

Water and Environment Support

in the ENI Southern Neighbourhood region



Elaboration of non-revenue water policy for Jordan
Activity No. : N-W-JO-1

Launching of the NRW Policy document

23 May 2024, Kempinski Hotel, Amman, Jordan



Water and Environment Support

in the ENI Southern Neighbourhood region



Presentation of the WES Technical Assistance Activity in Jordan

Presented by: Suzan TAHA, WES Key Water Expert

WES in a Snapshot



**Water and
Environment Support**
in the ENI Southern Neighbourhood region

- 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



Partner Countries:

8 Countries in North Africa and the Middle East



Duration: May 2019 – November 2024 (66 months)



Budget: 9.508.054 Euros



Team Leader: Professor Michael Scoullou, scoullou@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 Lisa Papadogeorgaki, lpa@ldk.gr

Stakeholders Engagement Expert: Dr. Emad Adly, wes.gc@raednetwork.org



WES Identity



Water and
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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



MedWaves the UNEP/MAP Regional
Activity Centre for SCP



Ramboll Denmark A/S



Royal HaskoningDHV



LDK CONSULTANTS S.A.

This Project is funded
by the European Union



Objectives of the activity and overview of the proposed actions



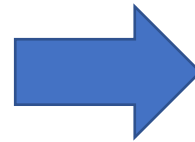
The **overall objective** of this activity is to support Jordan's water sector in its on-going efforts to reduce nonrevenue water, thus contributing to improved network efficiency, improved service provision and increased cost recovery.

Specific objectives

- assist the Jordanian Ministry of Water and Irrigation (MWI) in the elaboration of an NRW policy that:
 - builds on the real situation and lessons learnt from pilot projects and other works in Jordan, and
 - sets clearly defined rules for the development and implementation of NRW reduction and control in the country

Ultimate Objectives:

Achieve the national goals for reduced and sustained NRW - consistent with the proposition of Jordan's national strategy for water.



Proposed actions/tasks

Task 1: Establish an inventory of the current status of nonrevenue water management in Jordan

Task 2: Organise national consultation workshop

Task 3: Elaboration of the draft NRW Policy document and discuss with the taskforce members during a retreat

Task 4: Conduct further interviews with selected beneficiaries

Task 5: Organise online national consultation and policy validation workshop

Task 6: Launching of the NRW policy



Workshop Objectives

The workshop aims to:

- Launch the NRW policy in the Water Sector;
- Present the final policy statements;
- Agree with the partners and stakeholders on the way forward for the implementation of the NRW policy and to ensure impact.

The expected workshop results:

- The final NRW policy document is officially launched in the water sector and is widely disseminated amongst the main beneficiaries and beyond.
- The way forward and the recommendations for its implementation and ensuring impact are discussed and agreed upon with the main beneficiaries and stakeholders.



Agenda

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09:30 -12:00	PART A: LAUNCHING OF THE NON-REVENUE WATER POLICY FOR JORDAN	
09:30 - 09:45	OPENING CEREMONY	
09:45 - 09:55	PRESENTATION OF THE ACTIVITY AND EVENT'S PROCEEDINGS	<i>Ms. Suzan TAHA, WES Key Water Expert</i>
09:55 - 10:20	FEATURES OF THE NRW POLICY AND POSSIBLE IMPACT (25 min)	<i>Mr. Udo KACHEL, Senior Expert in NRW management and Policy formulation, WES International Expert</i>
10:20 - 11:05	THE NRW POLICY STATEMENTS (45 MINUTES)	<i>Mr. Udo KACHEL, Senior Expert in NRW management and Policy formulation, WES International Expert</i> <i>Ms. Mona BATAINEH, Director Central NRW Unit, MWI</i>
11:05 - 11:35	FOLLOW UP AND WAY FORWARD (15 MIN) FOLLOWED BY DISCUSSION (15 MIN)	<i>H.E. Dr. Mohammad ALDWEIRI, Assistant Secretary General for strategic Planning Affairs, MWI</i>
11:35 - 12:00	IMPACT MONITORING, CLOSURE AND EVALUATION OF THE EVENT	
	- Impact monitoring and stakeholder engagement (5 min)	<i>Dr. Emad ADLY, WES Expert Stakeholders Engagement and Impact Evaluation</i>
	- Possible stakeholder actions for greater impact - stakeholders engagement form (10 min)	<i>All Participants – facilitated by Dr. Emad ADLY, WES Expert Stakeholder Engagement and Impact Assessment</i>
	- Concluding remarks (5 min)	<i>Prof. Michael SCULLOS, WES Team Leader</i>
	- Event Evaluation Form (5 min)	<i>All participants</i>
12:00 -12:15	BREAK	
12:15 -14:30	PART B: WES NATIONAL MEETING	

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Elaboration of non-revenue water policy for Jordan
Activity No. : N-W-JO-1

Main Features of the NRW Policy for Jordan

Presented by: Udo KACHEL, WES Non Key Expert on NRW



Main Features of the NRW Policy for Jordan



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- Need for a NRW policy
- Link between Policy and Strategy
- Structure of NRW Policy
- Main Policy Axes
- What's new
- Recommendations for implementation & impact monitoring



Need for a NRW Policy for Jordan



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- High Non-Revenue Water figures have to be reduced to make investment into new water sources financially viable
- Secure acceptable water tariffs for the population
- Stop of fragmented NRW initiatives and projects by integration into a sector wide strategy and policy framework
- Enable a paradigm shift from top-down to bottom-up approaches
- Enabling the introduction of an integrated NRW management across the water sector institutions
- Efficient and targeted utilization of funds

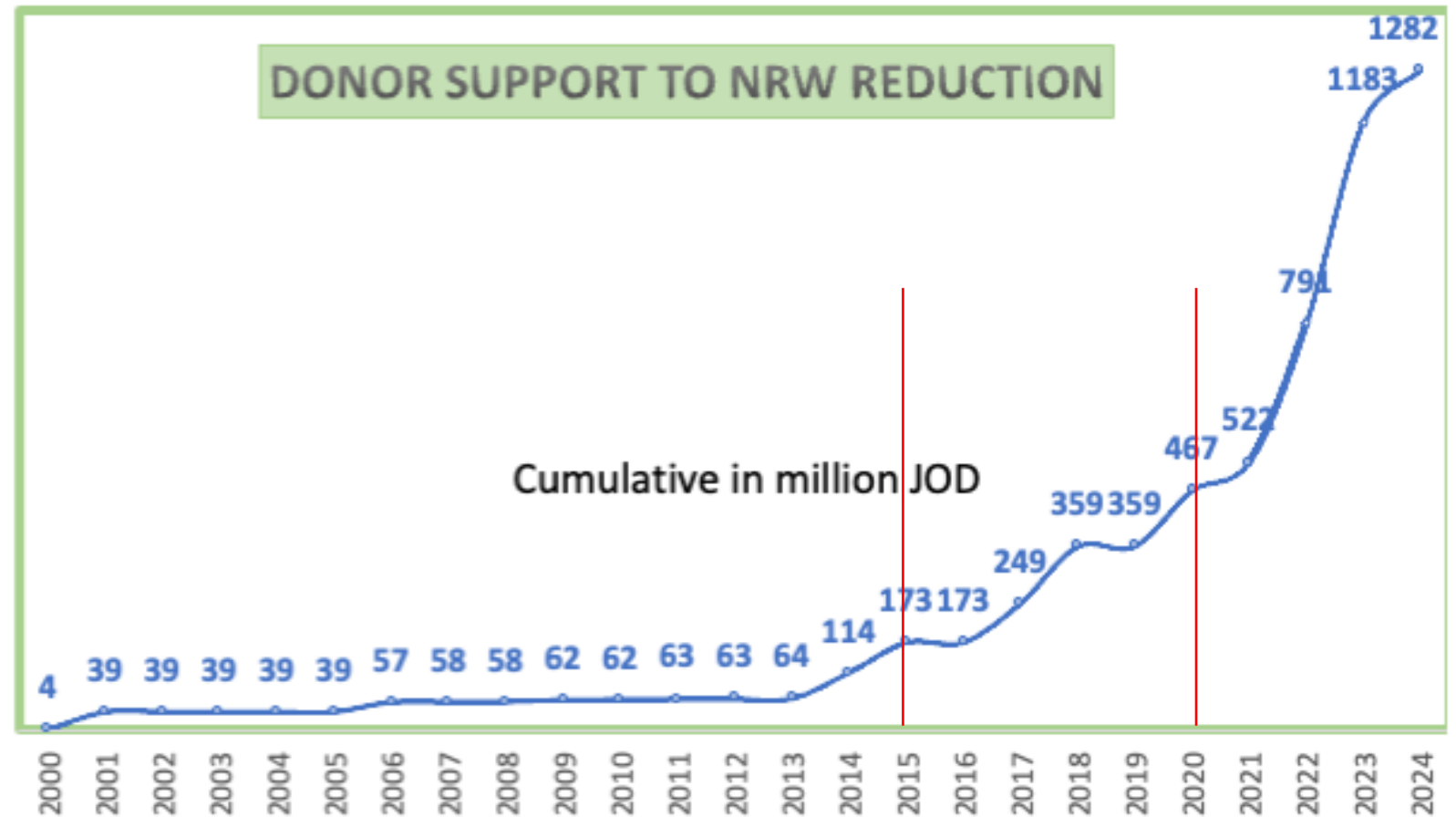


International Support to NRW Reduction



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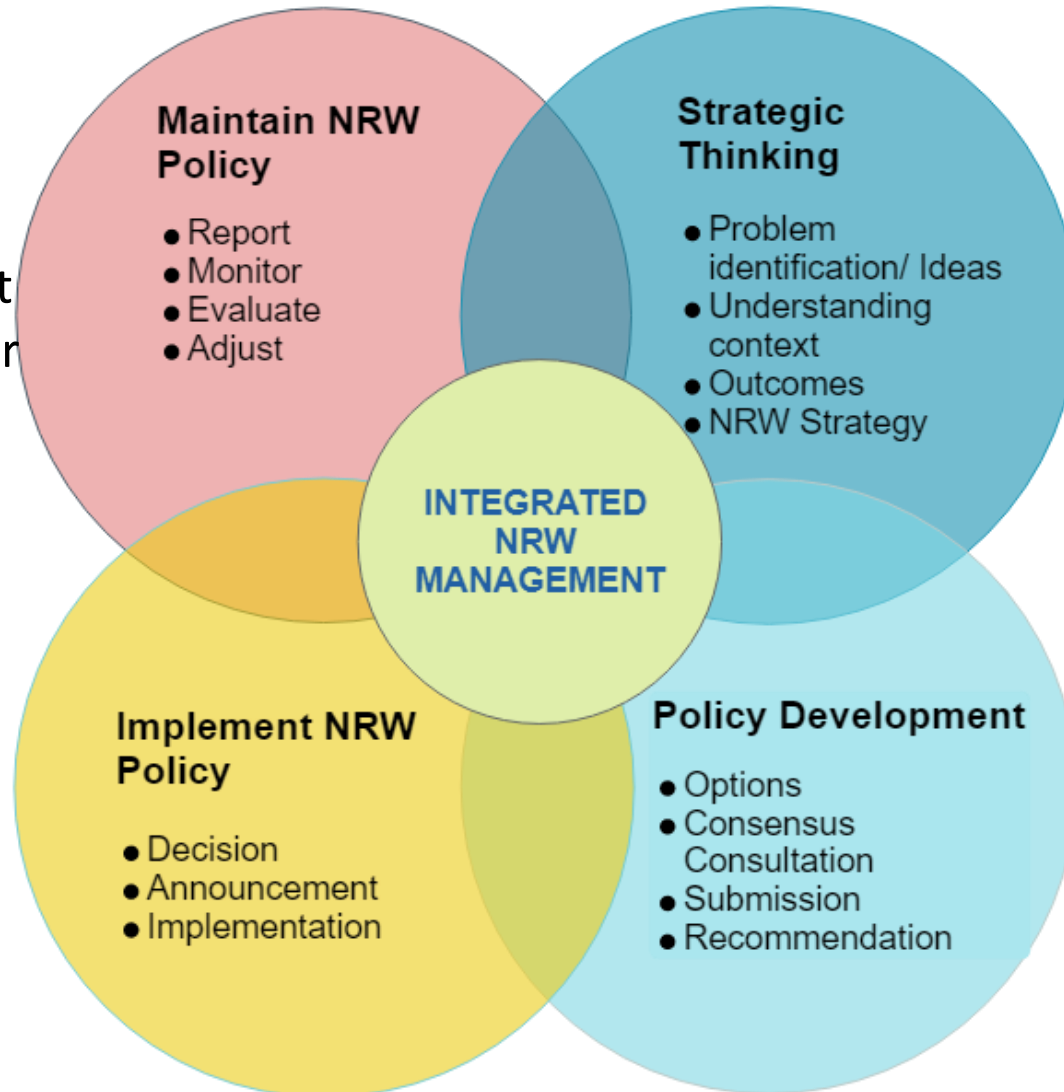
- NRW top priority
- Gained momentum after 2015
- Boost from 2020 onwards
- Sustainability



What's new



NRW dashboard,
automized measurement
& metering regime under
implementation



NRW Strategy developed and
approved in March 2022

Central NRW unit
established in 2023

NRW Policy prepared &
presented in May 2024





NRW Strategy

Comprehensive medium/ long-term plan to reduce the NRW to 25% by 2040 including the definition of needed resources and actions

Strategy is a plan of action while policy is a principle of action

NRW Policy

Definition of guiding principles helping the water sector institutions to establish organizational rules and taking logical decisions

Complementary and support to NRW strategy

Policies are designed by taking the opinion and general view of stakeholders and concerned people in the water sector regarding the NRW situation



Complementarity example



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- Key outcome in Strategy (Table 3):

Reduce the response time to repair reported leaks
- Policy statement:
 - Companies to provide adequate resources to achieve target
 - Record & monitor complaints and repair crews





NRW Policy Background Document

- Assessment & analysis of present status
- Focus on existing water sector institutions
- Addressing specific Jordanian conditions
 - Redundant distribution networks
 - Low maintenance budgets
 - Lack of collaborative management



Structure of NRW Policy II



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Description of facts and figures

Main policy axes

- National Priorities & Institutional/ Legal Framework
- NRW Management – Principles and Standards
- NRW Planning, Monitoring & Reporting
- Real Loss Reduction – Operation & Maintenance
- Apparent Loss Reduction – Customer Services

Cross-cutting issues

- Technology and Innovation
- Capacity Building and Training



Implementation & Impact Monitoring



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- Strengthen institutional capacity in NRW management
- Provide technical support for dissemination of the policy and introduction of collaborative working methods on all levels.
- Utility companies to provide adequate budgets and other resources for an integrated NRW management.
- Funding agencies to link and combine capital & operating investment



Integrated NRW Management



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- NRW reduction permanent and continuous business operation.
- Systemic and comprehensive approach will prevent ad hoc decision making and increases transparency
- Communication among business units to be improved
 - ✓ ICT, ERP, GIS, CIS





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Thank you for your attention



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Elaboration of non-revenue water policy for Jordan
Activity No. : N-W-JO-1

Overview of the NRW Policy Statements

Presented by: Udo KACHEL, WES Non Key Expert on NRW

Overview NRW Policy Statements



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Main NRW Policy Axes

- PS 1 National Priorities
- PS 2 Institutional Framework
- PS 3 Legal Framework
- PS 4 NRW Management – Principles and Standards
- PS 5 NRW Planning, Monitoring & Reporting
- PS 6 Real Loss Reduction – Operation & Maintenance
- PS 7 Apparent Loss Reduction – Customer Services

Cross Cutting Themes

- PS 8 Technology and Innovation
- PS 9 Capacity Building and Training



PS 1 - National Priorities



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Water is a scarce and precious resource and a key for the continued socio-economic development of Jordan.

The national priorities will be guiding **the overall NRW management** and shall be incorporated/ reflected in **the business planning** of each respective utility company.

The **development of new water sources** and the planned mega projects will drastically **increasing the cost per cubic meter of water**, the NRW figures have to be minimized prior to commissioning of the mega projects.

The **reduction of real (physical) losses is to be regarded** as an untapped resource and must be intensified on top priority basis.

Priorities to be reflected in the stakeholder discussions and planning, in particular with the Ministry of Finance, the Ministry of Planning and International Cooperation and the respective international funding agencies.



PS 2 – Institutional Framework



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Strengthening of the institutional capacity is a key pillar for the successful implementation of the NRW strategy and policy. **Reorganization of the water sector institutions** is required to increase efficiency and responsiveness.

To manage the NRW activities, clear responsibilities embedded in the institutional framework of the water sector will be:

- MWI** to cover strategy development, policies, monitoring and control on national level, supported by **Central NRW unit** overseeing compliance and transparent reporting of NRW data by the utility companies;
- Utility Performance Management Unit (UPMU)**, monitoring KPI'S and being the nucleus of the future regulator.

The **Water Authority of Jordan (WAJ)** was established under the Water Authority Law No. 18 of 1988, *as amended*. Owner of all water supply and wastewater assets. Following the establishment of the three public utility companies, no future role in direct operational tasks.



PS 2 – Institutional Framework contd.



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WAJ will ensure appropriate standards related to planning, design and implementation of capital investment projects under special consideration of NRW related parameters. A **NRW unit** will be involved in the design and implementation of all NRW related capital investment projects and provide technical support to other WAJ organizational units engaged on NRW control.

Jordan Water Company (Miyahuna), Yarmouk Water Company (YWC) and Aqaba Water company (AW) were established under the Companies Law of Jordan, No. 22 of 1997 as retail or distribution companies.

Utility companies operate all water facilities and distribution systems, and are **responsible for managing and keeping control over the NRW**. Departments in charge of the customer management, operations and maintenance & repairs provide the **most significant impact on NRW reduction**.

NRW/ performance monitoring units to be provided with appropriate tools, equipment and qualified experts.

The **Private Sector** already plays an important role in the capital investment programs, and in future will be **engaged on higher level in the operations management**. The outsourcing of specific activities like billing, replacement of meters, maintenance & repair have been successfully introduced and will be expanded.

PS3 – Legal Framework



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The existing legal framework is in general adequate and allows the introduction of a performance based and efficient NRW management.

It will be essential to apply and enforce the existing laws, by-laws, rules and regulations consequently and minimise violations.

On example is the **Ameeri law** which will have to be applied to control illegal use of the water. It is a strong tool ultimately allowing the confiscation of property.

The intervention of the WAJ administration on utility staff management **will have to be reduced** to the minimum and the authority of the utility companies strengthened.



PS 4 - NRW Management Principles and Standards



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NRW is an untapped resource. The reduction of real losses will make more water available to the customers.

NRW management is a cross-cutting activity and of concern to all business units in the utility companies and WAJ. A systemic and comprehensive approach through an integrated NRW management will be introduced.

Important principles in NRW reduction will be:

- Precedence of apparent loss reduction above cost-intensive rehabilitation and restructuring of water networks, addressing the most critical issues on priority basis;
- Capital investment projects to include dedicated budgets for NRW reduction measures and maintenance throughout the project periods;
- Adequate provisions in Capital investment projects to be made for decommissioning redundant networks, and pre-/post NRW measurements;
- Operational units for distribution networks will be responsible for real loss reduction, establishment of a reliable data base etc.



PS 4 - NRW Management Principles and Standards contd.



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- State of the art **applications** will be introduced in the **National Complaints Centre** to improve the quality of no-water and leak complaints and **increase the speed of leak repairs** in the maintenance divisions. This will encourage the public to report problems in the distribution network and will help operations to adjust the intermittent supply schedules.

NRW management practices to be **integrated part** of the utility companies' **day to day activities**.

All concerned utility companies, WAJ and JVA, will introduce and **agree on standards and methodologies published by IWA** and modified to **reflect the Jordanian conditions** and enabling unified water balance calculations.

Standard Operation Procedures (SOP's), methodologies and principles of NRW management will be introduced in all companies and business units to improve business operations and to increase efficiency.

The utility companies will include adequate budget provisions to ensure that needed resources will be available for establishment and enforcement of SOP's.



PS 5 – NRW Planning, Monitoring and Reporting



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Planning and design will be addressed in a more **holistic way** and shall include all processes in the water sector and **incorporate the needs of NRW management**.

NRW is a composite KPI, reflecting the **performance of the utility**. All business units need to work together for a **sustainable NRW reduction**, using **collaborative work methods**, thus enabling the identification of deficiencies and development of **appropriate solutions to minimize NRW**.

Capital investment projects shall include adequate provisions to address NRW already in the design stage. **Tertiary network and house connection replacement must be included in any network rehabilitation project** and provisions included for **maintenance and repair services** throughout the project period. Special attention shall be given to the **disconnection of redundant distribution networks**.

Wherever areas with **redundant distribution network** exist, the utility companies shall **define projects to permanently remove** those and include them in the investment budget.



PS 5 – NRW Planning, Monitoring and Reporting contd.



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Principles for setting priorities in NRW reduction will be:

- **Precedence of apparent loss reduction** above cost-intensive rehabilitation and restructuring, addressing the most critical issues on priority basis,
- **Operational units** for distribution networks to be made responsible for **real loss reduction**, establishment of a reliable data base.

One key pillar of the National NRW strategy – measurement, monitoring and control is a prerequisite for implementation of an effective NRW management.

The **modified water balance** will be the basis for the calculation of the NRW.

Applying standards and its enforcement require **additional facilities and expertise**. The related, significant costs will be reflected in the budget and **adequate funding made available** by the utility companies and WAJ. Enforcement **requires commitment and coordination between many agencies** and at many levels within government.

Establishing regular reporting cycles are essential not only in the operational units. Monitoring the NRW development is important to be enable MWI/ WAJ to plan interventions and secure support from international funding agencies.



PS 6 - Real Loss Reduction – Operation and Maintenance



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The limited water resources in Jordan and the physical condition of the water distribution systems forced the utility companies to switch to an intermittent supply regime all over the country. A transition to a 24/7 or **continuous supply** will be an objective in the long run and **must be actively pursued** wherever possible.

Generally, real or physical loss reduction will be addressed through a comprehensive, collaborative and integrated approach across all organizational units, i.e.

Planning & design,

Construction (quality of workmanship)

Rehabilitation (tertiary network/ house connections)

Operations (Central control, pressure & flow, rationing regime)

Maintenance & Repair



PS 6 - Real Loss Reduction – Operation and Maintenance contd.



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Activities to reduce real losses will comprise short term measures (horizon 1-5 years) and medium/ long term measures (5 – 15 years) focusing on distribution network restructuring/ rehabilitation, requiring massive investments.

The Operations Directorates will be made responsible for the reduction and control of real losses in NRW management. This will be achieved by collaborating with the other concerned units like Maintenance & Repair, Technical and Planning/ Design.

The existing National Complaints Centre will be modernised and the leak repair services organized in such a way that repair and response time can be reduced and the repair data documented to enable a targeted analysis and quick action.

Adequate budgets need to be provided to cover equipment and spare parts and possibly the engagement of private sector companies to apply an active leakage control.



PS 7 - Apparent Loss Reduction Customer Services



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In some governorates the **apparent loss component** is the major contributor to high NRW levels. An efficient customer management will be the key to reduce NRW within **the short-term horizon** of 1 – 5 years.

Most critical issues to be addressed on priority basis:

- Development of a clear **meter management policy** and replacing or relocation of **domestic meters**.
- Due to intermittent supply conditions, meters will under-rotate after **less than 2 years**. Meters will have to be **replaced after maximum 5 years**.
- The **outsourcing of meter replacement**, meter reading and billing and involvement of the **private sector** will increase the billed quantities and deliver **immediate results**.
- The utility companies will be further developing appropriate **incentive schemes** to increase the productivity of their staff.

The establishment of a **reliable Customer Information System** (CIS) in the utility companies in combination with the **GIS** will be providing the needed data for the NRW measurement and **increase the quality of data**.

Illegal consumption and the illegal connections/ consumption will be actively targeted by using available legal options like the Ameer law.

PS 8 – Technology and Innovation



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Information technology will be a **key and cross cutting theme** in the NRW management.

MWI/ WAJ and the utility companies will **coordinate and develop a concept** to manage the huge amounts of data and decide where and how the **data processing and information flows** should be accessible for the day-to-day work by the different business units.

The Central NRW unit and the NRW units in WAJ and the utility companies will develop a **monitoring concept** for the needed NRW **performance indicators** to match the reporting requirements of the different **government institutions and funding agencies**.

Metering and measurement should be **automized** as much as possible to reduce the **human error**.

The water companies will be obliged to not only collect data; but to develop **appropriate analysis tools to optimize operations**. The use of **GIS and hydraulic modeling** will be integrated in such tools and business processes.





The **National SCADA** will cover all water sources and shall be used for pressure management in the DZ and DMA.

The objective should be to:

- a) **Obtain key data** of the water sources like flow, pressure, energy consumption to prepare a **reliable water balance** and define the system volume input and water supplied to each utility company.
- b) **regain control** over the water distribution and rationing regime on the basis of real-time data acquisition to **save water** and reduce real losses.

Mobile applications will **improve the contact with the customers** and enable them to not only to manage their subscription but to support the utility companies by **directly reporting** on leaks, no water or sewerage blockages. This feedback will improve **customer satisfaction** and enhance the image of the water sector.



PS 9 – Capacity Building and Training



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Capacity building is essential when introducing new technologies and management techniques.

For a sustainable NRW management the operation of the water supply systems and commercial units, the **advanced information management systems and analysis tools** will be embedded in the workflows and require **qualified professionals** with good communication skills and experience in applying **collaborative work methods**.

MWI, WAJ and the utility companies have to ensure the recruitment of professional experts and operating staff. The **engagement of private sector companies** or individual professionals will be compulsory if the expertise cannot be provided in-house.

For the NRW management, training needs will be re-defined on the basis of the **improved workflows and business needs and**, wherever possible, shall follow the coaching on the job principle.

Providers of training and capacity building measures will be obliged to monitor the impact in the day to day work.





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Task 3: Elaboration of the NRW Policy document

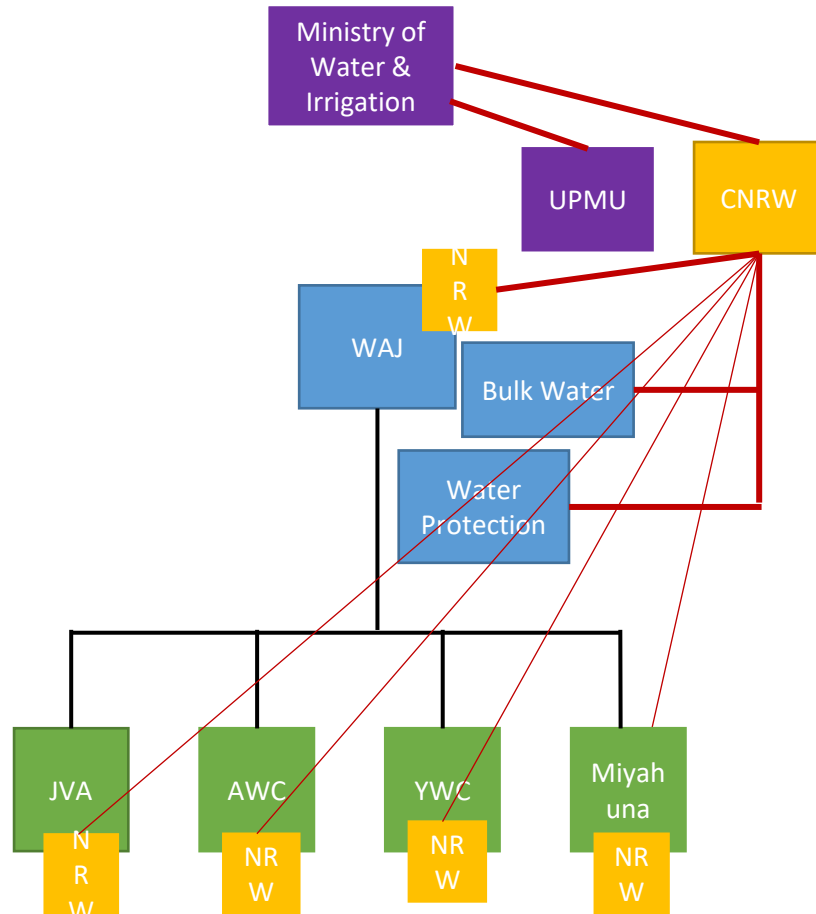
Follow up and way forward

Presented by: Eng. Mohammad AlDweiri, MWI Assistant Secretary General for Strategic Planning Affairs

Way Forward



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- Official approval of NRW policy by MWI
- Identify “champion” to follow up and promote NRW policy
(CNRW unit, UPMU)?
- Discuss adjustment of business processes to comply with NRW policy
(MWI, WAJ, Utility companies)



Implementation & Impact Monitoring



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- Strengthen institutional capacity in NRW management
- Provide technical support for dissemination of the policy and introduction of collaborative working methods on all levels.
- Utility companies to provide adequate budgets and other resources for an integrated NRW management.
- Funding agencies to link and combine capital & operating investment



Integrated NRW Management



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- NRW reduction permanent and continuous business operation.
- Systemic and comprehensive approach will prevent ad hoc decision making and increases transparency
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 - ✓ ICT, ERP, GIS, CIS





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Elaboration of non-revenue water policy for Jordan
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Impact Monitoring

Presented by: Dr. Emad Adly, WES Stakeholders Engagement and Impact Assessment Expert

WES IMPACT ASSESSMENT METHODOLOGY



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Commitment
Tracking Forms

National Focal Points
(Environment &
Water)

Key & non-Key
Experts

Trainees



WES IMPACT ASSESSMENT METHODOLOGY



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- Approval of Activities' ToRs (Impacts and Indicators)
- The selection and assessment process of candidates based on certain criteria to make sure that the right calibres are in place.

- Dynamic participatory activities involving quizzes, exercises etc.
- Evaluation *in situ* via (e-)questionnaires

- Follow-up and getting feedback (e-survey, interviews, capitalization questionnaires completed by FPs)



WES IMPACT ASSESSMENT METHODOLOGY



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Commitment
Tracking Forms

Post-Impact
Assessment
Survey

Interviews and
direct
Communication



IMPACT MONITORING, CLOSURE AND EVALUATION OF THE EVENT



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Commitment Form



Evaluation form



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