



Shared Prosperity Dignified Life



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Report

Online Training Webinar on “Technology Options for the Water-Energy-Food Nexus”

14 October 2020

Summary

The European Union and the Gulf Cooperation Council (EU-GCC) and the Environmental Center for Arab Towns (ECAT), in association with the UN Economic and Social Commission for Western Asia (ESCWA), the Middle Eastern Desalination Research Center (MEDRC), the Swedish International Development Cooperation Agency (Sida), and the Embassy of the Kingdom of the Netherlands, in the UAE organized an online training webinar on 14 October 2020 titled “Addressing the Water-Energy-Food (WEF) Nexus in the Context of Climate Change and Sustainable Development” on “Vol. 1: Technology Options for the Water-Energy-Food Nexus”. The webinar was aimed at supporting the development of the water-scarcity struggle within the Arab region by assessing different solutions through the WEF nexus approach, integrating energy efficiency and renewable energy technologies.

The webinar enabled the participants representing various institutions to engage in constructive discussions focused on the presentation and analysis of different approaches and strategies for the energy transition within the Arab region, highlighting the impacts of renewable energy, water management, sustainable food and agricultural innovation, desalination etc. This resulted in the identification of the key barriers and challenges faced and paved the way for the formulation of solutions.

The webinar concluded with a series of recommendations that address the necessary actions needed to service the growing demand of water, in water-scarce areas, alongside the food and agricultural sectors’ savings on energy consumption, desalination techniques, waste-water treatment, and irrigation and so on. Solutions were in line with answering Sustainable Development Goals (SDGs) 2, 6 and 7.

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I. Introduction

1. The European Union and the Gulf Cooperation Council (EU-GCC) and the Environmental Center for Arab Towns (ECAT), in association with the UN Economic and Social Commission for Western Asia (ESCWA), the Middle Eastern Desalination Research Center (MEDRC), the Swedish International Development Cooperation Agency (Sida), and the Embassy of the Kingdom of the Netherlands, in the UAE, organized an online training webinar, on 14 October 2020 titled ‘Addressing the Water-Energy-Food (WEF) Nexus in the Context of Climate Change and Sustainable Development’ on “Vol. 1: Technology Options for the Water-Energy-Food Nexus”.
2. The main objective of the webinar was to support the development of the water-scarcity struggle within the Arab region by assessing different solutions through the WEF nexus approach, integrating energy efficiency (EE) and renewable energy (RE) technologies.
3. The webinar was attended by a variety of participants representing various local key partner organizations, government and financial institutions and relevant governmental regional organizations, national experts, representatives from private sector, NGOs, academia and local communities.
4. The webinar was divided into two sessions. Session I discussed the experiences and initiatives in the EU and beyond, and Session II summarized the technology options for the Middle East and North Africa (MENA) region.

II. RECOMMENDATIONS

5. The webinar concluded with the following recommendations:

The Water-Energy-Food (WEF) nexus implications:

- a) RE costs have been declining over the past years compared to fossil fuels.
- b) Energy efficient desalination technologies can improve the overall energy consumption.
- c) Water avoided costs must be considered with energy analysis.
- d) Investment for energy and water-efficient technologies can be facilitated by regulating tariffs.
- e) WEF indicators are vital to measure the progress with respect to the water-energy nexus.
- f) Key performance indicators (KPIs) need to be developed in line with the sustainable development goals (SDGs).
- g) The increase of coordination and collaboration between water, energy and agricultural sectors is needed.
- h) Different operational elements such as cost sharing between water and energy should be well studied to facilitate the technical cooperation between the two.
- i) Tariffs for water and electricity subsidies should be addressed.

Desalination processes:

- j) Total desalination operations emit around 120 million tons of CO₂ emissions per year. Therefore, RE technologies are crucial in the energy sector to drive the process towards a circular economy in a cleaner and more efficient manner.
- k) Power plants are a key player as well and need to be more efficient with appropriate cooling systems adapted to local water resources and climate.
- l) New hydrocarbon developments need to be carefully assessed in water-scare regions.
- m) In terms of data collection on electricity production at plant and regional level, specific water factors can be used to improve the accuracy of results.
- n) Further research on hydropower is needed with a focus on the development of shared uses allocation method with estimates of net water loss.

On agricultural sector:

- o) The main challenges can be surpassed with an increase in investment in innovative technologies for sustainable agricultural water management (AWM).
- p) Improving knowledge for better water energy and food supply sustainability is also ideal, with a participatory approach including users, planners and policymakers at all levels.

- q) Change in the way of managing agricultural water resources from a fragmented to integrated approach.

III. MAIN TOPICS OF DISCUSSIONS

6. Presentations and discussions are summarized in the following sections which are organized according to the substantive sessions of the webinar.

A. EXPERIENCES AND INITIATIVES IN THE EU AND BEYOND

7. The session opened with a presentation covering the desalination process, its objectives, main pillars, sustainability, and approach. Its implementation and link to RE technologies and the water-energy-food linkages were highlighted. Power plants were also presented, discussing contributions and improvements needed.

8. Ensuing discussions confirmed the importance of implementing RE technologies to better suit EE and emission trends and the WEF nexus approach. To this end, it was recommended that the MENA region should take advantage of the use of solar and wind resources to capitalize on the pre-existing large capacity for desalination and utilize RE not only for power generation, but throughout the value chain as well for waste-water treatment, agriculture, enhanced oil recovery (EOR) and so on.

B. TECHNOLOGY OPTIONS FOR THE MENA REGION

9. A presentation on the various environments holding water was presented. Surface and ground, nature-based solutions, wastewater, and desalination-based concepts were discussed thoroughly. The positive and negative contributions were brought up and the economic feasibility of each technique was assessed.

10. A presentation studying the agricultural sector through the lens of the nexus approach was given. The main challenges were presented as well as their potential solutions. Improvements in shared knowledge and participation amongst users, planners and policymakers at all levels were also covered alongside the scalability and economic development of deployed technologies.

11. The participants discussed and shared the same view that RE technologies should be implemented throughout water-scarce areas in the MENA region to meet the needed demands, and abide by the carbon emissions targets set.

C. CLOSING SESSION

12. The webinar sessions were closed by moderator, Mr. Omar Saif, Regional Advisor on Water-Energy-Food Nexus in the Gulf Region. The closing statement emphasized the fruitful discussions during the webinar and the intention to continue coordinating and collaborating with the represented stakeholders.

IV. ORGANIZATION OF WORK

A. DATE AND VENUE

13. The webinar was organized online on 14 October 2020.

B. OPENING

14. The webinar was formally opened by Ms. Alice Corovessi, Network and Digital Marketing Expert, EU-GCC Clean Energy Technology Network, and Mr. Mustapha Taoumi, Key Expert, Clean Energy, EU GCC CETN III.

C. PARTICIPANTS

15. The webinar was attended by a wide variety of participants representing various local key partner organizations, government and financial institutions and relevant governmental regional organizations, national experts, representatives from private sector, NGOs, academia and local communities.

D. AGENDA

16. Presentations and discussions were made over four sessions. The agenda of the webinar is summarized below:

- a) Welcome Remarks
- b) Introductory Session
- c) Session I: Experiences and initiatives in the EU and beyond
- d) Session II: Technology option for MENA region
- e) Q&A and Wrap Up

ANNEX I: AGENDA

Agenda

Welcome remarks

- Mr Frank Wouters, *Director, EU GCC Clean Energy Technology Network*
- Mr. Khalid Mohammed Badri, *Director of the Environmental Center for Arab Towns*
- Dr. Mohamed Al Rashidi, *Director of Electricity & Water Department and Acting Director of Energy at The Gulf Cooperation Council - General Secretariat*
- Ms. Roula Majdalani, *Cluster Leader, Climate Change and Natural Resources Sustainability Cluster, United Nations Economic and Social Commission for Western Asia (ESCWA)*
- Dr. Jauad El Kharraz, *Head of Research, Middle East Desalination Research Center, Oman*

Introductory session:

Moderator: Dr. Mustapha Taoumi, *Key Expert, Clean Energy, EU GCC Clean Energy Technology Network*

Keynote speakers:

- Dr. Radia Sedaoui, *Chief of the Energy Section at UN ESCWA, Lebanon*
- Marco Pastori, PhD, *External consultant at European Commission, DG JRC - Directorate D – Sustainable Resources*

Session I : Experiences and initiatives in the EU and beyond

Moderator: Marco Pastori, PhD, *External consultant at European Commission, DG JRC - Directorate D – Sustainable Resources*

Speakers:

- Dr. Guillermo Zaragoza, *Senior Researcher, CIEMAT, Plataforma Solar de Almería, Spain*
- Ms. Rocío Gonzalez Sanchez, *Scientific Officer, European Commission, Joint Research Centre, Energy, Transport and Climate - Energy efficiency and Renewables Unit, Italy*

Q&Ab Session

Break: 5 min

Session II: Technology options for MENA region

Moderator: Omar Saif, *Regional Advisor on Water-Energy-Food Nexus (Gulf Region), Embassy of the Kingdom of the Netherlands, Abu Dhabi, UAE*

Speakers:

- Mr. Walid Khoury, *Water Strategist, Dubai, UAE*
- Dr. Thameur Chaibi, *Director of Research, National Research Institute for Rural Engineering, Water, and Forestry (INRGREF). Ariana, Tunisia*

Q&A and Wrap Up of Day 1