WATER WASTE INFRASTRUCTURE EGYPT

EWWI - Egypt Water Waste Infrastructure 2023
THE BLUE ECONOMY ROUND
1-3 October 2023

New Cairo, Egypt International Exhibition Center (EIEC)
(Hall 3 - Main Conference Hall)

Opening Session

Egypt's Water and Sanitation Sector: Overview & Strategic Future Vision

01 October, 2023 (11:00 am- 12:00 pm)

Scope of the Session:

Ministry of Housing, Utilities and Urban Communities (MOHUUC) is the Egyptian ministry responsible for the construction, and infrastructure of urban, rural communities and utilities. MOHUUC covers the whole sector of drinking water and wastewater. The Ministry's overall objective is to provide sufficient drinking water of good quality to all the population and to treat the wastewater in such a way that the effluent discharge does not pose any health or environmental risks. The role of the Ministry is to increase the capacity of water treatment, desalination and supply communities and industries as well as to increase the number of wastewater treatment plants and to improve efficiency of the existing plants. This policy is implemented through five organizations under the supervision of MHUUC: (i)Holding Company for Water and Wastewater (HCWW); (ii) National Organization for Potable Water and Sanitary Drainage ((NOPWASD); (iii)Cairo and Alexandria Potable Water Authority (CAPWO); (iv)Egyptian Water and Wastewater Regulatory Agency (EWRA) and; (v)New Urban Communities Authority (NUCA)

The scope of the opening session is to openly discuss the current status of water and sanitation sector in Egypt and briefly sector's reform. Panelist will describe briefly the government strategies with regard to water challenges & scarcity; and action taken to face the challenges. Desalination, Wastewater reuse, sludge application & digital transformation initiatives in the sector will be carefully addressed. In addition, exchange views & knowledges between the session participants.

Session Information

Moderator: Dr. Yasmin Bakir

- **Prof. Dr. Rifaat Abdel Wahaab (Egypt-WWI 23 Coordinator, HCWW), Egypt**
- **Ms. Radmila Labus (BVMW The German Mittelstand Association, Germany), Germany.**
- **Eng. Mamdouh Raslan (Chairman, HCWW), Egypt**
- **Mr. Alexis Below (German Embassy), Egypt**
- **H.E. Prof. Dr. Assem El-Gazzar (Minister, MHUUC), Egypt**

❖ **Signing MOU between Arab Organization for industrialization and BVMW The German Mittelstand Association of SMEs**

❖ **Signing MOU between General Authority for Investments and BVMW The German Mittelstand Association of SMEs**

❖ **Opening of the Egypt-WWI 2023 Exhibition.**

Holding Company for Water & Wastewater

Bundesministerium für Wirtschaft und Klimaschutz

made in Germany

AUMA expotec for Events

(Hall 3 - Main Conference Hall)

Session-1: Non-Conventional Water Resources Use under Scarcity Conditions

01 October, 2023 (1:30 pm- 3:30 pm)

Scope of the Session

MENA region as a whole faces' extreme scarcity, but each country has a different water resource endowment that will shape its broader water challenges. Scarcity is so great in the Gulf States, for example, that there is a strong focus on non-conventional water resources, such as desalination and treated wastewater recycling for non-potable uses as alternatives to the continued withdrawal of non-renewable fossil groundwater. Understanding and diversifying the range of potential water resources in the region is essential.

Therefore, water scarcity requires moving towards a diversified water management portfolio. Diversified solutions lead to greater resilience to systemic shocks — be they climatic or economic. This starts with "closing the water resources loop" rather than thinking of water usage as "once through the system." Examples of diversification include optimizing local surfaces as well as groundwater storage, developing non-conventional water resources, such as desalination, recycling of treated drainage and industrial water, water harvesting, reducing leakage, and promoting conservation. The role of stakeholders, including women's role, in the safe reuse of treated water is of utmost importance. Mega projects for water treatment and reuse are considered an indispensable step towards sustainability and a water-secure future.

This session will discuss not only the Non-Conventional Water Resources, but also the tools to face the challenges to close loop for water scarcity.

Session Agenda

- **Chairman / Moderator: H.E. Prof. Dr. Hussein El-Atfy (5 min)**
  Secretary-General, Arab Water Council (AWC), Egypt
- **Opening / Keynote Speech: H.E. Prof. Dr. Mahmoud Abu-Zeid (15 min)**
  President, Arab Water Council (AWC), Egypt
- **Panelists: (60 min)**
  - **Prof. Dr. Abdin Salih, Director, Arab Water Academy / AWC**
    (Water Harvesting for Water Security in the Arab Region: The Case of Sudan).
  - **Mr. Pascal Grüner, SebaKMT, Germany**
    (Water Leak Detection and Water Loss Reduction).
  - **Ms. Faten Said, Director, Cairo Regional Office, Arab Industrial Development Standardization & Mining Organization (AIDSMO), Egypt.**
    (Role of AIDSMO for Industrial Pollution Control & Sustainable Development.
  - **Eng. Abed Ezz El-Regal, Chairman, Abu Qir Fertilizers Company**
    (Water is the blessing of life and existence, and its wastage is the most precious loss).
  - **Prof. Dr. Hala Yousry, Professor of Rural Sociology, Desert Research Center, Egypt**
    (Women and Non-Conventional Water Use).
  - **Prof. Dr. Mohamed Haikal, Techn. Consult., Orascom Construction Ltd, Egypt**
    (Egypt's Pioneering Experience in Agricultural Wastewater Treatment and Reuse)
- **Discussion (15 min)**
- **Closing & Wrap-Up (5 min)**
- **Rapporteur: Dr. Mai Afifi (HCWW)**
- **Time allowed: 100 min.**

(Hall 3 - Main Conference Hall)

Session 2: Desalination Industry & Technologies Nationalization

02 October, 2023 (9:30 am- 11:00 am)

Scope of the Session

Water desalination occupies an important place in Egypt's drinking water supply strategy. Therefore, the Egyptian government intends to implement an ambitious strategic plan until the year 2050, which will be implemented through 6 five-year plans, currently estimated at a value of about 420 billion Egyptian pounds ($13.5 billion), to build 46 seawater desalination plants with a private sector participation system. This initiative is in line with the government's policy aimed at Encouraging the exploitation of non-traditional water resources. The government wants to implement this plan in 11 coastal governorates.

The first phase of the government program aims to enhance water supplies and meet the needs of hot areas in the coastal governorates, especially in the Red Sea and Matrouh governorates and the coastal governorates in the northern Delta. Through which the authorities are counting on establishing 21 seawater desalination plants with a capacity of 3.4 million cubic meters per day, with investments estimated at about 160 billion Egyptian pounds, (5.1 billion dollars.)

With investments estimated at approximately 260 billion Egyptian pounds ($ 8.4 billion), the remaining stages of the 2050 strategic plan will enable the production of 5.6 million cubic meters of drinking water per day through the implementation of 25 seawater desalination plants to cover all the targeted governorates.

This session addresses the importance of localizing water desalination technology, and through discussion of successful case studies from other countries and the extent to which it can be applied within Egypt, with the aim of maximizing the benefit from these experiences to raise the proportion of the local component in desalination plants in order to achieve economic growth and water security.

Session Information

- **Chairman : Eng. Amro Seoudy, CEO, WTCO, Egypt**
- **General Eng. Assem Shokr (Vice-Chairman, HCWW)**

Desalination in Egypt —Current Statues & Future prospective

- **Panelist:**
  - **Eng. Frank Jacobs, CEO Gets Water GmbH, Germany**
  - **Dr. Mohamed Heikal, Techn. Consult., Orascom Construction Ltd, Egypt**
  - **Capt. Eng Georg. D. Fehner, Port Energy Logistic, Germany**
  - **Dr.Ahmed Abdelkarim, Co-Founder & CTO of Watercycle Technologies, UK**

- **Rapporteur: Dr. Mohamed Afifi (HCWW)**
- **Time allowed: 90 Min.**

(Hall 3 - Main Conference Hall)

Session 3: WWT Technologies: Small Scale Sanitation

02 October, 2023 (11:30 am- 01:30 pm)

Background Information

Although, the Egyptian government tends to allocate resources for improving sanitation coverage in small communities (Azbas) with three main goals: (i) improving the immediate environment; (ii) assuring the continued collaboration of the middle class; and (iii) placating strategic elements of labor'. However, the sanitation coverage is still low with the majority of residents of small communities (Azbas) suffering from a low level of access to basic public services, including piped water and wastewater disposal.

There are specific characteristics of small communities that seem recurrent in explaining the lack of progress in these settlements. First, the cost of providing services to a widely scattered population is relatively high. Generally, small communities are characterized by relatively low population densities, which hamper the realization of economies of density. As a result, centralized systems may not represent a viable service modality as the costs of such infrastructure cannot be recovered from the revenue that the provider can obtain from the users. Second, there is a presumed mismatch between the technical and financial capacity available at the local level and the requirements demanded by increasingly complex water supply systems.

Addressing sanitation challenges is vital for Egypt's development, especially in rural areas and smaller communities. This session focuses on innovative small-scale wastewater treatment (WWT) technologies that can provide sustainable solutions for decentralized sanitation. We'll highlight cost-effective and eco-friendly systems suitable for various contexts, examining their potential to mitigate pollution, protect public health, and promote environmental preservation. Join us as we explore how adopting small-scale WWT technologies can revolutionize sanitation practices in Egypt.

Session Information

- Chairman : H.E. Prof. Dr. AbdelKawi Khalifa (Former Minister-MWWU), Egypt
- Keynote Speech: :Prof.Dr. Sayed Ismail (Vice-Minister, MHUUC), Egypt (TBC)
- Panelist:
  - Prof. Dr. Fatma El-Gohary , National Research Center, Egypt
  - Dr.-Ing Norbert Blanke ,TIA GmbH, Germany
  - Prof. Dr. Maha Halalsheh, University of Jordan
  - Capt. Eng Georg. D. Fehner, Port Energy Logistic, Germany

- Rapporteur: Dr. Mahmoud Abdel Rahman (HCWW)
- Time allowed: 90 Min.

(Hall 3 - Main Conference Hall)

Session 4: Sludge Management for Sustainable Resource Utilization

02 October, 2023 (02:00 pm- 03:30 pm)

Scope of the Session

The majority of Egyptian investments have been primarily focused on providing large centralized sanitation-related services and infrastructure with a little attention given to sludge disposal and management. For many years, excess municipal sewage sludge has been disposed through drying processes without paying attention to the recovery of the chemically stored energy content in organic matter and/or the potential recovery of nutrients. The management and disposal of this sludge produced from wastewater treatment is one of the main problems towards the sustainability of the drinking water and sanitation sector in Egypt, due to the serious environmental effects resulting from non-controlled disposal of excess sewage sludge without proper treatment.

Currently, Egypt's 550 WWTPs produce about 14 million m3 of treated effluent and 4,000 tons of sludge per day. The current common scenario for sludge treatment and disposal which is implemented in most wastewater treatment plants in Egypt can be presented as follows: mixed sewage sludge (primary and secondary) is pumped into thickeners, mainly gravity thickeners, to increase the solids content from 1-2% to 4-6%. Then, the thickened sludge is pumped into open drying beds to increase the concentration of dry solids to 40-50%. The required time to achieve a high dewatering efficiency range from 2-3 weeks during summer and more than 6-8 weeks in winter.

Efficient sludge management is a critical aspect of wastewater treatment that often goes unnoticed. In this session, we shed light on the importance of proper sludge handling, disposal, and, more importantly, its potential applications. From energy generation to agricultural and industrial uses, we'll explore how turning sludge from a waste burden into a valuable resource can promote circular economy principles and contribute to Egypt's sustainability goals. Discover the latest advancements in sludge management and its promising role in sustainable development.

Session Information

- **Chairman** : **Prof. Dr. Ahmed Moawad**
  Chairman, Nova Industries
- **Prof. Dr. Rifaat Abdel Wahaab**(EWWI 23, Coordinator, HCWW),
  An overview of Current Status of Sludge in Egypt.
- **Panelist:**
  - **Prof. Dr. Ahmed Gaber**, Faculty of Engineering, Cairo University.
  - **Mr. Stijn Wyffels,** Waterleau Ltd., Belgium
  - **Dr .Maha Khallaf**, Head of Programme, Nile Delta Water Management Egypt GIZ, Egypt
  - **Mr. Felix Meyer-Horn**, Aerzener Maschinenfabrik GmbH, Germany
- Rapporteur: Dr. Ahmed Gamal (HCWW)
- Time allowed: 90 Min.

(Hall 3 - Main Conference Hall)

Session 5: Municipal Solid Waste: Current Status & Future Vision

3 October, 2023 (10:00 am- 12:00 pm)

Scope of the Seminar

Municipal solid waste management is a growing concern for Egypt as its population and urbanization rates rise. This session examines the current state of municipal solid waste management and outlines a vision for a circular economy approach. We'll explore how waste reduction, recycling, and resource recovery initiatives can not only address the waste crisis but also create economic opportunities and reduce environmental impacts. Join us as we explore the path toward a more sustainable and waste-resilient Egypt.

Session Information

- **Chairman : Dr Hazem El Zanan, Director, National Solid Waste Management Program in Egypt**
  Municipal Solid Wastes in Egypt: Current Status & Future Vision
- **Panelist:**
  - **Eng. Beatrice Decker, Project Engineer – German Recycling Technologies and Waste Management Partnership e.V., Germany**
  - **PD Dr. Eng. Abdallah Nassour – Department of Waste and Resource Management, Faculty of Agricultural and Environmental Sciences, University of Rostock, Germany**
  - **Mr. Hisham Sherif, Chairman & CEO ECARU**
  - **Kerstin, Deji, GIZ (tbc)**

- Time allowed: 90 Min.

(Hall 3 - Main Conference Hall)

Session 6: Focus and Discourse on Organic Waste: Jordan and Egypt

3 October, 2023 (02:00 pm- 03:30 pm)

Session Information

- **Chairman : Prof.Dr. Sherien Elagroudy, Ain Shams University, Cairo, Egypt**
- **Panelist:**
  - **Dr. Eng. Abdallah Nassour – Department of Waste and Resource Management, Faculty of Agricultural and Environmental Sciences, University of Rostock, Germany**
  - **Eng. Beatrice Decker, Project Engineer – German Recycling Technologies and Waste Management Partnership e.V., Germany**

- Time allowed: 90 Min.

SEMINARS

(Hall 3 - HCWW Booth)
2 Oct. 2023

Time : (12:30 pm- 1:30 pm)

Seminar-1: Government Excellence strategies in developing performance and services

- **Dr. Ahmed Seddek – Public Services Excellence Awards Manager, Scientific Research Organizational Excellence at the Ministry of Planning**

Time: (1:30 pm- 2:30 pm)

Seminar-2: Civil society and enhancing community participation and development areas

- **Dr. Marwa El-Derini - Chairman of the Board of Directors of the Egyptian federation for Water and Wastewater**
- **Eng. Aya Tarek – Executive Manager of Benaa Development Foundation NGO**

Time: (3:00 pm- 4:00 pm) **HCWW Booth**

Seminar-3: Digital transformation and its positive impact on developing the operating system

- **Eng. Rasha Marzouk - Deputy Director of the Water and Hygien Program at UNICEF – Egypt**
- **Eng. Ahmed Mukhtar - Chairman of the Board of Directors of Nahr Development Company**

(Hall 3 - HCWW Booth)

Seminar 4- Industrial Wastewater & Pollution Control

3 Oct. 2023 (9:30 am -11:00 am)

Background

Industrial growth in Egypt brings prosperity and economic opportunities, but it also poses challenges related to pollution and environmental degradation. This seminar will examine the pressing issue of industrial wastewater and its impact on Egypt's ecosystems. In addition, will discuss cutting-edge pollution control technologies and regulatory measures that can help strike a balance between industrial development and environmental preservation.

It is worth to highlight that, by understanding the importance of responsible industrial wastewater management, we can pave the way for sustainable industrial practices in Egypt.

Seminar Information:

- **Chairman :Prof. Dr. Rifaat A. Wahaab (Egypt-WWI 23 Coordinator HCWW)**
  - **Mrs Faten Said, Manager,** Director of Cairo Office**,** Arab Industrial Development Standardization and Mining (AIDSMO), Cairo
  - **Prof. Dr. Sohair Abo Elela , National Research Centre, Egypt.**
    Industrial Wastewater management in Egypt: An Overview
  - **Dr.-Ing Norbert Mueller- Blanke, President TIA GmbH, Germany**
    Central Industrial Wastewater Treatment in Kuwait (A Case Study)

- Time allowed: 90 Min.

(Hall 3 - HCWW Booth)

Seminar 5- Poly Aluminum Chloride (PAC) for Water Treatment
3 Oct. 2023 (11:00 am -12:00 pm)

Background Information

Coagulation and flocculation using chemicals, followed by sedimentation or clarification, filtration and disinfection is the conventional method of removal of the above contaminants from raw water. A wide variety of chemicals are used to achieve water coagulation /flocculation in the water industry.
Aluminium Sulphate (alum) is one of the most widely used coagulants in Egypt. The main reasons for the usage of alum are its affordability, availability and lack of low-cost alternatives. However, there are other costs and problems associated with the use of alum. Due to the high sludge handling cost, pH adjustment and slow formation of flocs, and also recent issues related to availability of alum at a reasonable cost, the need has arisen to select alternative coagulants for the coagulation process. Poly Aluminium Chloride (PAC) is used as a coagulant in treatment plants neighboring countries as an alternative to alum.

In this study, it was aimed to compare the performance of the two coagulants alum and PAC in turbidity and color removal and to assess the feasibility of substituting alum with PAC. In addition, a questionnaire survey was carried out to investigate the opinions of engineers, chemists and operators who have used both coagulants in the treatment process.

Agenda

To be organized by Tayseer Chemicals & Fertilizers Co, KSA

(Hall 3 - HCWW Booth)

Seminar 6- Water & Sanitation Safety Plan

3 Oct. 2023 (12:00 pm-1:00pm)

Background

Recently, the Egyptian Government seek to achieve a comprehensive development throughout a mass of Mega projects. Water is a crucial element in the developing process and Holding Company for Water and Wastewater (HCWW) is one of key actors in setting national policies for water and wastewater services. These investments need a wide approach to grantee the good governance and sustainable management. Safety planning (Water and sanitation safety plan) approach introduced by WHO is recognized as the most reliable and effective way to manage drinking-water supplies to secure public health. HCWW has adopted WSP as a holistic approach not only to mitigate the potential risk upon the public health but also as a participatory way to reinforce and create a resiliency among the key actors in water sector. This study aims at highlighting the tangible impacts on the performance and homogeneity in water sector in different areas at different levels as a response of WSP implementation. Modifications recorded in the operational, institutional, collaboration, and legislative outcomes at Micro, Meso, and Macro levels as a response of WSP. Some challenges were detected such as, lack of financial resources and no clear commitment of WSP incorporation in policies of the main stakeholders were the main reflected challenges.

Agenda

- **Dr. Mahmoud Mehany – Water and Sanitation Safety Director, HCWW, Egypt.**
  (Evaluation of performance of Acs and challenge concerning WSP)
- **Dr. Ahmed Gamal Sayed, Environmental affairs Manager, HCWW, Egypt.**
  (Towards Sludge Safety Planning Map for Egypt)
- **Dr. Waleed Hosni- Water Safety Plan Manager, HCWW, Egypt.**
  (Future prospective concerning implementation of WSP)
- **Open Discussion & Recommendations**

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(Hall 3 - Egypt Germany 2030 Booth)
1 Oct. 2023

Time: (1:30 pm- 2:30 pm)

Seminar-1: The opportunities to study and work In Germany

- Dr. Abdallah Nassour – Department of Waste and Resource Management, Faculty of Agricultural and Environmental Sciences, University of Rostock, Germany

Time: (3:00 pm- 4:00 pm)

Seminar-2: The state's efforts in rural and urban development and sustainable urban development

- Dr. Walaa Gad Al Karim: Director of the Central Unit of Hayah Karima Initiative - Member of the National Council for Human Rights
- Eng. Amr Lashin: Governance Director - Egypt Program - United Nations Human Settlements Organization

2 Oct. 2023

Time: (1:30 pm- 2:30 pm)

Seminar -3: The potential of German Egyptian Cooperation in the field of waste management and circulare economy

- Dr. Abdallah Nassour – Department of Waste and Resource Management, Faculty of Agricultural and Environmental Sciences, University of Rostock, Germany

Time: (3:00. pm- 4:00 pm)

Seminar-4: Economic development...Opportunities, components and supporting infrastructure

- Dr. Ibrahim Mostafa - Vice President of the General Authority for the Suez Canal Economic Zone

3 Oct. 2023

Time: (1.00 pm- 2:00 pm)

Seminar 5: German Egyptian Cooperation in the field of water and wastewater

- Ms. Lucie König – Representing German Water Partnership

Time: (2.00 pm- 3:00 pm)

Seminar 6: Some of Egypt's Hidden Gems

- Mr. Yehia El Decken - Tourism Manager at Holiday AdventureTours & Co-Founder

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