should be done in the areas designated for the household's settlement (1 acre each).
 - d) The County government should be carried along the implementation process so that they can ensure sustainability of the initiatives. This underscores the importance of the extension system.
 - e) KALRO and the County government agricultural extension department should consider establishing permanent demonstration sites within the irrigation schemes, for continuous

learning and feedback from the community. This should showcase agroforestry systems within irrigation schemes.

- f) Continuous control of Prosopis tree invasion in the irrigation scheme.
- g) Consider bulking the water from Tana River into dams, reservoirs, or water pans in times of plenty so that there can be a continuous supply for irrigation, even in the hinterland.
- h) Engage policy and legislation on land use.



Participants during the awareness meetings in Lower Tana

PRIORITIZATION OF BMPS (SUSTAINABILITY) OBJECTIVES

This last exercise aimed at collecting from local stakeholders, their perceptions about the BMPs objectives.

After very engaging plenary discussions, all the participants were allowed to score individually and the results aggregated as shown in Table 1 and Table 2 below, for each selected BMP.

Table 1 – BMP sustainability objectives – Agroforestry

| SECTORS | | OBJECTIVES | Score | Rank |
|--------------------------------|----------------|--|-------|------|
| Socioeconomic | Socio-cultural | • To create job opportunities for locals. | 9 | 1 |
| | | • To contribute reducing/mitigating social conflicts. | 5 | 2 |
| | | • To respect traditional/historical practice(s) in the area. | 1 | 3 |
| | Policy | • It is supported by the Government. | 10 | 1 |
| | | • Legislations/Regulations are easy to understand. | 1 | 3 |
| | | • It is compliant with national legislation and regulations | 4 | 2 |
| | Governance | • There are organizations helping farmers to learn about BMPs. | 5 | 1 |
| | | • To improve cooperation among all value chain actors. | 5 | 1 |
| | | • To improve collaboration between institutions and value chain actors | 5 | 1 |
| | Economy | • To make farm costs manageable. | 1 | 3 |
| • To increase crop production. | | 4 | 2 | |

| SECTORS | | OBJECTIVES | Score | Rank |
|---------------|---------------|--|-------|------|
| Environmental | Groundwater | • To increase farmer's income. | 10 | 1 |
| | | • To avoid pollution. | 2 | 3 |
| | | • To enhance water quality. | 4 | 2 |
| | Soil | • To ease access to the groundwater. | 9 | 1 |
| | | • To keep the soil from washing away. | 8 | 1 |
| | | • To make the soil better for growing crops. | 4 | 2 |
| | Crop | • To help crops grow better. | 3 | 3 |
| | | • To make crops productive. | 8 | 1 |
| | | • To make crops healthier. | 6 | 2 |
| | Surface water | • To make crops resistant to pests and diseases. | 1 | 3 |
| | | • To avoid pollution. | 3 | 3 |
| | | • To enhance water quality. | 4 | 2 |
| | Atmosphere | • To keep the water flow safe. | 8 | 1 |
| | | • To reduce greenhouse gases emissions. | 1 | 2 |
| | | • To make the air cleaner. | 1 | 2 |
| | | • To ensure a healthier environment for the community. | 13 | 1 |

Table 2 – BMP sustainability objectives – WRUAs

| SECTORS | | OBJECTIVES | Score | Rank |
|---------------|----------------|--|-------|------|
| Socioeconomic | Socio-cultural | • To create job opportunities for locals. | 8 | 1 |
| | | • To contribute reducing/mitigating social conflicts. | 5 | 2 |
| | | • To respect traditional/historical practice(s) in the area. | 2 | 3 |
| | Policy | • It is supported by the Government. | 4 | 2 |
| | | • Legislations/Regulations are easy to understand. | 4 | 2 |
| | | • It is compliant with national legislation and regulations | 7 | 1 |
| | Governance | • There are organizations helping farmers to learn about BMPs. | 6 | 1 |
| | | • To improve cooperation among all value chain actors. | 5 | 2 |
| | | • To improve collaboration between institutions and value chain actors | 4 | 3 |
| | Economy | • To make farm costs manageable. | 3 | 2 |
| | | • To increase crop production. | 9 | 1 |
| | | • To increase farmer's income. | 3 | 2 |
| Environmental | Groundwater | • To avoid pollution. | 4 | 3 |
| | | • To enhance water quality. | 3 | 2 |
| | | • To ease access to the groundwater. | 8 | 1 |
| | Soil | • To keep the soil from washing away. | 0 | 3 |



| | | | |
|----------------------|--|----|---|
| | <ul style="list-style-type: none"> To make the soil better for growing crops. | 8 | 1 |
| | <ul style="list-style-type: none"> To help crops grow better. | 7 | 2 |
| Crop | <ul style="list-style-type: none"> To make crops productive. | 9 | 1 |
| | <ul style="list-style-type: none"> To make crops healthier. | 6 | 2 |
| | <ul style="list-style-type: none"> To make crops resistant to pests and diseases. | 0 | 3 |
| Surface water | <ul style="list-style-type: none"> To avoid pollution. | 4 | 2 |
| | <ul style="list-style-type: none"> To enhance water quality. | 4 | 2 |
| | <ul style="list-style-type: none"> To keep the water flow safe. | 7 | 1 |
| Atmosphere | <ul style="list-style-type: none"> To reduce greenhouse gases emissions. | 2 | 3 |
| | <ul style="list-style-type: none"> To make the air cleaner. | 3 | 2 |
| | <ul style="list-style-type: none"> To ensure a healthier environment for the community. | 10 | 1 |


CLOSING REMARKS

Mr. Asumbi (Irrigation Water Users Association) in his closing remarks appreciated all the participants' contributions, and the participation of KALRO with AICS and CIHEAM focusing on sustainable agriculture.


Mr. Alex Kubende (County Director of Agriculture) indicated that the WATDEV initiatives were good and he is keen to follow up with the County to expand the initiative and make it a success. Keen attention will be given to see if there are any opportunities within the County to sustain or upscale this initiative. He noted that the Presidential Campaign for Landscape Restoration aimed at planting 15 billion trees by 2032 offers an opportunity to out scale agroforestry within the irrigation scheme. Already there are efforts through the National Irrigation Authority to produce 100,000 fruit tree seedlings.

Mr. Joshua Okonya from ASARECA concluded the meeting, emphasizing the importance of collaboration and knowledge exchange to drive positive change in the region's agricultural sector. The next steps involve putting these carefully planned BMPs into action and starting their implementation.


Annexes: List of participants




WATER DEV




Funded by the European Union



KENYA NATIONAL COMMISSION FOR HUMAN RIGHTS
ALLO SVILUPPO



CIHEAM BARI



ASARECA
Agriculture Sustainable Agriculture Research and Education



KALRO
Kenya Agricultural Livestock Research Organization











WATDEV

Climate Smart WATer Management and Sustainable DEVELOPMENT for Food and Agriculture in East Africa

DISSEMINATION EVENT AND AWARENESS SESSIONS MEETING FOR FARMERS AND LOCAL ACTORS

ZURI HOTEL, TANA RIVER, KENYA

Attendance list, 18th July 2023

| NAME (IN CAPITAL LETTERS) | SURNAME (IN CAPITAL LETTERS) | E-MAIL (IN CAPITAL LETTERS) | ORGANIZATION (IN CAPITAL LETTERS) | SIGNATURE TO AUTHORIZE THE PROCESS OF PERSONAL DATA * | SIGNATURE TO AUTHORIZE SHOOTING/AUDIO/ VIDEO RECORDING ** |
|------------------------------|---------------------------------|--------------------------------|--------------------------------------|---|---|
| MICHAEL | OKOTI | MICHAEL.OKOTI@KALRO.ORG | KALRO |  |  |
| JOSHUA | OKONYA | J.O.KONYA@ASARECA.ORG | ASARECA |  |  |
| ALEXANDER | KUBENDE | Kubendealexahoo.com | AGRICULTURE |  |  |
| MUHAMMAD | B. ABBU | mbood@legmail.com | INTERIOR |  |  |
| MAURGEN | H. ELIJAH | MAURGEN.ELIJAH.2015@GMAIL.COM | IRRIGATION |  |  |

*Authorization to process personal data: The undersigned declares that he/she has read the information about collecting, storing and processing personal data in full and gives his/her full consent to the processing of his/her personal data for the event and for all technical and organisational activities relating to the project SUSTLIVES. The undersigned also declares to have been informed in advance that photos/videos will be taken during the event.

**Disclaimer regarding shooting/audio/video recording: The undersigned authorizes CIHEAM Bari to use, free of charge, even through third parties authorized by CIHEAM Bari, with no time limits, both in Italy and abroad, the publication and/or diffusion in any form of his/her images taken during the event, including websites, print paper and/or whatever diffusion means, with the broadest power of editing/change and mounting deemed necessary/appropriate. Aware that these publications are intended for scientific and dissemination purposes, without prejudice to the dignity, reputation and decorum of the people concerned, the undersigned will hold CIHEAM Bari harmless from any prejudicial effect that may result from misuse or abuse by third parties of the above audio-photo-video material.

The undersigned also declares to have been informed about the possibility of submitting a request of withdrawing this disclaimer, by written communication to be emailed to privacy@amb.it or by registered letter to be addressed to "Istituto Agronomico Mediterraneo di Bari-CIHEAM IAMB", Via Ceglie, 9, 70010 Valenzano (BA).

| NAME: SURNAME | E-MAIL | ORGANISATION | SIGNATURE | SIGNATURE |
|-------------------|--------------------------|--------------------------|-----------|-----------|
| HAMISI KOFFA | | | | |
| HAMISI KOFFA | | UMUJA UNITED PARTNERS | | |
| ALY KOFFA | | KIAMUNYAKA FARMERS COOP | | |
| PETER KENGA | P.kenga@su.ac.ke | Pwani University | | |
| ABDI NASSIR | | ALBA'S FARMER | | |
| HGS BOM OHDIGKI | hgsbongondieki@gmail.com | FADHILA MFI | | |
| MOSES NDALILA | mose.ndalila@dayliff.com | DAVIS & SHIRTLIFF | | |
| BAZID HIRIBAE | hpbazid@gmail.com | Motungu Seed Growers | | |
| ERNEST D. AKUMU | akumu.ernest@gmail.com | HOLA SCHEMIE COOP | | |
| WILIAM JILLO SOTE | jillob15@gmail.com | TANA RIVER COUNTY/RAISON | | |
| KAMENAS MUKOKO | ndungu@nukulu@gmail.com | TANZANIA COOP | | |
| STEGA MBIZI | | N.I.A-TANA | | |

* Authorization to process personal data: The undersigned declares that he/she has read the information about collecting, storing and processing personal data in full and gives his/her full consent to the processing of his/her personal data for the event and for all technical and organisational activities relating to the project SUSTLIVES. The undersigned also declares to have been informed in advance that photos/videos will be taken during the event.

**Disclaimer regarding shooting/audio/video recording: The undersigned authorizes CIHEAM Bari to use, free of charge, even through third parties authorized by CIHEAM Bari, with no time limits, both in Italy and abroad, the publication and/or diffusion in any form of his/her images taken during the event, including websites, print paper and/or whatever diffusion means, with the broadest power of editing/change and mounting deemed necessary/appropriate. Aware that these publications are intended for scientific and dissemination purposes, without prejudice to the dignity, reputation and decorum of the people concerned, the undersigned will hold CIHEAM Bari harmless from any prejudicial effect that may result from misuse or abuse by third parties of the above audio-photo-video material.

The undersigned also declares to have been informed about the possibility of submitting a request of withdrawing this disclaimer, by written communication to be addressed to privacy@iamb.it or by registered letter to be addressed to "Istituto Agronomico Mediterraneo di Bari-CIHEAM IAMB", Via Ceglie, 9, 70010 Valenzano (BA).

| NAME | SURNAME | EMAIL | ORGANISATION | SIGNATURE | SIGNATURE |
|-------------|------------|---------------------------|--------------------------------|-----------|-----------|
| Obadiah | Kikarié | Okunianiane@gmail.com | National Immigration Authority | | |
| TOTHW | ASUMBI | Johnsums@gmail.com | WYA / HOA | | |
| MOSES | KOFA | | CBO | | |
| LUCY | SARHA | | CBO ADEAL | | |
| JEMIMA | BUYA | mimaljenny7@gmail.com | TRCG | | |
| LUCY | MARO | lucymaros@gmail.com | FARMER | | |
| GRACE | MRSUCUA | GRACEMRSUCUA@KALRO | KALRO | | |
| CAROLYNÉ | MINATO | CAROLYNE.MINATO@KALRO.ORG | KALRO | | |
| P. SIRONIWA | OLE MASAKA | psmasakad@igmail.com | INTERIOR | | |
| A.K. O | CHENWILOS | akchenwi@gmail.com | KALRO | | |
| JOHN | MWANENI | kiragujohnmwani@gmail.com | KALRO | | |

***Authorization to process personal data:** The undersigned declares that he/she has read the information about collecting, storing and processing personal data in full and gives his/her full consent to the processing of his/her personal data for the event and for all technical and organisational activities relating to the project SUSTLIVES. The undersigned also declares to have been informed in advance that photos/videos will be taken during the event.

****Disclaimer regarding shooting/audio/video recording:** The undersigned authorizes CIHEAM Bari to use, free of charge, even through third parties authorized by CIHEAM Bari, with no time limits, both in Italy and abroad, the publication and/or diffusion in any form of his/her images taken during the event, including websites, print paper and/or whatever diffusion means, with the broadest power of editing/change and mounting deemed necessary/appropriate. Aware that these publications are intended for scientific and dissemination purposes, without prejudice to the dignity, reputation and decorum of the people concerned, the undersigned will hold CIHEAM Bari harmless from any prejudicial effect that may result from misuse or abuse by third parties of the above audio-photo-video material.

The undersigned also declares to have been informed about the possibility of withdrawing this disclaimer, by written communication to be emailed to privacy@iamb.it or by registered letter to be addressed to "Istituto Agronomico Mediterraneo di Bari-CIHEAM IAMB", Via Ceglie, 9, 70010 Valenzano (BA).



WATDEV

Climate Smart WATer Management and Sustainable DEVELOPMENT for Food and Agriculture in East Africa

DISSEMINATION EVENT AND AWARENESS SESSIONS MEETING FOR FARMERS AND LOCAL ACTORS

ZURI HOTEL, TANA RIVER, KENYA

Attendance list, 17th July 2023

| NAME (IN CAPITAL LETTERS) | SURNAME (IN CAPITAL LETTERS) | E-MAIL (IN CAPITAL LETTERS) | ORGANIZATION (IN CAPITAL LETTERS) | SIGNATURE TO AUTHORIZE THE PROCESS OF PERSONAL DATA * | SIGNATURE TO AUTHORIZE SHOOTING/AUDIO/ VIDEO RECORDING ** |
|------------------------------|---------------------------------|--------------------------------|--------------------------------------|--|---|
| SAFARI | MILEWA | | KALRO | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

*Authorization to process personal data: The undersigned declares that he/she has read the information about collecting, storing and processing personal data in full and gives his/her full consent to the processing of his/her personal data for the event and for all technical and organisational activities relating to the project SUSTLIVES. The undersigned also declares to have been informed in advance that photos/videos will be taken during the event.

**Disclaimer regarding shooting/audio/video recording: The undersigned authorizes CIHEAM Bari to use, free of charge, even through third parties authorized by CIHEAM Bari, with no time limits, both in Italy and abroad, the publication and/or diffusion in any form of his/her images taken during the event, including websites, print paper and/or whatever diffusion means, with the broadest power of editing/change and mounting deemed necessary/appropriate. Aware that these publications are intended for scientific and dissemination purposes, without prejudice to the dignity, reputation and decorum of the people concerned, the undersigned will hold CIHEAM Bari harmless from any prejudicial effect that may result from misuse or abuse by third parties of the above audio-photo-video material.

The undersigned also declares to have been informed about the possibility of submitting a request of withdrawing this disclaimer, by written communication to be emailed to privacy@iamb.it or by registered letter to be addressed to "Istituto Agronomico Mediterraneo di Bari-CIHEAM IAMB", Via Ceglie, 9, 70010 Valenzano (BA).





Annex: Program

08:30 - 08:45

- Participants Arrival and Registration

SESSION 1

WELCOME AND INTRODUCTION

08:45 - 09:00

- Participants Introductions (Role and Activity) - Dr. Alice Murage - KALRO

09:00 - 09:30

- Welcome Remarks - Dr. Eliud Kireger - DG KALRO; AICS Representative; CIHEAM BARI; County Representative

09:30 - 09:50

- The WATDEV Project: Objectives, Methods and Expected Results - Dr. Michael Okoti

09:50 - 10:00

- Meeting Objectives and Agenda - Mr. Joshua Okonya - ASARECA

10:00 - 10:30

Coffee Break & Group Photo

SESSION 2

PRESENTATION OF SELECTED BMPs

10:30 - 13:00

Presentation of selected BMPs:

c) Water Users Association

d) Agroforestry

- Guided discussion on how practices are applied, their impacts on the environmental system.
- Discussions on how to improve sustainability, efficiency, productivity of selected BMPs.
- Consultation with local actors on overall feasibility of the selected BMPs.

Facilitators: Dr. Michael Okoti - KALRO
Mr. Joshua Okonya - ASARECA
Dr. Alice Murage - KALRO

13:00 - 14:00

Lunch & Health Break

PUBLIC CONSULTATION EXERCISE

14:00 - 15:30

- Consultation with stakeholders to prioritize BMPs objectives for each sustainability dimension (Social, Economic, Environmental, Governance), to enhance feasibility study of BMPs.

Facilitators: Dr. Michael Okoti - KALRO
Dr. Alice Murage - KALRO

SESSION 4

WRAP-UP AND CONCLUSION

15:30 - 16:00

- Wrap-up and Closure - Mr. Joshua Okonya - ASARECA
- Next steps: starting implementation of BMPs - Dr. Alice Murage - KALRO

