



# Wastewater treatment and reuse in the GCC countries

## How to unlock the power of data?

Training Workshop



# Aim

This workshop aims at unleashing the collective intelligence of various stakeholders to reflect and share experiences on effective approaches and interventions to overcome data issues including the use of data science and cutting-edge technologies.

# Overview

16h00 – 16h15	Welcoming participants & Agenda presentation
16h15 – 16h30	Interaction with participants – Part 1
16h30 – 17h00	Opening remarks by the chair of the session - Khaldon Khashman, ACWUA: “Wastewater Monitoring and Data Management in the Arab Region”
17h00 – 17h15	Presentation 1 – Youssef Brouziyne, IWMI “Wastewater Treatment & Reuse in MENA: Data-related Challenges and breakthroughs”
17h15 – 17h30	Presentation 2 - Muhammad Khalifa, IWMI: “Water Accounting Plus to empower reclaimed water in sustainable water balance”
17h30 – 18h00	Presentation 3 - Naga Velpuri, IWMI: “Leveraging Artificial Intelligence to inform reclaimed water projects”
18h00 – 18h20	Interaction with participants – Part 2
18h00 – 18h20	Closing



# Wastewater Monitoring and Data Management in the Arab Region

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## **Wastewater Monitoring and Data Management in the Arab Region:**

wastewater management, including data monitoring, technology options and communication to achieve SDG6 wastewater related targets.

Exploring Circular Economy and Resource Recovery Strategies of Biosolids in the Arab Region

ACWUA in cooperation with UN Habitat implemented a project “Wastewater management, including data monitoring the progress in achieving the SDG6 indicator 6.3.1 “ the project includes the following activities:

Collect data from the Arab Region regarding the progress in achieving the indicator 6.3.1

Analyze the data validity to be used by the different stakeholders especially the decision makers working in this sector.

Conduct series of four technical regional webinars:

- Wastewater Monitoring and Data Management in the Arab Region.

- Financing wastewater and investment options

- Governance and policies for wastewater management.

- High-level webinar on the topic of wastewater management and monitoring and the outcomes of the three above webinars.

The importance of the outcomes of the previous activities (data collection and webinars) to help the decision maker and the management in the wastewater sector and experts within the wastewater utilities in the Arab Region to take decisions in the above topics especially for the planning for the sector and the implanting of projects to help in achieving SDG6 indicator 6.3.1.

Assess water and wastewater utilities needs and gaps in capacity for wastewater management and monitoring.

Dissemination of results using UN-Habitat/GWOPA Workplace (Methodology for collecting of clean and reliable data).

# First Webinar: Wastewater Monitoring and Data Management in the Arab Region.

## Webinar Participants

137 experts participated in webinar from NGOs, Academia, Ministries, water Utilities, International agencies, regulatory bodies, and individual experts.

## Webinar Conclusions and Way Forward:

Monitoring and reporting wastewater flows needs a regional mechanism fits the structure of the water and wastewater sector according to the tasks assigned to all stakeholders in the Arab region;

Collecting wastewater data should be linked to governance and policy making advice procedures to improve water and wastewater management;

Capacity building projects are needed to collect the data based on the UN-Habitat methodology for SDG6.3.1 based on the developed regional mechanism;

The need to move towards smart water and wastewater management.

# Second Webinar: Financing wastewater and investment options.

## Webinar Participants

75 experts participated in webinar from NGOs, Academia, Ministries, water Utilities, International agencies, funding agencies (such as: the Green Fund, Islamic Development Bank, World Bank) regulatory bodies, and individual experts.

## Webinar Conclusions and Way Forward:

The Arab utilities facing challenges in securing funds to implement projects towards achieving SDG6 indicator 6.3.1 and the utilities having political should take the priorities and financing;

ACWUA and UN-HABITAT are requested to organize a dedicated event to discuss about helping utilities facing conflict and political unrest in setting plans for recovery and achieving SDG6 indicator 6.3.1 in particular wastewater collection treatment and reuse;

Emphasis on the transparency in wastewater governance as a key element to attract financial support;



## Second Webinar: Financing wastewater and investment options.

ACWUA, ISDB and UN-HABITAT are invited to develop capacity building programs on securing funds according to the methodology of the funding agencies, especially in differentiating between development projects and climate change projects;

It is important to show properly climate rationale in the project; presenting climate rationales properly is crucial for accelerating project financing;

The wastewater treatment and reuse knowledge is considered as participatory issue, decision makers should give high priority in financing these projects;

ACWUA and UN-HABITAT are inviting to develop and implement capacity development programs in the water and wastewater treatment and reuse and climate change mitigation and adaptation;

Improving the financial efficiency for utilities towards financial sustainability;

In order to effectively manage their water resources, countries are encouraged to adopt an integrated approach in water resources management, linked to investment needs;

# Second Webinar: Financing wastewater and investment options.

Develop the following national strategies:

- Investment plan for the new water and wastewater projects including the collected data from SDG monitoring process.

- Developing fund raising strategy.

Improve the legislation and investment laws and bylaws and improve financial incentives to encourage private sector to finance water and wastewater projects;

Co-funding instrument considered as one of the options in securing funds by:

- Participation the national funds such as Social Security Fund, National Pension Fund in financing the investment plan (public owned companies).

- Offering the shares of water public utilities in the financial stock market to enable citizens and private sector to be shareholders in the utilities.

- The national companies shall develop actuarial financial strategy and financial modalities to assure that the shareholders company concept is affordable and bankable.

## Second Webinar: Financing wastewater and investment options.

Capacity building for operators within the water and wastewater utilities, private sector participation, financing, and applying water governance managerial tools for integrated water resource management;

The importance of supporting water and wastewater high level management of the water sector and utilities to lead the water sector towards resilient and viable;

The establishment of an independent regulator for the water sector is a major milestone in the success of the utility.

# Third Webinar: Governance & Policies for Wastewater Management.

## Webinar Participants

72 experts participated in webinar from NGOs, Academia, Ministries, water Utilities, International agencies, regulatory bodies, and individual experts.

## Webinar Conclusions and Way Forward:

The importance of water and wastewater governance for achieving water related SDGs 6 indicator 6.3.1.

The importance of treated wastewater and drainage water from agriculture in reuse to help achieving food security in the Arab Region.

The treated wastewater should be part of the Arab countries national water master plan, water budgets, and investment plan.

Localization and Institutionalization of Water and Sanitation Safety Plans (SSPs) through implementation in the Arab Region shall be a strategic target to use the treated wastewater in unrestricted irrigation.

## Third Webinar: Governance & Policies for Wastewater Management.

The importance of having water law to regulate the relations between different stakeholders and regulators while highlighting the importance of setting KPIs.

Different type of financing Modules should be adopted, including the national financing module.

Countries which are facing economic challenges and political unrest, shall have the priority in financing.

There is a need to enhance the wastewater governance, particularly, increase the coordination between several related public institutions.

There is a need to revise and enhance all the legislations and the standards and regulations.

# Third Webinar: Governance & Policies for Wastewater Management.

- There is a need to develop guidelines for wastewater reuse and sludge use across the several potential users.
- There is a need to improve treatment regulations of industrial wastewater including olive mill wastewater.
- There is a need to include the socioeconomic and gender issues in wastewater governance practices.
- There is a need for mechanisms to implement and apply the existing wastewater sector regulations and legislations.
- There is a need to engage the NGOs and other relevant stakeholders in managing the water and wastewater sectors.
- Planning for wastewater reuse should be taken into consideration in the early urban planning process.

# Third Webinar: Governance & Policies for Wastewater Management.

- There is a need to enhance social acceptance of the agricultural products irrigated by treated wastewater.
- Information and Communications Technology (ICT) tools should be considered to ensure continuous monitoring of wastewater influent and effluent quality.
- The need of working on updating the Strategic study of the Water Resources in Iraq prepared by Ministry of Water Resources in 2014 in coordination with all concerned parties.
- Coordination between Governmental Organizations to take advantage from the international financing Opportunities.
- A need for establishing Technical Working Group concerned about wastewater management to host the best practices and disseminate knowledge in the Arab Region.

# Fourth Webinar: High-level webinar.

## Webinar Participants

116 experts participated in webinar from NGOs, Academia, Ministries, water Utilities, International agencies, regulatory bodies, and individual experts.

## Webinar Conclusions and Way Forward:

- The Arab Countries have utilized all the conventional water resources (Ground and Surface Water). Now, the future is the unconventional water resources (Treated Wastewater and Desalination). Keeping in mind that the treated wastewater is renewable water and cheaper than the desalinated water.



# Fourth Webinar: High-level webinar.

- Improve the efficiency of the wastewater treatment plants to tertiary treatment level that can be used safely in agriculture.
- The importance of Adopting in the Arab Region water and sanitation safety plans developed by WHO by implementing pilot projects to disseminate and host it in the Arab Region.
- Improve standards for reuse in all aspects (Food production, Cultivation, Green Fields, Artificial recharge. Etc.).
- Develop legislations, regulations and monitoring systems on the industrial wastewater and other pollutions to ensure the safety of wastewater systems.

# Conclusion

The reliable data availability major factor and tool is very important for the decision makers, ministries and utilities for planning and defining investment priority towards integrated water resource management and achieving the SDG's

# Exploring Circular Economy and Resource Recovery Strategies of Biosolids in the Arab Region

## Task Force Objectives and High-Level Activities

During the sixth Arab Water Week in March 2023 in Jordan, successful Regional Dialogue was held to establish a technical working group within ACWUA structure for sludge management to exchange of experience and knowhow between the experts in the utilities in the Arab Region.

Establishing a regional dialogue among Arab Region countries to assess the regulatory framework and conditions of acceptable reuse of biosolids.

ACWUA and GIZ experts conducted a kick off meeting where this initiative is supported by GIZ

# Exploring Circular Economy and Resource Recovery Strategies of Biosolids in the Arab Region

agree and verify the detailed work plan, scope, level of detail required for each task, format of deliverables, progress meetings and expected timelines.

The countries from the Arab Region that will be included in the study were selected to focus on the countries with experience in the biosolid management.

Countries selected are Algeria, Egypt, Jordan, Lebanon, Morocco, Oman, Kingdom of Saudi Arabia, United Arab Emirates, Kuwait, Palestine and Tunisia.

# Exploring Circular Economy and Resource Recovery Strategies of Biosolids in the Arab Region

## The project component as below:

Revising the desk research that will be conducted by the GIZ Task Force.

Preparing a survey and sharing it with the relevant focal points of the selected Arab Countries after the approval of GIZ Task Force.

Analyzing the regulatory framework of selected countries and assess potential markets that are open (or could be explored).

Conducting a regional dialogue among stakeholders to discuss and confirm outcomes of the assessment.

Lunching the Biosolid technical working group within ACWUA knowledge structure.

Developing report includes the result of the findings and outcomes from the regional dialogue .

# Exploring Circular Economy and Resource Recovery Strategies of Biosolids in the Arab Region

The mapping survey component will cover the following:

- How is the country managing sludge?
- Are there are reuse practices? If so, what are they? For how long have they been carrying out reuse practices?
- Are there any regulations that support sludge reuse practices? If so, what are they?
- Are there any existing markets for the reuse of sludge in the country? If so, what are they?
- What are the main challenges the country faces when it comes to sludge management and reuse?
- Is there any public acceptance for sludge reuse? If so, since when? If not, what are the rejections?
- Are there scientific papers on the topics of sludge reuse in the country? If so, what are the main outcomes?

# Exploring Circular Economy and Resource Recovery Strategies of Biosolids in the Arab Region

## Ways Forward

Activating the technical working group.

Exchange knowledge through different activities such as: technical study visits, define the best practices and lessons learned.

A manual for the findings, best practices and lessons learned.

**Thank you**