ASSISTING EGYPT IN DEVELOPING FINANCIAL MECHANISMS FOR THE MANAGEMENT OF WATER RESOURCES AT THE FARM LEVEL

Task 3: Stakeholders' Consultation Workshop
Activity nº: N-W-EG-2
Workshop Report, Outcomes and Reflections

I. CONTEXT

As part of the water component of the EU funded 'Water and Environment Support (WES) project in the ENI Southern Neighbourhood region' project, an activity entitled "Assist Egypt in the development of financing mechanisms allowing the private sector to be involved and improve "water network management and resources efficiency at the on-farm level" is currently under implementation in partnership with the Planning Sector and the Ministry of Water Resources and Irrigation (MWRI).

The activity aims to 'increase agricultural water productivity' which is in fact exactly the first outcome proposed in the National Water Resources Plan (NWRP), 2017-2037 under the second pillar: 'Rationalise Water Use'. The **general objective** of the activity is to assist Egypt in developing a financing mechanism to support farmers in purchasing water-saving equipment and enable investments. The ultimate objective is to facilitate improved water network management and resource efficiency at the farm level.

The specific objectives of the activity are:

a) A broad review of financing mechanisms for the purchase of on-farm (drip) irrigation equipment - successes and failures analysis.

b) Two profound case studies of countries with significant reforms in the sector related to the financing of irrigation investments and equipment.

c) Recommending new methods for supporting irrigation investment in the Egyptian agricultural industry.

As part of the implementation of the said activity, a workshop on the side of the Cairo Water Week was organised in partnership with the Planning Sector and the MWRI. The workshop was followed the next day with a WES presentation at the EU Press Conference which was organised by the EU Delegation to Egypt.

II. TARGET ZONE

The activity is applicable at the national level and can impact Egypt's entire farmland, both existing and potential.

This Project is funded
by the European Union

III. WORKSHOP OBJECTIVES

The objectives of the workshop which took place on 1 November 2023 (during Cairo Water Week, at the Nile Ritz Hotel in Cairo) are:

1. Present an overview of the national activity in Egypt
2. Present the results of the activity and introduce the methods and practices that were investigated in the case studies
3. Discuss the applicability of the suggested measures to Egypt including possible restrictions on their applicability
4. Discuss the way forward and possible actions to ensure impact

The expected workshop results are:

1. The findings and proposed recommendations are presented and vetted by the stakeholders
2. A dialogue between the various stakeholders is established during the workshop, and a set of actions emanating from the activity are explored

IV. PARTICIPATION

This workshop involved the officials representing relevant institutions from Ministries in charge of Water and Irrigation, Agriculture, Environment and Land Management, water utilities, municipalities. **See Annex 1 for the list of participants.**

V. AGENDA

09:30 - 09:40	**WELCOME & GENERAL INTRODUCTION**
	- **Welcome and Introductory notes** Prof. Michael SCOULLOS, WES Team Leader Dr Rabab GABER HASSAN ABBAS – WES Focal Point and General Director of Water Resources Department, Planning Sector (MWRI) (5 min) Eng. Walid HAKIKI - Head of the Planning Sector, (MWRI) Mr. Ayman AYAD - Water and Utilities Sector Manager, Delegation of the European Union to Egypt
09:40 - 11:00	**SESSION 1: PRESENTATION OF THE ACTIVITY AND GENERAL DISCUSSION**
	- **Introducing the WES activity in Egypt (5 min)** Ms. Suzan TAHA, Key Water Expert, WES - **Review of the applied financial methods in Egypt (15 min)** Dr. Khal AL SAYED: Financial and Economic Local expert (NKE2) - **The Egyptian case of applying modern irrigation in the old lands (15 min) – Existing protocol of cooperation with national banks to finance Mesqa rehabilitation and modern irrigation network and application of the model in Qalubia Governorate** Eng. Dr. Youssry KHAFAGA, Head of Irrigation Improvement Sector - **Review of Financing Mechanisms in Case Studies (20 min)** Dr. Kerusha LUTCHMIAH: Non-Key Expert (NKE1)

	- **Q&A and Discussion (25 min)**
11:00 - 11:30	**COFFEE BREAK**
11:30 - 11:45	**PRESENTATION OF THE ACTIVITY AND GENERAL DISCUSSION CONTINUED**
	- **Discussion of criteria for eligibility of financial mechanism (15 min)** Dr. Kerusha LUTCHMIAH: Non-Key Expert (NKE1)
11:45 - 12:20	**SESSION 2: DISCUSSING SUITABILITY OF THE MODELS IN EGYPT**
	- **Suitability of the models in Egypt and suggestions to stimulate the financing mechanisms (20 min).** Facilitated by: Dr Kerusha LUTCHMIAH: Non-Key Expert (NKE1) - **Feedback on the suggested mechanisms (15 min)** All participants
12:20 - 12:40	**SESSION 3: THE WAY FORWARD**
	- **The way forward and possible actions to ensure Impact** Facilitated by: Prof. Michael SCOULLOS, Team Leader (WES) and Dr Kerusha LUTCHMIAH: Non-Key Expert (NKE1)
12:40 - 13:00	**SESSION 4: WRAP UP CONCLUSIONS**
	- **Wrap-up conclusions with survey (10 min)** Dr. Kerusha LUTCHMIAH: Non-Key Expert (NKE1) - Discussion **(10 min)**
13:00 - 13:20	**SESSION 5: POSSIBLE ACTIONS TO ENSURE IMPACT**
	- **Impact Monitoring and Stakeholder Engagement (10 min)** Dr. Emad ADLY, Expert for Stakeholder Engagement and Impact Evaluation WES - **Stakeholder engagement form (10 min)** All participants
13:20 - 13:30	**SESSION 6: CLOSURE AND WORKSHOP EVALUATION**
	- **Concluding remarks** by Prof. Michael SCOULLOS, Team Leader (WES) - Workshop Evaluation Form to be completed by all participants
13:30	**LUNCH**

VI. THE MEETING

The meeting was opened by the WES TL, Prof. Michael Scoullos who introduced the panel members and mentioned the limitations in carrying out the workshop earlier due to challenges in communication and travel over the past years.

The WES FP, Dr Rabab Gaber Hassan Abbas, also on behalf of Eng. Walid HAKIKI, welcomed the participants and briefly explained the work of WES, wishing everyone a fruitful workshop.

The Director of MWRI, Dr. Yosry Khafagy, emphasized the importance of the topic and confirmed the commitment of the ministry to assist farmers in shifting from flood irrigation to modern irrigation, and to increase productivity, farmers' income and food-security in the

country. He further thanked the stakeholders and participants for attending, and the EU for all their support through the WES project.

The representative of the EU Delegation, Mr. Ayman Ayad, expressed his gratitude and stated the particular interest of the EU Delegation in this project. He furthermore stressed the importance of this activity for Egypt and the region in shaping future activities, and the support provided by the EU in both water and environment in the form of technical assistance and investment (finance and support) which should be linked to the broader objective of the WEFE-Nexus (Water-Energy-Food-Ecosystem); integrating climate-change related topics.

Thereafter, Ms. Suzan TAHA, the Key Water Expert, introduced the WES activity in Egypt.

VII. OUTCOMES, REFLECTIONS AND RECOMMENDATIONS

The below overview summarizes the outcomes and reflections of the workshop based on the presentations and the discussions held during the day.

SESSION 1: PRESENTATION OF THE ACTIVITY AND GENERAL DISCUSSION

In the first half of the morning, the following presentations were delivered:

Dr. Khaled Abdel Aziz AL SAYED, the WES local expert in Egypt gave a "***Review of the applied financial methods in Egypt"*** up until the submission of the report in 2021. This was followed by more recent updates regarding ***"The Egyptian case of applying modern irrigation in the old lands – Existing protocol of co-operation with national banks to finance Mesqa rehabilitation and modern irrigation network and application of the model in Qalubia Governorate"*** by Eng., Dr. Yosry KHAFAGY, Head of Irrigation Improvement Sector.

Some of the highlights are listed below:

The main objective of the national irrigation improvement program in the old lands is to improve the efficiency of water use at the delivery, mesqa and farm level.

This includes:

1. Renovating, modernizing and improving the main delivery system.
2. Converting rotation canal delivery to continuous or **semi continuous** flow.
3. Improving canal management using automatic downstream control gates, telemetry and automation.
4. Converting low level mesqas to gravity mesqas with a pumping unit head (single point lifting)
5. Improving private mesqas through concrete lining or low-pressure pipelines.
6. Building effective Water User Associations (WUAs), as they play a critical role in successfully managing and maintaining the micro-systems.

The use of solar-power in water lifting for irrigation in Egypt was also mentioned, which connected well with the case studies from Portugal and Morocco, emphasizing the benefits and savings of these systems.

The protocol of co-operation between the Ministry of Water Resources and Irrigation (MWRI), Ministry of Agriculture and Land Reclamation (MALR), Ministry of Finance (MOF), National Bank of Egypt (NBE) and the Agriculture Bank of Egypt (ABE), which was signed in August 2021 in order to facilitate the financing of the modernisation of irrigation networks in the old lands in Egypt, is currently under review and renegotiation with the banks as a result of the inflation that occurred especially during the past 2 years which resulted in a significant increase in the total investment prices on both the farmers and the government (namely the Ministry of Finance which covers all the interests and unpaid instalments by farmers). Modifications include the increase of the cost recovery period from 10 years to 20 years (without any interests) in addition to the increase in the MoF financial allocations to cover for unpaid instalments.

During the first session, the WES NKE, Dr. Kerusha Lutchmiah presented the main findings from the report:

- ***Review of Financing Mechanisms in Case Studies*** including comparisons between Egypt and the 5 selected countries: Australia, France, Portugal, Morocco, and Turkey. The selection was further narrowed to Portugal and Morocco. However case studies from Turkey were also studied and included (also in the report).
- ***Discussion of criteria for eligibility of financial mechanism***

The overview below summarises the challenges surrounding the application process for farmers to receive financing:

Criteria	Issues
Application procedure	The governing rules require customers to bring several documents when applying for agricultural loans. Small Size Farms (SSFs) usually do not have a tax card and do not make financial statements approved by a chartered accountant. > Procedure initiated from banks' perception of high risks associated with economic, technical, marketing, distribution + pricing inefficiencies.
SME services	The definition of SME does not always cover SSFs or WUAs.
(Farm)land ownership	Land titles, or lack thereof, prevent access to credit, loans and subsidies. Many active farmers currently do not own their land. They work on leases for several years. The land holdings in Egypt are significantly fragmented, (internal fragmentation and separation of ownership and use) also playing a significant role in this.
Land area	The average farm size is < 2.5 feddans (1 ha). Due to their size, small farms are often not eligible to benefit from public support or bank loans. E.g. CBE's initiative only allowed farms > 7 feddan (ca. 3 ha) to qualify for the initiative, to avoid the transaction costs associated with providing loans to multiple smaller operations.
Land Consolidation	SSFs have difficulty accessing the market. Agricultural co-operatives / WUAs, have higher market power.
Requirements for loan pay-back period	Loan repayment issues: • high-interest rates; liquidity problems; lower revenues than expected. • procedures, lack of or short grace period, short repayment period and penalties. E.g. ABE offers agricultural loans to farmers at 5-10 % interest and "short repayment periods". Are these co-ordinated with ability to repay?
Collateral: social collateral / transfer of responsibility	Minimal access to collateral is one of the main constraints of access to finance. The maturity times and higher lending risks, require banks to ask for higher levels of collateral. WUAs have little to offer loan collateral since they are granted the right to use infrastructure and do not own it.

Criteria		Issues
Prioritisation		Uncertain whether priority is given to: - farmers in specific geographical locations, or - pertaining to specific crops which need to be stimulated e.g. to consume less water OR - lands reclaimed from desert for farms or most fertile lands E.g. In old lands, where the farmers produce traditional and low margin crops, the net benefit of modern irrigation could be questioned
Capacity Building		Fear of being rejected inhibits farmers from applying for bank finance. Farmers have weak presence or knowledge of relevant bureaucracies or programs; and scholastic education is limited for small farmers. Available SME services do not fully cater to SSFs.

During the online Mentimeter survey, participants found the above criteria to be too complex for both farmers and WUAs.

Participants were also encouraged to offer some suggestions to change / simplify the complexity and mentioned that an increased payback period would be helpful, as well as more engagement of WUAs and farmers co-operatives in the discussions regarding the criteria or in taking responsibility to assist farmers with the process. As some WUAs already have liaisons between the banks and farmers, this could be a good way forward for the rest of the country.

SESSION 2: DISCUSSING SUITABILITY OF THE MODELS IN EGYPT

During this session, the WES NKE, Dr. Kerusha Lutchmiah presented the main findings regarding the:

- ***Suitability of the models in Egypt and suggestions to stimulate the financing mechanisms***

Within the country analysis, it was found that for both Portugal and Morocco (as well as for Turkey), several incentives and mechanisms related to making better use of current financial mechanisms have been successful in reducing water used for irrigation and in protecting water quality, which could apply to Egypt:

i. **Capacity building** is necessary to support farmers to:
   - Understand the banking systems better
   - Improve financial literacy
   - Provide further technical support to improve the sector's commercialisation and farmers' access to finance.
   - Assist young farmers with additional advisory support.

ii. **Solar-powered irrigation systems** can help reduce water consumption and have become a popular water supply option, especially in off-grid locations.
   - We encourage the use of solar power in Egypt to either completely replace diesel or to be used in hybrid systems, as Egypt has among the highest solar energy potential of any country worldwide.
   - Projects in Portugal and Morocco demonstrated hybrid PV – Grid/diesel, and received funding from the EU's Horizon 2020 research and innovation programme.

- The systems' successes are based on the potential to reach a 75% savings on energy costs for irrigation. Other sources of finance could include:
    - Bank loans
    - (operational) leasing
    - Credit lines based on incentives
    - Crowdfunding (online platform)
- The Benban solar power park in Aswan, Egypt which has a capacity of 1.8 GW is a good example of the use of solar. It is one of the largest solar parks in the world and was financed by the AfDB ($4bn investment).

VIII. GENERAL REMARKS AND REFLECTIONS FROM THE DISCUSSION:

Many financial mechanisms are already in place in Egypt; however, the following lessons can be learnt based on the country case studies and the discussions that occurred:

1. **How do we make modern technology more attractive to Small-scale farmers (SSF)?**

- The support system should not only be seen as a financial supply, but include technical support and training services, which Egypt is currently doing. It is important to couple consultancy services and training with finance as one package. However, it is also important to empower the WUA's / Co-operatives to become liaisons between the banks and farmers to ease the process. There is some experience with this already. This needs to be expanded.
- The following example of incentives could be used: Offer direct technical services to small projects, and subsidized services to projects that reach about 25% of their value; increase to 85% for projects empowering women economically e.g. similar to process for EU funds / grants.
- Direct farmer participation in WUA governance should be increased, and dependency on municipal leadership should be reduced.
- In terms of the eligibility criteria for finance from banks, the paperwork for applications and transactions should be reduced as much as possible or predominantly taken care of by WUA's liaisons.
- Flexibility in land ownership (e.g. land lease) facilitates the application of low-income farmers; female and young farmers require assistance too.
- Automation and water measurement systems in irrigation systems should be included in the scope of support. This will give a better overview of "savings", allocate leakage points sooner, to reduce water losses and allow a better overview of water consumption and eventual reduction.

2. **How to make lending attractive to commercial banks?**

- The main constraints to the supply of finance are:

  - the balance sheet position of banks which prevents risk-taking,
  - limited interest in funding new entrants and small-sized farms,
  - banks' limited capacity to provide adequate risk assessments to the agriculture sector.

- Although in Egypt there are many banks dedicating services to SMEs, these are not necessarily dedicated to SSFs.
- This procedure was initiated from the banks' perception of high risks associated with economic, technical, marketing, distribution and pricing inefficiencies. We need to balance this out.
- It is clear that the risk should be taken care of. It is suggested to encourage more private investors into these transactions. Work is being done to discuss interest rates. The current high inflation does not provide favourable conditions.
- The equipment retailer could also be included as a potential credit broker. Currently most of the machinery / equipment is imported. If more of the materials are made locally this could become much more tangible (Localization of Industries).
- B2B transactions were also mentioned
- Drip irrigation systems are often not recognized by financial institutions as collateral, because they depreciate relatively rapidly. Therefore, private company agreements may be advantageous.
- Grant support could also be given for renting irrigation machines e.g. Center Pivot (Turkey).

IX. CONCLUSIONS / THE WAY FORWARD

Inflation and extreme water deficiency are currently major issues affecting Egypt. The conclusions of the workshop served as a basis to shape future activities to assist the country. Activities to be carried out in the future should take the form of capacity building to support the farmers and, the currently, 12000 WUAs in Egypt, i.e. in terms of technical assistance and investment which should be integrated within a WEFE-Nexus architecture and operation; with a strong focus on the Energy and Ecosystems part, including climate-change adaptation related topics. This requires a more holistic approach and teamwork, i.e. synergies with the other ministries.

It was further emphasized that the way forward will be reliant on the law. The following laws were mentioned and discussed:

- **Law No. 182 of 2018** promulgating the Law Regulating Contracts Concluded by Public Entities e.g. in the case of tendering contracts for Mesqa Rehabilitation by the two ministries (MWRI and MALR)

- Law No.213 of 1994 amended some provisions of the Irrigation and Drainage **Law No.12 of 1984:** *Promulgating the Law of Irrigation and Drainage*.

- **Law 213/1994**: Defines the use and management of public and private sector irrigation and drainage systems, including main canals, feeders and drains.

This Law designs farmer participation through WUAs at the mesqa level (private channels) on new lands. According to this amendment users are required to pay for operation and maintenance of the private channels as well as the improvement costs. It also establishes a fund to finance projects related to the development and maintenance of improved mesqas and to promote water use awareness. The amendment also replaces the name of the Ministry of Public Works and Water Resources (MPWWR) with Ministry of Water Resources and Irrigation (MWRI). Article 64 stipulates that license-holders in the new lands must apply modern irrigation technologies, in accordance with the provisions of the license. The licensing terms, conditions, and of water distribution costs shall be clearly stated.

- This law was further amended by:

Law 147/2021: *Promulgating the Water Resources and Irrigation Law*, which repeals Law No. 213 of 1984.

This Law consisting of 126 articles aims at establishing effective water administration, distribution, irrigation, and drainage systems.

- This was thereafter followed by **the prime minister decree no. 81/2023**, covering the executive regulations for the Water Resources and Irrigation **Law 147/2021** which included the regulations governing the establishment of water user associations (WUAs) **at different levels** and specifying the tasks and responsibilities of those associations, which allows them to have a bank account and collect membership fees, in addition to the WUA start-up fund provided by the government. In this regard, it was indicated that the WUAs could be more suitable to facilitate access of farmers to funding for modern irrigation and supervise and manage the loans' application procedure. MWRI and **MALR** have however to **assist and** define the appropriate mechanisms of such access with the banks. The MWRI, through the Irrigation Improvement Sector staff in the governorates, will **also support facilitation of** all applications to the banks **in two ways. First: is to support the financing of private channels (Meskas) rehabilitation via governmental budget which will be recovered from farmers at annual instalments over 20 years through the tax authority. Second: is to guide and facilitate farmers either individually or through the respective WUAs to get the loan from the bank according to the bank regulations and conditions related to the implementation of on-farm modern irrigation network.**

The amendment should allow the farmers more empowerment in applying and receiving funding for modern irrigation, which will bring Egypt a step further in **increased irrigation water use efficiency**.

The importance of the following was also highlighted

- Encouraging the private sector to offer soft loans, to engage in Business to Business (B2B) solutions, and applying business models offering the farmers the possibility for renting

during a defined period and for the subsequent transfer of equipment at the end of that period.

- Enhancing solar-powered irrigation and communicating solution to farmers.
- Testimonies of installations that really work and demonstrating them to the farmers
- In order to counterbalance the effect of inflation and devaluation of the Egyptian pound, encourage local manufacturing and production of modern irrigation equipment.

The meeting also echoed the need for WES to be involved in providing capacity building to all relevant parties (farmers, administrators and even banks).

In addition, a request was made to develop a model for the provision of funding arrangements to ease smallholder farmers' access to modern irrigation equipment (with the involvement of banks). This could be based on the review of existing models in other countries that was made within the scope of this activity. The idea is to enable the government to seek funds later from donors with a view to test and evaluate the feasibility of their application in Egypt under the specific conditions in a selected pilot area.