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ETHIOPIA	Water and Land Resources Centre (WLRC)
FINLAND	Finnish Environment Institute (SIKE)
ITALY	Agenzia Italiana per la Cooperazione e lo Sviluppo (AICS – Cairo)
ITALY	Centro Internazionale di Alti Studi Agronomici Mediterranei di Bari (CIHEAM-Bari)
ITALY	Italian Research Council (CNR-IPSP)
KENYA	Kenya Agricultural & Livestock Research Organization (KALRO)
SUDAN	Water Research Centre (WRC)
THE NETHERLANDS	International Soil Reference Centre (ISRIC)
UGANDA	Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)

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Abstract (for dissemination)	The WATDEV project (Climate Smart Water Management and Sustainable Development for Food and Agriculture) implemented a comprehensive training and coaching programme aimed at strengthening capacities in the use of an integrated Water Planning Toolbox across East Africa and Egypt. Between 2023 and 2026, three Regional Toolbox Trainings (RTTs) targeted researchers, modellers, and decision-makers from Kenya, Ethiopia, Egypt, and Sudan. The programme combined theoretical instruction, hands-on exercises, and group-based applications, enabling participants to use modelling tools, simulate Best Management Practices (BMPs), and conduct Multi-Criteria Analysis (MCA) for evidence-based decision-making. Results show a significant increase in participants' knowledge (+14% on average) and perceived ability to use modelling outputs in planning processes, alongside high overall satisfaction rates (96.3%). The initiative successfully fostered a training-of-trainers approach, enhancing knowledge replication and building a regional community of practice. It also strengthened collaboration between African institutions and European partners, contributing to science-policy dialogue and institutional capacity building. Despite these achievements, key challenges remain, including limited human resources, budget constraints, and the need for stronger institutional integration of the Toolbox. The report concludes that the WATDEV training model represents a scalable and replicable framework for capacity development in climate-smart water management. Strategic recommendations highlight the importance of extending training programmes, institutionalising tools within national systems, establishing regional knowledge hubs, and implementing long-term impact monitoring mechanisms to ensure sustainability and maximise development outcomes.
Keywords	Capacity Building, Decision-Support Tools, Climate-Smart Water Management

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Acronyms and Abbreviations

AICS	Italian Agency for Development Cooperation
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa, Uganda
AU-EU	African Union – European Union
CIHEAM	Centre International de Hautes Etudes Agronomiques Méditerranéennes, Italy
CNR	Consiglio Nazionale delle Ricerche, Italy
DG INTPA	Directorate General for International Partnership
DG RTD	Directorate General Research and Innovation
EU	European Union
HRC	Hydraulics Research Center- Ministry of Water and Irrigation- Gezira, Sudan.
HU	Heliopolis University, Egypt
ISRIC	International Soil Reference Center, The Netherlands
KALRO	Kenya Agricultural & Livestock Research Organization, Kenya
KU	Khartoum University, Sudan
NRC	National Research Council, Sudan
R&I	Research and Innovation
SERI	Sustainable Europe Research Institute
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
WRC	Water Research Centre, Sudan

Executive Summary

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. AICS (Agenzia Italiana per la Cooperazione e lo Sviluppo) is the executive agency, CIHEAM-BARI is leading scientific institution working with ASARECA (Strengthening Agricultural Research in Eastern and Central Africa), KALRO (Kenya Agricultural and Livestock Research Organization), WLRC (Water, Land Resources Centre - Ethiopia), WRC (Water Research Centre, Sudan) and HU (Heliopolis University, 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 through innovative research, modelling, and capacity-building approaches.

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

Within this framework, the development and operationalization of a modelling and planning Toolbox represent a key asset to support evidence-based decision-making.

The A5.1 "Training Programme on the use of the water planning Toolbox" aims to empower researchers and decision-makers belonging to Egypt and East African Countries (Ethiopia, Kenya and Sudan) in effectively working with the WATDEV Toolbox.

Within WATDEV, three Regional Toolbox Training (RTT) events were organized and facilitated by ISRIC, in close collaboration with SYKE and CIHEAM Bari, and with the support of local partner institutions in the beneficiary countries.

The three Regional Toolbox Training events were organized as follows:

- 1st Regional Toolbox Training (RTT1) - for researchers (3 participants for each EAC) (Wageningen – NL, 4-6/02/2026) [M49];
- 2nd Regional Toolbox Training (RTT2) - for decision-makers (6 participants from Kenya and Ethiopia) (Addis Ababa – ET, 05-06/05/2026) [M53]
- 3rd Regional Toolbox Training (RTT3) - for decision-makers (6 participants from Egypt and Sudan + 12 participants from WATERKNOWLEDGE beneficiary organizations) (Cairo – EG, 13-14/05/2026) [M53]

The 1st RTT is primarily aimed at researchers and modellers and focuses on the technical use of the Toolbox. It builds capacities on data input, parameterization, manipulation of the integrated model, modification of BMPs, and assessment of simulation outputs.

The 2nd and 3rd RTTs are targeted at planners, project officers, and decision-makers. These training courses focused on the practical use of the Toolbox to: (i) assess the impacts of selected BMPs on environmental and socio-economic indicators; and (ii) compare these impacts under different agro-environmental and socio-economic conditions, supporting the identification of context-appropriate BMPs for planning and investment decisions.

1. Introduction

1.1 Preamble

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 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 is aimed at developing an in-depth understanding of small to large-scale water and agricultural resource 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 the sustainability of agricultural water management and the resilience of agroecosystems 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.

Within this framework, the development and operationalization of a modelling and planning **Toolbox** represent a key asset to support evidence-based decision-making.

1.2 Purpose, Context, and Scope of this Deliverable

The main objective of the activity A5.1 Training programme on the use of the water planning toolbox is to provide support to local actors (researchers, modellers, and decision-makers) in improving the interoperability of the Toolbox focusing, in the meantime, on the operational use of the integrated models in simulating BMPs scenarios.

1.3 Structure and Content of the Deliverable

Deliverable D5.1.1 Report on the Implementation of the Training and Coaching programs (on the Toolbox).

The structure for the D5.1.1 report is as follows: (i) Executive Summary, (ii) Introduction, (iii) Course Structure, (iv) Methodology, (v) Conclusions, and (vi) Annexes.

This document (D5.1.1) provides information on the Regional Toolbox Trainings (RTTs) program, feedback received by the participants to the three RTTs and how those contributes to the achievement of the Logical Framework indicators OT5.1 and OT5.2.

2. Methodology

The Regional Toolbox Training events were highly interactive and practice-oriented, focusing on the operational use of the WATDEV Toolbox. Three teaching methods were employed: lectures, tutorials (follow instructions in own computer), and group exercises (independent assignments supported by a group coach). Participants were equipped with their own computers. This ensured a high cognitive level for the trainings, which teach not only how to use the Toolbox, but also what to use the Toolbox for.

Two training schedules were developed, according to the targeted user profile: i) decision-makers and ii) modellers.

The training for decision-makers (RTT2 and RTT3) was designed for trainees with general knowledge of agriculture and irrigation water management. It addressed the following learning objectives:

- understand what the WATDEV Toolbox is, and how it integrates the WATDEV model for each of the project study areas;
- visualise WATDEV model results in the Toolbox and compare different Best Management Practices (BMP);
- generate and analyse new spatial configurations of BMPs;
- conduct a Multiple Criteria Analysis (MCA) of BMPs using model results, combining environmental and socioeconomic indicators.

The following activities were foreseen for RTT2 and RTT3:

- Lectures:
 - WATDEV model and toolbox,
 - Principles of MCA
- Tutorials:
 - Visualise model results,
 - Generate BMP scenarios and implement MCA in the WATDEV toolbox
- Group exercise (with coach):
 - Explored existing BMP scenarios inside the Toolbox and their impacts.
 - Developed new spatial BMP configurations.
 - Selected relevant biophysical and socio-economic KPIs.
 - Compared proposed scenarios against baseline conditions.
 - Presented findings supported by maps, graphs, and Toolbox outputs.

The training for researchers (RTT1) was designed for trainees with experience in computer data manipulation for agriculture and irrigation water management. It started with the same training as done for decision-makers, followed by additional training with the following learning objectives:

- understand how the WATDEV model works;
- introduce and change input parameters relevant for BMPs (crop selection, irrigation, and fertilization) in the WATDEV model;
- conduct a full BMP analysis, from conceptualization to implementation in the model and assessment using MCA

The following activities were foreseen for RTT1:

- The same activities as in RTT2 and RTT3; additionally,
- Lecture: WATDEV model structure

- Tutorial: manipulate WATDEV model parameters
- Group exercise (with coach): create and assess a new BMP scenario using the WATDEV model and Toolbox

ISRIC was the responsible for the overall coordination of the RTTs. Local partners (HU, WLRC, WRC, and KALRO) supported participant selection, local organization, facilitation during training sessions, and reporting activities.

Key actions included:

1. Analysis and profiling of beneficiaries targeted by the RTTs (local partners);
2. Development and consolidation of the structure and contents of the training events, with materials compiled in Deliverable D4.1.2 (ISRIC);
3. Organization and implementation of the three RTTs [M50, M52, M53] (ISRIC, SYKE, local partners);
4. Reporting and preparation of Deliverable D5.1.1 (CIHEAM Bari).

The organization of RTTs was articulated into a sequence of phases, including:

- **Phase 1 – Preparation:** finalization of training materials, participant selection, and logistical arrangements;
- **Phase 2 – Delivery:** implementation of theoretical sessions and hands-on practical exercises;
- **Phase 3 – Application and Discussion:** group work on case studies and facilitated discussion of results and implications;
- **Phase 4 – Evaluation:** collection of participant feedback through an online satisfaction survey (QR-code based), coordinated by CIHEAM Bari, to assess perceived effectiveness and relevance of the training (see chapter 3 below).

Organizer and Contributing Partners

- [ISRIC](#) (Lead Partner)
- [SYKE](#)
- [CIHEAM-Bari](#)
- [HU](#)
- [WLRC](#)
- [WRC](#)
- [KALRO](#)

2.1. Target Groups (beneficiaries)

The three RTTs are addressed to two different groups of beneficiaries.

RTT1 - Researchers

- Researchers and Modellers
- Technical experts
- Project managers involved in modelling and analytical tasks.

RTT2 and RTT3 – Decision-makers

- Project officers
- Technicians and extensionists
- Decision-makers and planners

- Experts and practitioners
- Researchers with a policy- or planning-oriented role.

To ensure effective interaction during both theoretical sessions and practical exercises, the number of participants per training event was limited to a maximum of 12.

2.2. The Trainings' structure and Duration

The three RTTs took place respectively at Hotel Wander (Wageningen, NL), Capital Hotel (Addis Ababa, ET), and at RTCWRI Campus (Cairo, EG).

Each RTT was thoughtfully divided into various components to provide a comprehensive learning experience:

- **Theoretical Lectures:**

Participants were engaged in in-depth theoretical sessions led by subject matter experts. These sessions covered the fundamental concepts, principles, and theoretical frameworks related to the Toolbox's topics.

- **Tutorials:**

Participants engaged in guided, step-by-step practical sessions using their own computers. These sessions allowed them to directly interact with the WATDEV Toolbox, visualise model outputs, and apply specific functions (e.g. scenario generation and MCA) under the supervision of trainers. This hands-on approach ensured the consolidation of theoretical concepts through immediate application.

- **Group Exercises:**

To reinforce the theoretical knowledge, participants actively participated in practical exercises. These exercises provided hands-on experience, allowing participants to apply their learnings in simulated scenarios or real-world situations.

The course structure ensures a balanced blend of theoretical knowledge, and practical application. This approach aims to enhance participants' understanding and skills, enabling them to effectively adopt WATDEV Toolbox in their respective contexts.

The overall duration of the course's modules was the following:

Table 1 - Dates and Duration of the three RTTs

RTT no.	Duration (hours/days)	Date	Venue
1	18 hours (2 days ¹)	04-06/02/2026	Wageningen – NL,
2	22,5 hours (3 days)	05-07/05/2026	Addis Ababa – ET
3	16 hours (2 days)	13-14/05/2026	Cairo – EG

Language

The course was held in English.

¹ The third day of the 1st RTT was devoted to networking event between trainees and WUR researchers.

Table 2 - RTT1 contents (for researchers)

Learning objectives	Contents
Day 1 <i>Understand what the WATDEV Toolbox is, and how it integrates the WATDEV model for each of the project study areas</i> <i>Visualise WATDEV model results in the Toolbox and compare different Best Management Practices (BMP)</i> <i>Conduct a Multiple Criteria Analysis (MCA) of BMPs using model results, combining environmental and economic indicators</i>	Introduction to the WATDEV Toolbox - Lecture: introduction to the WATDEV model and toolbox (João Nunes) - Lecture: introduction to Multi-Criteria Analysis (Luuk Fleskens) - Tutorial: visualise model results in the WATDEV toolbox (Rik Oudega)
	Post-processing model results in the Toolbox Tutorial & group exercise: implement MCA for own case study (each exercise block preceded by a Tutorial by Rik Oudega, each group supported by a coach during the exercise)
	Feedback by trainees
Day 2 <i>Understand how the WATDEV model works</i> <i>Introduce and change input parameters relevant for BMPs (crop selection, irrigation, and fertilization) in the WATDEV models</i> <i>Conduct a full BMP analysis, from conceptualization to implementation in the model and assessment using MCA</i>	Manipulating the WATDEV models - Lecture: introducing the WATDEV model (João Nunes and Paul van Genuchten) - Tutorial: manipulating the WATDEV model parameters (Aymen Sawassi)
	Groupwork: create and assess a new BMP scenario using the WATDEV model and toolbox for own case study (each group supported by a coach) - Generate a new BMP scenario and define appropriate model parameters - Introduce and run the BMP scenario in the model and visualise the results in Toolbox - Design and implement an MCA in the Toolbox appropriate for the BMP scenario - plenary discussion
	Feedback by trainees

Table 3 - RTT2 contents (for decision-makers)

Learning objectives	Contents
Day 1 <i>Understand what the WATDEV Toolbox is, and how it integrates the WATDEV model for each of the project study areas</i> <i>Visualize WATDEV model results in the Toolbox, compare different Best Management Practices (BMPs) and generate new scenarios</i>	- Lecture: introduction to the WATDEV toolbox (J. Nunes) - Plenary discussion: expectations from managers - WATDEV application to Koga, Ethiopia (M. Melese)
	- WATDEV model application to Hola/Bura, Kenya (A. Sawassi) - WATDEV model application to Gezira, Sudan (M. Barsi) - Tutorial: visualizing BMPs results in the Toolbox (R. Oudega) - Tutorial (in groups): explore individual case studies in detail (M. Melese, A. Sawassi, M. Barsi)
	- Group exercise: generate new BMPs scenarios for one case study area (separate group working with trainer: M. Melese, A. Sawassi, M. Barsi, K. Rankinen) - Plenary discussion: BMP scenarios developed by each group; comments on Toolbox user friendliness
Day 2 <i>Assess BMPs using socioeconomic Key Performance Indicators (KPIs) in the WATDEV Toolbox under different socioeconomic assumptions</i> <i>Conduct a Multiple Criteria Analysis (MCA) of BMPs using model results, combining environmental and economic KPIs</i>	Introduction to socioeconomic and Multi-Criteria Analysis (MCA) in the WATDEV Toolbox - Lecture: introduction to the WATDEV toolbox (J. Nunes) - Plenary discussion: expectations from managers - Tutorial: socioeconomic KPIs and MCA (R. Oudega) - Tutorial (in groups): explore individual case studies in detail (M. Melese, A. Sawassi, M. Barsi)
	Group exercise: conduct an MCA for BMP scenarios (1/2) - Introduction to the exercise (J. Nunes) - Separate groups working with trainer (M. Melese, A. Sawassi, M. Barsi, K. Rankinen) - Block 1: determine MCA goals, BMP scenarios to assess, and socioeconomic assumptions - Plenary discussion: which BMP scenarios will each group assess
	Group exercise: conduct an MCA for BMP scenarios (2/2) - Block 2: select KPI weights and execute MCA - Plenary discussion: results of MCA by each group - Plenary discussion: what can the Toolbox be used for

Table 4 - RTT2 contents (for decision-makers) - continuation

Learning objectives	Contents
Day 3 <i>Understand how the WATDEV model works</i> <i>Introduce and change input parameters relevant for BMPs (crop selection, irrigation, and fertilization) in the WATDEV models</i> <i>Conduct a full BMP analysis, from conceptualization to implementation in the model and assessment using MCA</i>	• Lecture: introducing the WATDEV model (J. Nunes) • Plenary discussion: expectations from experts • Tutorial: editing the WATDEV model (M. Melese) • Tutorial (in groups): explore individual case studies in detail Separate groups for each case study (Koga - M. Melese, Gezira - M. Barsi)
	Group exercise: design, implement and assess a new BMP (1/2) • Introduction to the exercise (J. Nunes) • Separate groups working with trainer (M. Melese, M. Barsi, A. Sawassi, K. Rankinen) • Block 1: design and implement a new BMP • Plenary discussion: which new BMP will each group design
	Group exercise: design, implement and assess a new BMP (2/2) • Block 2: analyze model results for BMP in the Toolbox • Plenary discussion: assessment of new BMP by each group • Plenary discussion: how can model + Toolbox combination be used to assess BMPs

Table 5 - RTT3 contents (for decision-makers)

Learning objectives	Contents
Day 1 <i>Understand what the WATDEV Toolbox is, and how it integrates the WATDEV model for each of the project study areas</i> <i>Visualize WATDEV model results in the Toolbox, compare different Best Management Practices (BMPs) and generate new scenarios</i>	- Lecture: introduction to the WATDEV toolbox (J. Nunes) - Plenary discussion: expectations from managers - WATDEV application to Sharqia, Egypt (S. Gomaa)
	- WATDEV model application to Gezira, Sudan (M. Barsi) - Tutorial: visualizing BMPs results in the Toolbox (R. Oudega) - Tutorial (in groups): explore individual case studies in detail (S. Gomaa, M. Barsi)
	- Group exercise: generate new BMPs scenarios for one case study area (separate group working with trainer: S. Gomaa, M. Melese, A. Sawassi, M. Barsi, K. Rankinen) - Plenary discussion: BMP scenarios developed by each group; comments on Toolbox user friendliness
Day 2 <i>Assess BMPs using socioeconomic Key Performance Indicators (KPIs) in the WATDEV Toolbox under different socioeconomic assumptions</i> <i>Conduct a Multiple Criteria Analysis (MCA) of BMPs using model results, combining environmental and economic KPIs</i>	Introduction to socioeconomic and Multi-Criteria Analysis (MCA) in the WATDEV Toolbox - Lecture: introduction to the WATDEV toolbox (J. Nunes) - Plenary discussion: expectations from managers - Tutorial: socioeconomic KPIs and MCA in the toolbox (R. Oudega) - Tutorial (in groups): explore individual case studies in detail (S. Gomaa, M. Barsi)
	Group exercise: conduct an MCA for BMP scenarios (1/2) - Introduction to the exercise (J. Nunes) - Separate groups working with trainer (S. Gomaa, M. Melese, A. Sawassi, M. Barsi, K. Rankinen) - Block 1: determine MCA goals, BMP scenarios to assess, and socioeconomic assumptions - Plenary discussion: which BMP scenarios will each group assess
	Group exercise: conduct an MCA for BMP scenarios (2/2) - Block 2: select KPI weights and execute MCA - Plenary discussion: results of MCA by each group - Plenary discussion: what can the Toolbox be used for

2.2.1. Abstract of the 3rd Regional Toolbox Training (A4.1-A5.1)

Background and Rationale

The **3rd Regional Toolbox Training** is organized within the framework of the **WATDEV project – Climate Smart Water Management and Sustainable Development for Food and Agriculture**, a regional cooperation initiative aimed at strengthening sustainable agricultural water management and climate resilience in East Africa and Egypt.

A key outcome of the project is the development of the **WATDEV Toolbox**, an integrated modelling and decision-support tool designed to assist public authorities and planners in **assessing and comparing alternative water and agricultural management options** under different environmental and socio-economic conditions.

The training event in Egypt represents a strategic opportunity to introduce this tool to decision-makers and senior technical staff involved in water resources planning and policy formulation.

Purpose of the Training

The main objective of the **3rd Regional Toolbox Training** is to **support evidence-based decision-making** by strengthening the capacity of public institutions to use the WATDEV Toolbox as a **practical support tool for planning and investment decisions**.

The training is aimed at:

- Introducing participants to the WATDEV Toolbox and its functionalities.
- Demonstrate the integration of WATDEV modelling results into practical decision-making processes.
- Enabling participants to visualize and compare BMP scenarios.
- Develop participants' capacities in socio-economic assessment and Multi-Criteria Analysis (MCA).
- Strengthen stakeholder engagement in sustainable water and agricultural management.

The training is **not academic in nature**. It is designed as a **hands-on, user-oriented event**, focusing on understanding results, exploring scenarios, and discussing how modelling outputs can be integrated into real-world decision-making processes.

Target Audience

The training is primarily addressed to:

- **senior officials and technical staff from public institutions**, particularly Ministries and authorities responsible for water resources and agriculture;
- **project officers and planners** involved in the design, assessment, and implementation of water-related programmes and investments;
- **senior technicians, experts, and practitioners** supporting policy and planning processes.

The Cairo event will be organized **jointly with Activity A5.1** "Training programme on the use of the water planning toolbox", coordinated by CIHEAM Bari, and will involve:

- decision-makers and technical staff from **WATERKNOWLEDGE beneficiary organizations**;
- representatives of public institutions, research bodies, and expert organizations from **Egypt and Sudan**.

To ensure effective interaction and practical engagement, the number of participants will be intentionally limited to 24 people.

The joint event A4.1-A5.1 2nd Regional Toolbox Training for decision-makers will be hosted by the infrastructure of RTCWRI (Regional Training Centre for Water Resources and Irrigation) in Cairo City.

CIHEAM Bari will carry out i) the selection and invitation of WATERKNOWLEDGE Beneficiaries, ii) the collection of participants' feedback.

Heliopolis University (HU) will oversee i) identify the decision-makers to be invited; ii) organize and implement the RTT; iii) the reporting of the whole event.

Participants benefit

Through guided sessions and practical examples, participants will:

- understand **what type of information the WATDEV Toolbox can provide** and how it can support public decision-making;
- explore **scenario-based simulations** related to different agricultural water management practices;
- review and interpret **environmental and economic results** in an accessible and policy-relevant manner;
- discuss potential **applications of the Toolbox within national and regional planning contexts**.

Overall, the training aims to **strengthen the dialogue between research and policy**, providing decision-makers with innovative tools to support sustainable and climate-resilient water management strategies.

Key Outcomes

The 3rd RTT (held in Cairo City on 13-14 May 2026/M53) was held jointly with the A5.1 and involved both decision-makers of WATERKNOWLEDGE beneficiary organizations (10 participants) and representatives of WATDEV beneficiary countries' research institutions, experts, and practitioners from Egypt and Sudan (12 participants). A total number of 28 participants, equally distributed between male and female, attended the RTT.

Table 6 – Number of 3rd RTT's participants (per project and gender)

Participants	Male	Female
WATDEV beneficiaries (PhD students included)	4	8
WATERKNOWLEDGE beneficiaries	6	4
WATDEV trainers	4	2
TOTAL	14	14

The training achieved the following outcomes:

- Enhanced participants' understanding of climate-smart water management approaches.
- Improved technical capacity in the use of digital decision-support tools.
- Strengthened skills in evaluating environmental and socio-economic impacts of BMPs.
- Fostered collaboration among researchers, practitioners, and policy stakeholders.
- Demonstrated the applicability of the WATDEV Toolbox for sustainable water and agricultural planning in Egypt and the wider region.

2.3. Participants to the RTTs

Local Partners carried out the selection of participants to ensure the highest impact and enhance the capacity of local personnel to effectively disseminate the knowledge acquired during the training course. While the Local Partners primarily handled the selection process for WATDEV beneficiaries, CIHEAM-Bari played a role in selecting the WATERKNOWLEDGE participants.

This collaborative approach helped identify individuals with the potential to maximize the benefits of the training and contribute significantly to the use of the Toolbox in their institutions.

Table 7 – Number of participants (per event/per gender) to the RTTs

Regional Toolbox Training/place/date	Male	female
1st RTT (Wageningen – NL, 4-6/02/2026)	12	11
2nd RTT (Addis Ababa – ET, 05-06/05/2026)	16	11
3rd RTT (Cairo – EG, 13-14/05/2026)	14	14
TOTAL	42	36

2.4. Group photos from RTTs



Figure 1 – Group photo from RTT1 (Hotel Wander, Wageningen - The Netherlands, 04-06/02/2026)



Figure 2 – Group photo from RTT2 (Capital Hotel, Addis Ababa – Ethiopia, 05-06/05/2026)



Figure 3 – Group photo from RTT3 (RTCWRI, Cairo – Egypt, 13-14/05/2026)

3. Outcomes

3.1. Methodology

Simple surveys were delivered via link or QR code to the participants to understand their level of knowledge about the Training items before and after their participation in the three Regional Toolbox Trainings (1st in Wageningen-NL, 2nd in Addis Ababa, 3rd in Cairo). The tool adopted to collect this information was Google Forms.

Such an evaluation allowed the collection of inputs to feed the outcome indicator linked to the **Specific Objective 1 (SO1): “Number of national research institutions and corresponding staff members strengthened with capacity building and training activities.”**

Commentato [CF1]: Not sure about the SO this D refers to

The number of responses collected in the three Trainings varies as follows (Figure 1).

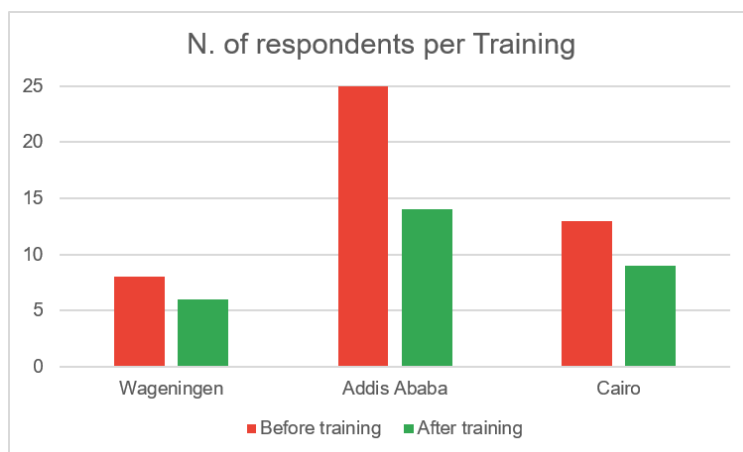


Figure 4 - Variation in the number of respondents (red-before and green-after the training) across the three Regional Toolbox Trainings.

3.2. Knowledge Self-Appraisal before and after the completion of each Training

Even if the Self-Assessment Evaluation form was targeted on the Training's contents, some questions were common to the different questionnaires.

Among them the one related to the level of know-how or understanding of the course's items. Here below the variation of the level of knowledge before/after each Regional Training.

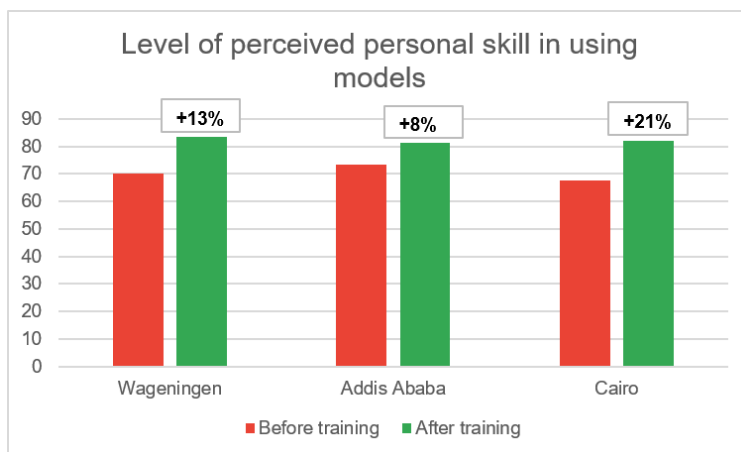


Figure 5 - Variation of the average level of knowledge of the use of multi-criteria analysis for decision-making and the use of models before (red) and after (green) each Training.

Figure 5 shows the average values of replies of the two questions that concerned self-evaluated knowledge. In particular, the questions asked about the use of multi-criteria analysis (MCA) in decision making and the use of models. Overall, after all the Trainings, the level of knowledge increased (+14% as an average).

The following two questions aimed at assessing the personal perceived skill in using model results to support decision-making. The results show an increase in perceived capacity after all Trainings, as shown in Figure 6.

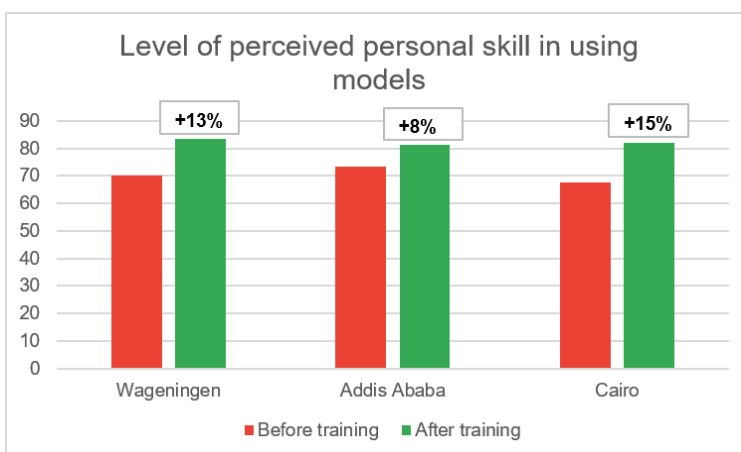


Figure 6 – Variation of the level of perceived personal skill in the use of model results to support decision-making before (red) and after (green) each Training.

Then two questions were asked concerning the practical use of modelling skills and MCA when performing the respondent's job and how frequently such skills could be implemented to support planning interventions/design or implement projects.

These questions obtained positive results in all Trainings except Wageningen. Comparing results before and after the 1st Training, in fact, there was -2% when evaluating usefulness of having modelling skills and -4% when defining possible frequency of use of the models in the office.

For the 2nd and 3rd Trainings all results were positive: with +5% and +9% usefulness in modelling skills, and +7% and +1% for possible frequency of use of models in the office, in Addis Ababa and Cairo respectively.

Finally, a question with multiple answers aimed at defining the main challenges organizations could encounter when wanting to use the WATDEV toolbox to design or implement projects.

In Wageningen the results before the Training showed as biggest challenge the '**inadequacy of policies**' and the '**lack of personnel**'; after the Training all challenges were evaluated as smaller except '**budget limitation**' which obtained a higher score.

In Addis Ababa, before the Training no challenge stood out as most concerning as on average all options had a similar score; after the Training '**budget limitation**' increased particularly while, on the contrary, '**poor organization**' seemed a much smaller concern than before.

In Cairo, before the Training, the biggest perceived challenge was '**lack of personnel**' which stood out among all options; after the Training such perception was confirmed and it remained the biggest perceived challenge.

Figure 4 below gives a general overview of the respondents' evaluation of the challenges in all Trainings altogether, before and after.

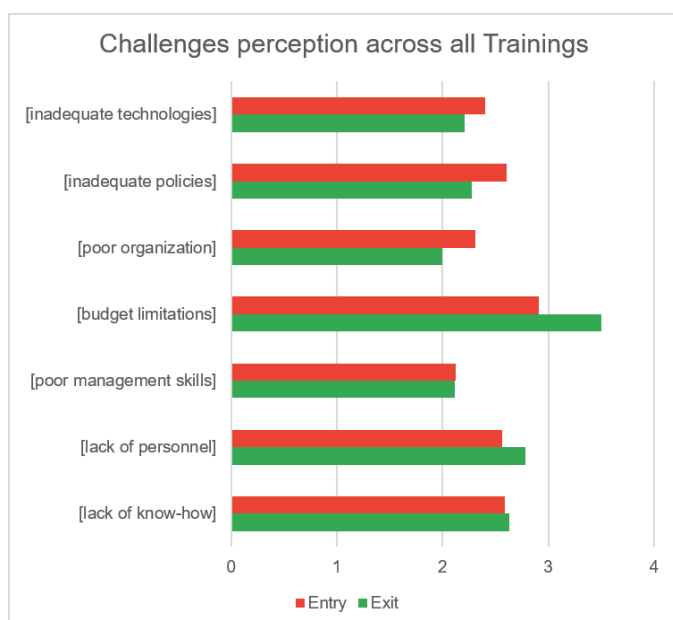


Figure 7 – Average score of each challenge across all Trainings before (red) and after (green).

3.3. Participants' evaluation of the Trainings

At the end of each Training, all participants were invited to answer an online questionnaire and provide their opinions on the quality of the Training and to evaluate some aspects of the course.

All Trainings obtained a high score as, out of 5, the 1st RTT held in Wageningen got an average score of 3.83, the 2nd RTT in Addis Ababa got a rate of 4.21 and the 3rd RTT in Cairo a rate of 3.89.

As seen in Figure 8, all aspects of the Trainings received a positive score, never falling under the 3.21 value out of 5.

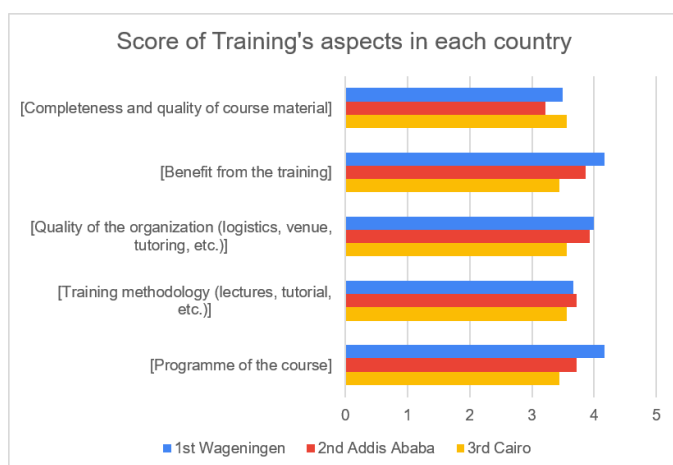


Figure 8 - Average score, out of 5, of various aspects of the three Trainings.

4. Indicators

As reported in the Paragraph 1.3, the Training course described in this Deliverable, contributes to the achievement of the following Logical Framework's Indicators:

- **OT5.1 – Implementation of training courses over 2 years** (number of trained people/years).

Target: 1,000 trained people; Achieved result: 78 trained people (7.8%)

- **OT5.2 - Degree of satisfaction of involved trainees** (reaching at least of 90% of satisfaction of trained people)

Indicator **OT5.2** assesses the degree of satisfaction of trainees involved in the A4.1–A5.1 regarding the 3rd Regional Training for Toolbox use (for decision-makers) was collected through a specific survey at the conclusion of the event. The indicator can be considered achieved, as 89% of participants gave a positive evaluation of the training (from “good” to “excellent” on a Likert scale), against a target of 90%.

Taken into consideration the overall degree of satisfaction upon the three RTTs, the value rise up to 96.3%.

Target: 100% of satisfaction; Achieved result: 96.3%

5. Conclusions and Recommendations

The WATDEV training and coaching programme on the Water Planning Toolbox has demonstrated a strong contribution to capacity development, knowledge transfer, and institutional collaboration across East Africa and Egypt. The three Regional Toolbox Trainings (RTTs), targeting both researchers and decision-makers, combined technical depth, practical application, and policy relevance, resulting in measurable learning outcomes and high participant satisfaction (overall 96.3%).

The analysis of training design and outcomes highlights three key dimensions of impact:

5.1. Strategic Impact and Capacity Building Outcomes

The programme achieved substantial **capacity-building outcomes** by effectively combining technical modelling competences with decision-support skills.

- Participants showed a **+14% average increase in knowledge** on modelling and Multi-Criteria Analysis (MCA), along with improved confidence in using model outputs for decision-making.
- The **training-of-trainers approach** ensures multiplier effects, enabling participants to replicate knowledge at institutional and national levels.
- The **differentiated design** (researchers vs decision-makers) proved highly effective in aligning technical depth with operational needs.

A key strength lies in the integration of modelling and policy application, which moved beyond purely academic learning toward evidence-based planning and investment support.

However, constraints affecting long-term impact emerged clearly:

- a. Persistent lack of personnel capacity
- b. Increasing relevance of budget limitations
- c. Need for stronger institutional embedding of tools

The programme has successfully built individual competencies, but its strategic impact depends on sustained institutional uptake and resource allocation.

5.2. Institutional Strengthening and Network Development

Beyond individual learning, the programme significantly contributed to **institutional strengthening and regional cooperation**.

- It created a **multi-level community of practice** connecting researchers, planners, and policymakers.
- It strengthened linkages between **African institutions and European partners**, enhancing science–policy dialogue.
- Participants developed a more advanced understanding of **organizational and policy-level constraints**, indicating a shift from technical to systemic thinking.

The networking dimension was further reinforced by:

- Cross-country participation (Kenya, Ethiopia, Egypt, Sudan)

- Joint events (e.g., integration with WATERKNOWLEDGE)
- Exposure to international funding and cooperation frameworks

The programme has contributed to the emergence of a transnational knowledge network, which represents a critical asset for long-term sustainability and innovation diffusion of the WATDEV Toolbox.

5.3. Strategic Recommendations for Scaling and Replication

Building on demonstrated strengths and identified gaps, the following strategic directions are recommended:

a. Scaling Capacity Building Impact

- **Extend training duration and modularity**, allowing deeper technical specialization
- Develop **advanced and sector-specific modules** (e.g., irrigation optimization, climate scenarios)
- Strengthen **training-of-trainers mechanisms** with structured replication plans

b. Institutionalisation and Local Ownership

- Establish **formal partnerships with national institutions and universities**
- Integrate the Toolbox into **institutional workflows and planning procedures**
- Support **dedicated staffing and technical units** for Toolbox application

c. Regional Hub and Network Consolidation

- Operationalize the **Regional Water Knowledge Hub (A5.2)** as a permanent platform
- Develop **alumni and practitioner networks** to sustain peer learning
- Promote **south–south collaboration and knowledge exchange**

d. Digitalisation and Accessibility

- Develop **hybrid training models** (online + in-person) to scale outreach
- Convert materials into **open-access knowledge products**
- Create **interactive digital tutorials and case libraries**

e. Sustainability and Impact Measurement

- Implement **long-term monitoring systems (3–5 years)** to track:
 - institutional adoption
 - policy influence
 - application of Toolbox outputs
- Link training outcomes with **project pipeline development and funding access**

f. Financial and Policy Alignment

- Align Toolbox use with **national strategies and donor priorities**
- Address key barriers identified by participants:

- budget constraints
- human resource gaps
- Promote **co-financing models** for scaling activities

Overall Recommendation:

The WATDEV training model should be scaled as a **regional capacity-building framework**, combining technical innovation, institutional strengthening, and policy integration. Its replication potential is high, provided that future interventions prioritise **institutional embedding, resource allocation, and long-term network consolidation**.

6. Annexes

6.1. Training Material:

- 1st RTT: <https://cloud.watdev.eu/index.php/s/YFmyrYNP3rTZrpf>
- 2nd RTT: <https://cloud.watdev.eu/index.php/s/QJ9PNCaaECSHZcg>
- 3rd RTT: <https://cloud.watdev.eu/index.php/s/q9PTcQDRjWP5Cpd>

6.2. Training programme:

- 1st RTT: <https://cloud.watdev.eu/index.php/s/STey74TwmTtkNp4>
- 2nd RTT: <https://cloud.watdev.eu/index.php/s/gwbMpr3dwawZWPQ>
- 3rd RTT: <https://cloud.watdev.eu/index.php/s/zWbj8HJLpbLgs8k>

6.3. Photo gallery:

- 1st RTT: <https://1st-regional-trainin.watdev.eu/>
- 2nd RTT: <https://regional-training-on.watdev.eu/>
- 3rd RTT: <https://regional-training-2.watdev.eu/>