

Water and Environment Support

in the ENI Southern Neighbourhood region



Strengthen the water utilities capacities to manage /
reduce NRW and detect leakage:
Activity No. : N-W-EG-1

Kick-off meeting
video-conference

2 September 2020, Cairo, Egypt



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Overview of the Water and Environment Support (WES) Project

Presented by: Suzan TAHA, WES Key Water Expert





WES in a Snapshot

- WES aims at protecting the environment and improving the management of scarce water resources in the Mediterranean.
- It strives to address the country needs for creating the enabling environment and enhancing the capacities of stakeholders in the Partner Countries (PCs) to **tackle problems related to pollution prevention and water use efficiency.**
- WES capitalises on previous successful EU funded regional projects (Horizon 2020 CB/MEP; SWIM SM; SWIM-Horizon 2020 SM).



WES Identity



**Water and
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in the ENI Southern Neighbourhood region

Facts & Figures	
Partner Countries:	Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Libya, Palestine* and Tunisia
Project value:	7.917.200 Euros
Duration:	May 2019 – May 2023 (48 months)
Project team:	Team Leader: Professor Michael Scoulllos, scoulllos@wes-med.eu Water Expert: Ms Suzan Taha, taha@wes-med.eu Environment Expert: Mr Anis Ismail, a.ismail@wes-med.eu Communication & Networking Expert: Ms Pam van de Bunt, vandebunt@wes-med.eu Stakeholders engagement expert: Dr. Emad Adly, wes.gc@raednetwork.org
WES Focal Points (FP) (Egypt)	FP Water : Eng. Walid HAKIKI (Head of Central Department for Water Resources and Uses - Planning Sector, MWRI) FP Environment : Mr. Essam HANNOUT (Labib) (TBC) (Egyptian Environmental Affairs Agency - Ministry of Environment)

*This designation is not to be construed as recognition of the State of Palestine and is without prejudice to the individual positions of the Member States on this issue.



WES Identity



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Our Consortium



LDK Consultants Global EEIG (Leader)



Mediterranean Information Office for
Environment, Culture and Sustainable
Development (MIO-ECSDE)



Arab Network for
Environment and Development (RAED)



Association of Cities and Regions for
Sustainable Resource
Management (ACR+)



CIHEAM – Mediterranean Agronomic Institute
of Bari (CIHEAM Bari)



Gopa Infra GmbH



Ramboll Denmark A/S



Royal HaskoningDHV



Regional Activity Centre for Sustainable
Consumption and Production
(ARC-SCP/RAC) of UN
Environment/Mediterranean Action Plan



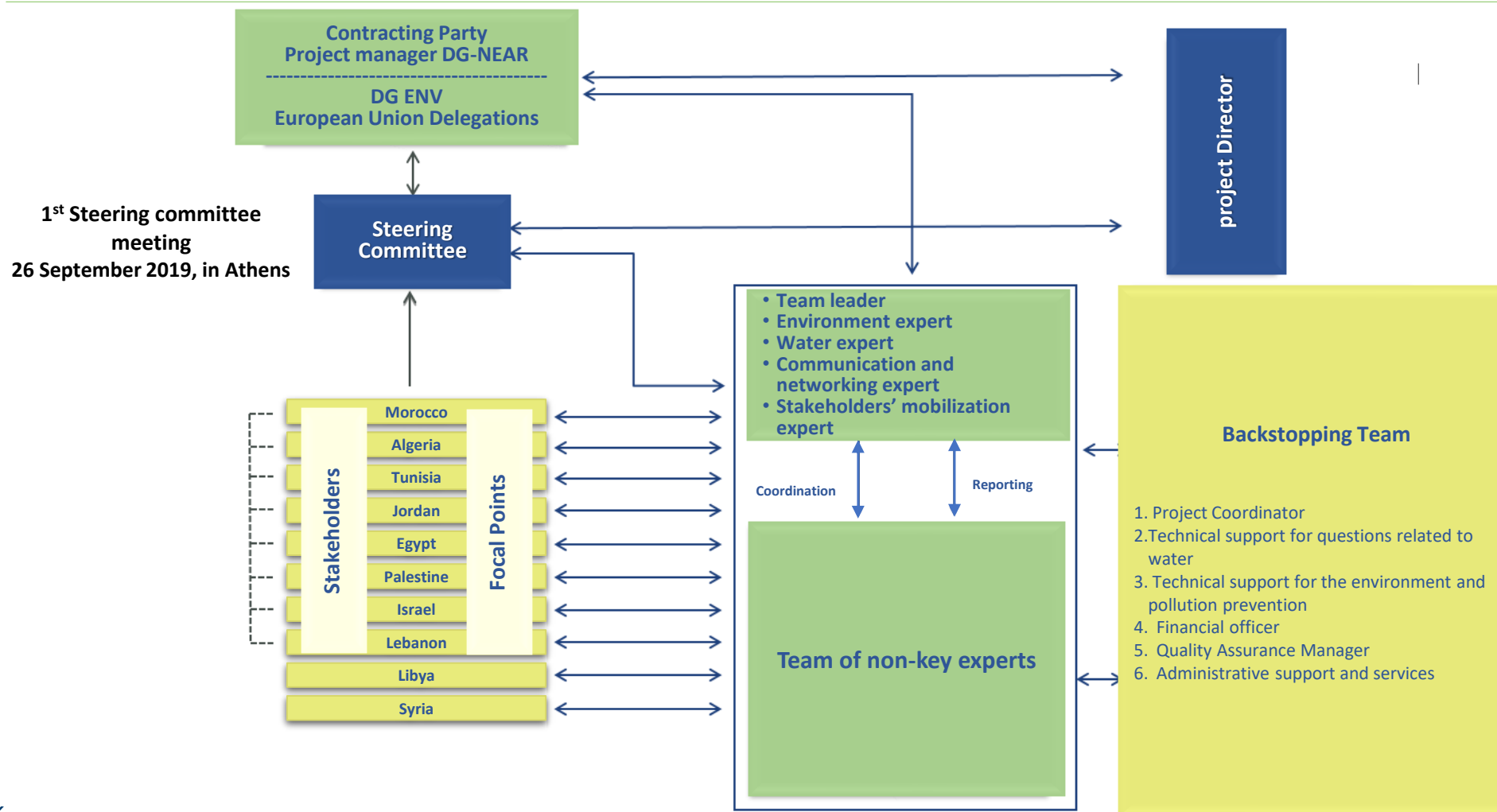
LDK Consultants Engineers &
Planners SA



Project coordination



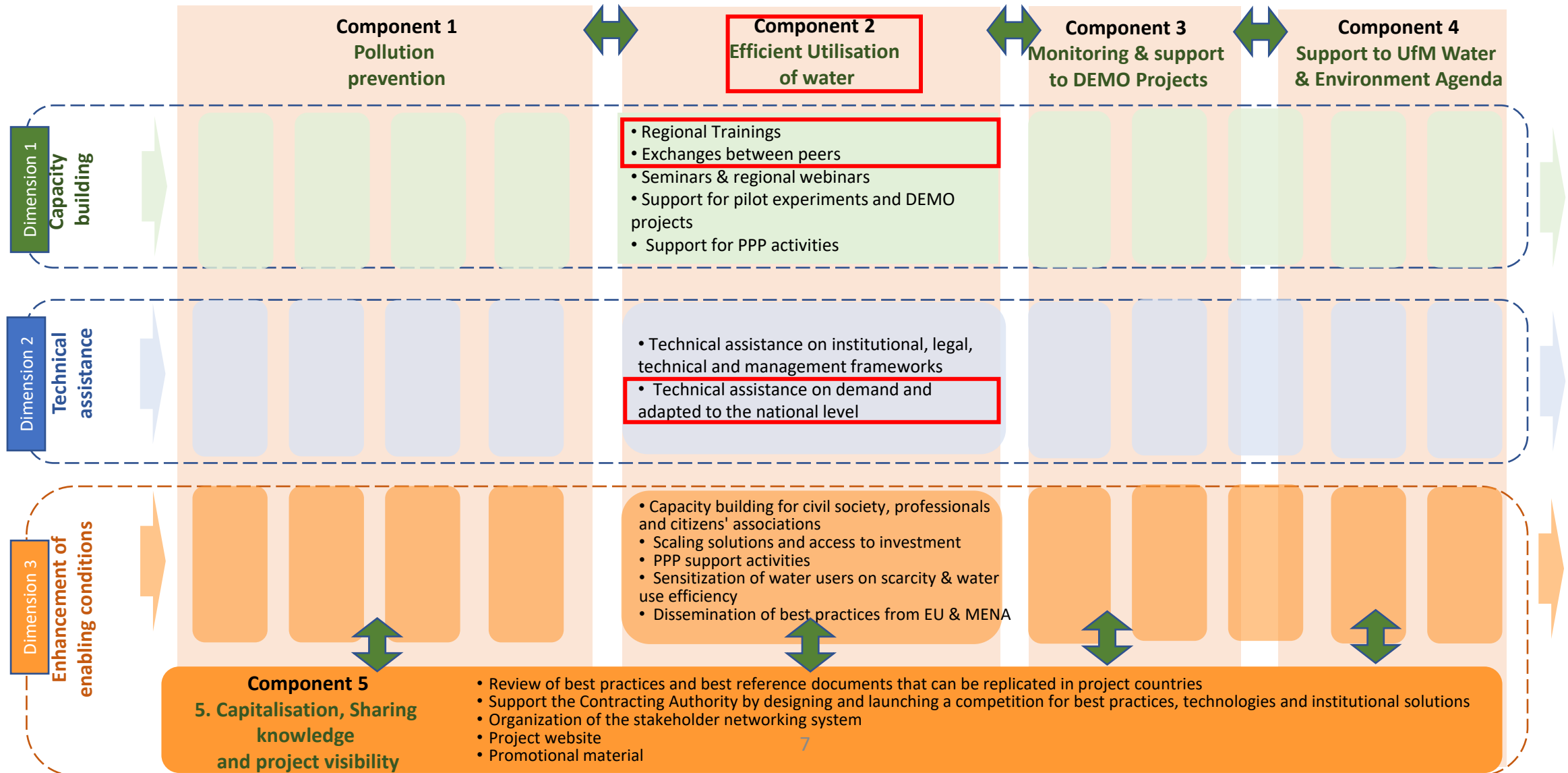
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Project Architecture



Water and Environment Support
in the ENI Southern Neighbourhood region



Technical assistance, Capacity building, Networks between stakeholders



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- **Regional Level :**

- ✓ **20 regional activities**
trainings / workshops, study tours to European or South Mediterranean Countries, webinars and guided peer-to-peer exchanges).

Regional Trainings :

8 on water, 8 on environment, 4 Horizontal

Study Tours:

4 to 8 Study Tours

Exchanges between peers:

10 peer-to-peer exchange exercises combined with 4 webinars

- **National Level:**

- ✓ **4 national activities** in each partner country (**2 on water and 2 on the environment**).
- ✓ **2 WES national meetings** acting as collaboration platforms, to assess progress, plan next steps, etc.



Project Component



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Component 1: Pollution prevention topics

- **Theme 1:** Reduce **plastic pollution** and **marine litter**
- **Theme 2:** Promotion of mechanisms, tools and conditions for the transition to a **circular economy**
- **Theme 3:** Prevent and reduce **Pollution** reaching the Mediterranean from **specific industrial sectors**
- **Theme 4:** Support for the implementation of **integrated environmental management**





Project Component

Component 2: Topics related to efficient water use

- **Theme 1:** Assessment and estimation of **water use (by sector)**
- **Theme 2:** Investigations and introduction of **water efficiency gains at the decentralized level**
- **Theme 3: Water resources assessment, cost recovery and affordability of water services**
- **Theme 4:** **Legal and regulatory** aspects related to the integration of water use efficiency into national and regional frameworks
- **Theme 5:** Improving **water efficiency and productivity in agriculture**





Project Activities

Component 2 – Regional Activities

- **RW-1-REG:** Training on the practical application of the water-energy-food-ecosystem nexus and related policies and regulations WEFE
- **RW-2-REG:** Training on water accounting
- **RW-3-REG /RW-3-P2P:** Capacity Building (CB) on Water Demand Management (WDM)
- **RW-4-REG / RW-4-P2P:** CB on non-conventional water resources with a focus on water harvesting, including retention and recharge of aquifers with storm water
- **RW-5-REG/RW-5-ST :** CB on Treatment of wastewater for reuse
- **RW-6-REG/RW-6-P2P/RW-6-ST:** Training on Non-Revenue Water (NRW)
- **RW-7- REG/RW-7-ST:** Training of WUAs on optimal irrigation management and practices using appropriate irrigation methods for improved irrigation efficiency and soil fertility, and highlighting the benefits of using treated wastewater and rainwater harvesting.
- **RW-X-WEB: Two webinars**





Project Activities

Component 2 – Horizontal Regional Activities

- **HW-1-REG / HW-1-P2P:** Capacity building on PPP, entrepreneurship in the green / blue economy and banking services for the water / wastewater sector
- **HE-3-REG:** Education for sustainable development: focusing on treatment for the reuse of wastewater and unconventional water resources





Project Activities

Component 2 – Technical Assistance (Egypt)

- **N-W-EG-1:** Strengthen the water utilities capacities to manage / reduce NRW and detect leakage

Launched 2 September 2020 with HCWW and ASWWC as partners

- **N-W-EG-2:** Assist Egypt in the preparation of a framework related to PPP to provide opportunities to create guarantees for the banking system, allowing the private sector to be involved and improve “water network management and resources efficiency (on-farm and main network)

TOR under preparation

Name of non-key expert	Function in the activity
Mr. Paolo RUFFINI	International Expert on NRW, Water and Leak Detection and Technical Coordinator
Mr. Zakaria YEHIA	Local GIS Expert
Mr. Walid ELBARKI	Local NRW & hydraulic analysis Expert





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Thank you four your attention



Soutenir la gestion de la demande en eau liée à la rareté de l'eau

Activity No. : N-W-EG-1

Kick-off meeting by video conference
2 September 2020, Cairo, Egypt



General context of the project and proposed actions

Presented by: Eng. Mohamed Salah Eldin
(Chairman - Asyut Water and Wastewater
Company ASWW)

Plan



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- Who are we?
- General context of the WES activity
- Objectives of the Activity
- Contribution of Asyut Water and Wastewater Company (ASWW)



Who are we?



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ASWWC is one of affiliated companies continued to HCWW

Water Coverage	99%
WTP	278 (11 B + 32 S + 235 W)
Water Networks	7000 Km
Water Production	761884 m3/day
Sold Water	497775 m3/day
NRW Ratio	34,6 %
L/C/D	163



General context of the WES activity



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Existing strategic frameworks in Egypt in support of Non-Revenue Water (NRW)

- ❖ Dividing Water Networks into DMAs.
- ❖ Continuous Monitoring for each DMAs Inlet or Outlet.
- ❖ Operating on each DMA by Loss Reduction Strategy.
- ❖ Applying required steps to reduce each type of Loss (Physical & Commercial).
- ❖ Leakage Detection and Recovery.
- ❖ Metering System Accuracy Modification.
- ❖ Cost Calculations.

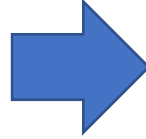


Objectives of the mission and overview of the proposed actions



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- Investigate the situation of NRW management in a pilot city served by ASWWC and prepare its network to the next stage of implementation of distribution zones (DZs) and their subsequent division into District Metered Areas (DMAs)
- Implement and calibrate a hydraulic model for the network of the pilot city as a tool to provide valid support to move into the design stage and establishment of DMAs
- Introduce internationally recognised best practices (BPs) for improving NRW (including the design of DZs and the use of GIS to enable analysis of the geographical distribution of leakage).
- Build the capacity of the utility staff involved in the pilot area on the implementation of best practices for the management of NRW through on-the-job training and direct involvement in the implementation of the tasks with the support of non-key experts (field data analysis, water balancing, model calibration, and fixing anomalies between the results of the model calculations and the field data)
- Develop a manual documenting the proposed procedures for reducing NRW in Asyut city water network.



Overview of the Tasks

Inception Phase

Verification of GIS Maps and Customers database

Calibration of the hydraulic model for the network

Preliminary division of the network system into distribution zones (DZ) and design the zones.

Elaboration of procedures to reduce NRW and prepare the synthesis report.



Contribution of ASWWC



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- ❖ Establish the required concrete chambers
- ❖ Providing the required technical workers
- ❖ Providing all instrumentations of measuring and detecting leaks
- ❖ Repair of detected leaks
- ❖ Legalizing commercial losses
- ❖ Providing of GIS maps for the selected area as hard copy
- ❖ Providing the use of computers in the company only for hydraulic analysis work





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Thank you for your attention



Diagnosis of the performance of Non-Revenue Water (NRW) in a pilot public service: Activity N° : N-W-EG-1

Kick-off meeting
by video-conference

2 September 2020, Cairo, Egypt

Presentation of the WES Technical Assistance activity in Egypt

Presented by: Mr. Paolo Rufini, Non-key Thematic Expert and Technical
Coordinator of the activity

Plan



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- 1 - Target beneficiaries and stakeholders involved
- 2 - Proposed actions - Expected results
- 3 - Training
- 4 - Human resources implemented
- 5 - Action plan of the activity



Proposed actions



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Task 1: Inception Phase

Present the summary of the findings of the inception mission

Define the requirements and necessary resources of the partner team (NRW and GIS team) and stakeholders

Present the job profiles proposed for the partner team members (NRW and GIS)

Agree on the targets of the intervention

Establish the partner team (NRW and GIS)

Organising a workshop

Results

- The various stakeholders are identified and involved
- Initial data assessment
- The plan of actions needed to carry out the activity is agreed with the partners.
- The requirements and necessary resources of the stakeholders are agreed upon
- The partner team for NRW and GIS are established and the scope of work and job profiles of the team members are agreed

Tools for deployment:

- Organisation chart
- Survey of partner team competencies



Proposed actions



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Task 2: Collection of network and customer data

If GIS data are available: these data will be collected and evaluated.

If the data do not exist:

Will draw up a list of necessary data / information and prepare an action plan for the collection of such information. (including client information and preparation of digital maps of the network.

Results

- A diagnosis of existing assets in the pilot zone and a review of available data and gaps
- The organisation of digital maps in the GIS database
- The structure of the GIS database of the network and facilities, and the link of the customer database to the GIS.
- Available water supply network and facilities' validated data are uploaded in the GIS DB

Tools for deployment:

- Database (existing)
- Maps / GIS maps
- Open source GIS software



Proposed actions



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Task 3: Calibration of the hydraulic model for the network

Implementation of the network hydraulic model for the study area,

Advise about the optimal location of the flow and pressure (Q & P) monitoring sites

Flow and pressure monitoring

Analyse field data and identify anomalies .

Train the hydraulic analysis engineers and field staff to undertake the required field measurements and on fixing the (remaining) anomalies

Organize a workshop

Results

- Water supply Network and facilities data are organized and imported for hydraulic calculation
- Population and Demand data are combined to prepare the demand
- Flow (Q) and Pressure (P) monitoring sites are selected
- Q-P monitoring field-work is performed by the local staff with support and supervision of the project team experts
- Analysis of the Q-P monitored data is performed and reflected in the hydraulic calculation

Tools for deployment:

- Detailed maps (from GIS)
- Valves and physical interventions
- Water meters and pressure gauges
- Hydraulic calculation tool



Proposed actions



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Task 4: Preliminary division of the network system into distribution zones (DZ) and design the zones.

design of Distribution Zones (DZs) and identification of Zones' inflow sites (Q&P Monitoring sites).

Water Balance calculation according to IWA standards

Preparation of the zone Design Report

Results

- Distribution Zones designed
- Distribution Zones tightness checked and action to ensure complete isolation proposed
- Q&P monitoring sites identified
- Zones water balance calculated
- Set of intervention to reduce NRW identified and prioritised

Tools for deployment:

- hydraulic model calculation
- Data: consumption, flow to zone, meter details
- EasyCalc Water Balance calculation tool



Proposed actions



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Task 5: Elaboration of procedures to reduce NRW and prepare the synthesis report

Prepare a manual with the required set of procedures to reduce NRW that are tailored to Asyut city water network

Organising a workshop

Prepare a brief summary/synthesis report

Results

- A set of procedures aimed to reduce NRW is prepared
- The results and recommendations of the activity are presented to the beneficiaries in a one-day workshop
- A dialogue between the different stakeholders established
- Results verified with stakeholders
- The "Peer to Peer" activity for the regional exchange on NRW launched and the topic of interest announced.
- A list of recommendations developed

Tools for deployment:

- Results of zones design



Continuing Training



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**Task 1:
Inception Phase**

**Task 2:
Verification of
GIS Maps and
Customers DB**

**Task 3: Calibration
of the Hydraulic
Model for the
network**

**Task 4: Preliminary
division and
design of
distribution zones
(DZ)**

**Task 5:
Elaboration of
procedures to
reduce NRW**

Training envisaged - on-site and distance learning

NRW context

**Principles of GIS
Databases design
and application
and organization
of distribution
network data**

**Principles of
network hydraulic
model building
Principles of Q-P
monitoring
Water balance
calculation**

**Principles of
division into
zones and
isolation and
water-tightness**

**Training on use of
NRW manual**



Human resources and implementation



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The project will be led by a team of experts (03) non-key experts:

1. Paolo RUFINI: NRW and Leak Detection Non-Key Expert (NKE) (International) and Technical Coordinator
2. Zakaria YEHIA: NKE2 - Local GIS Expert
3. Walid ELBARKI: NKE3 - Local NRW & hydraulic analysis Expert

Also with contributions from the Senior Expert in Stakeholders Engagement Dr. Emad Adly and Senior Expert in Communication: Ms. Pam van de Bunt



Schedule



Water and Environment Support in the ENI Southern Neighbourhood region

Task	1	2	3	4	5	6	7	8	9	10	11	12	13
Task 1: Inception phase													
Initial data Assessment and evaluation													
Selection of the GIS and HM software													
1-day Inception workshop													
Preparation of the Inception Report													
Task 2: Verification of GIS Maps and Customers database													
Data collection		Resp. of utility											
Network and Customers' Data evaluation													
Prepare the GIS DB Conceptual & Logical Data Model													
Prepare draft GIS DB + Customers' DB Report													
Implement recommendations for updating or digitising network and infrastructure GIS map				Responsibility of the utility									
Quality Control and GIS Data Import													
Finalisation of GIS DB + Customer DB Report													
Task 3: Calibrate the network Hydraulic Model													
Import GIS DB into HM software													
Organize/Select Network Data for HM													
Organize/Select Data for Demand Allocation													
Identify Q-P Monitoring sites													
Model Calibration													
- Select Q+P monitoring equipment													
- Provide meters & pressure equipment (resp.utility)													
- Q-P monitoring field-work													
- Field data analysis													
- Adapt HM calculations to field results and prepare the HM report													
Task 4: Preliminary division of the network system into distribution zones (DZ) and design the zones													
Preliminary Design of the Zones													
Identify Zones' Q-P Monitoring sites													
Check the tightness of the DZ													
Perform Zone Water Balance Calculation													
Prioritize NRW Reduction projects													
Preparation of HM + Zones Design Report													
Task 5: Elaboration of procedures to reduce NRW and prepare the synthesis report													
Elaboration of procedures to reduce NRW													
Prepare for and conduct Workshop and reporting													

Action made necessary by the Covid-19 crisis



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Task 1: Inception phase

- ✓ Remote evaluation of the available network(s) data
- ✓ Remote establishment of the partners teams
- ✓ Remote training of the partners team

Task 2: Collection of network and customer data

- ✓ Collection of data (from the network and clients) by experts
- ✓ GIS data collection / preparation

Tasks 3,4,5 - To be revised according to the containment measures in Egypt





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Thank you for your attention



Diagnosis of the performance of Non-Revenue Water (NRW) in a pilot public service: Activity N° : N-W-EG-1

Kick-off meeting
by video-conference

2 September 2020, Cairo, Egypt

Discussion: Requirements and Challenges – 20 mins

Moderated by: Suzan TAHA (WES Key Water Expert) & Paolo Rufini (Non-key Thematic Expert and Technical Coordinator of the activity)



Discussion – Requirements & Challenges



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General

- Remote work
 - Ensuring continuity of communication (Internet availability? Use of Webex)
- Partner team
 - Establishment (Specialists: GIS, NRW and Hydraulic analysis engineers)
 - Evaluation of the team competencies
 - Training & building capacity and awareness of importance of NRW)
 - Commitment to team work (cooperation inter-departmental and with experts)
 - Coordinator?
- Stakeholders identification and engagement in the activity
- Provision of data and equipment
 - Timeliness
 - Previous experience: Sensitivity in data sharing-Assistance needed?
 - Possibility of data sharing through Drop box?



Discussion – Requirements & Challenges



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Data availability and quality :

- Background maps [raster-vector] (i.e.: aerial photography, topographic maps)
- Existing water supply network maps [digital, paperwork]
- Water Infrastructures information (i.e.: river intakes, wellfields, pump stations, reservoirs, water towers)
- Information on network operation (i.e.: intermittent supply, supply zones and zones supply rotation, operation of gate valves, number and positions of leakages, etc.)
- Customers information (i.e.: customer database)
- Data formats of the available information

Tools and Soft Wares (S/W)

- GIS Tools
- Water Balance calculation tools
- Hydraulic Model S/W





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Improving the impact of communication and dissemination

Presented by: Pam van de Bunt– Key Communication and networking
Expert



Communicate !



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Why do we need to communicate?

- Spreading information about the project and its results is essential for understanding and duplication of results
- We need to go beyond communicating only with our direct partners and stakeholders
- An increased awareness is the basis for action



WES general communication objectives



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- To increase awareness of water and environmental issues currently under pressure in the Mediterranean
- Increase the commitment of decision-makers and other stakeholders
- Mobilise civil society
- Ensure visibility of WES and the EU support for water and environmental issues in the region





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Specific communication objectives

- Raising awareness of the public in Asyut (and beyond) on the issue of scarcity of water and the importance of good water management
- Awareness raising on rationalising water use



Target groups



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- General public and households
- Civil society organisations, including environmental and youth organisations (tbd)
- Local media in Asyut (Akhbar Asyut and Asyut Alyoum)
- Egyptian national media (Al Ahram online, Shorouk, Al Masry al Youm)





Communication tools

- Social media

- Video

an instructional video explaining how the general public can act on preventing water losses through leakage or excessive water use

- Posters and pamphlets

- WhatsApp groups





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Thank you



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Stakeholders Engagement and Evaluation of Impact

Presented by: Dr. Emad ADLY, Stakeholders engagement expert and impact evaluation



Stakeholders' Engagement



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Stakeholders' Engagement → important impacts

- The main stakeholders will be identified and targeted with the focal point and the partners.
- Stakeholders who could be involved in the workshops (as applicable):
 - ✓ HCWW
 - ✓ Asyut Governorate
 - ✓ Other Utilities (Electricity – Gas – Roads)
 - ✓ environmental and water-related NGOs (e.g. Asyut Businessmen Association)
 - ✓ Academia,
 - ✓ local consultants,
 - ✓ consumer associations,
 - ✓ women's and youth organizations in the region,
 - ✓ representatives of local authorities (municipality , elected officials or local councils),
 - ✓ community representatives
 - ✓ media concerned with water issues at the local level.



Evaluate the impact of WES Capacity Building



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- In general, WES measures direct results during the implementation of capacity building activities: quizzes, exercises, scorecard, engagement sheet, etc.
- Indicator NW-EG-1: Number of actions (emanating from the recommendations of the activity) effectively implemented by the targeted actors, compared to those that have been agreed upon during the final workshop
- WES measures mid-term results after activities have taken place
 - ✓ post-training impact survey (online) sent to all participants
 - ✓ direct contact / direct interview with a few selected participants

**"WE CAN WORK TOGETHER FOR A
SUSTAINABLE MEDITERRANEAN
REGION"**





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Merci pour votre attention



Pour plus d'informations



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Consultez notre site internet :

wes-med.eu

 info@wes-med.eu

Ou suivez-nous sur les réseaux
sociaux :

