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Online seminar

The Water-Energy-Food-Ecosystems (WEFE) Nexus:

From Research to Practice

06 – 08 December 2021

Call to researchers from the Mediterranean!

Participate in this 3-day seminar, and join us to inspire
the institutionalization of the WEFE Nexus approach

Programme

The Mediterranean region is facing a rapid increase in energy and water consumption to keep up with changing climate conditions, high population growth, and an increase in industrial and agriculture activities. The main source of water in this region is fossil groundwater and desalinated sea water. Fossil groundwater reserves are depleting rapidly due to overexploitation. This depletion is caused by irrigation practices and desalination technologies (primarily thermal desalination), which are also energy intensive and associated with large emissions of CO₂. A significant amount of water is used for food and energy production. Similarly, energy is used for extracting, collecting, pumping, transporting, treating, and desalinating water. This interdependence implies that the management of energy, water, and food production should be addressed simultaneously to increase energy efficiency in the water and agricultural sectors. This would also lead to the reduction of the water footprint in the energy and agricultural sectors without compromising ecosystems and the environment. It is important to ensure a minimum environmental flow to maintain healthy ecosystems and biodiversity.

The WEFE Nexus approach propagates a careful analysis of this interdependency and promotes synergy-building and the reduction of harmful trade-offs. In doing so, integrated and holistic approaches inherent to the WEFE Nexus offer opportunities for the transition to a green economy, as well as for the achievement of the Sustainable Development Goals (SDGs).

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PRIMA, in collaboration with GIZ, is organising an online training seminar entitled “Water-Food-Energy-Ecosystems Nexus Approach as a tool for achieving SDGs“, with the aim of strengthening capacities for WEFE Nexus solutions in the Mediterranean region. This event will be recorded.

This online training will take place on December 6-8, 2021, targeting the research community and aims to achieve the following objectives:



- **Build a common understanding of the WEFE Nexus as a key driver for a transition to a green economy and for the achievement of the SDGs**
- **Inspire more WEFE Nexus solutions as well as integrated assessment tools and methods put forward by the science and research community in the Southern Mediterranean region**
- **Discuss opportunities of regional collaboration supporting the concrete implementation of the WEFE nexus approach**

Please note that this online training will be recorded.





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Day 1:

Understanding the WEFE Nexus

10.00 – 10.30 CET | Welcome Words

- Octavi Quintana, Director of PRIMA
- Maria Ana Rodriguez, Team Leader Nexus GIZ

10.30 – 13.30 CET | Session 1 - Understanding the opportunities and challenges of the WEFE Nexus

This session provides a theoretical introduction to the concept of the Water-Energy-Food-ecosystem (WEFE) Nexus. The aim of this session is to enable participants to gain a deeper understanding of the WEF Nexus as an integrated and holistic management approach in decision-making processes within the water, energy, food, and ecosystems sectors. This session will address the following topics:

- WEFE Nexus: Analyzing the challenges and opportunities of the WEFE Nexus: Maximising synergies and minimising trade-offs
- The role of research and decision-support tools in shaping Nexus regulations and governance frameworks – a short overview
- The WEFE Nexus in practice: Overview of successful initiatives and projects in the Mediterranean region

This session will be carried out by Annika Kramer and Sabine Blumstein from adelphi

15.00 – 18.00 CET | Session 2 - Nexus Modeling: from ideas to policy makers

This session describes nexus principles starting with a resource hotspot, problem conceptualization, identification of the system, interlinkages and data. It helps identify scenarios, define an evaluation measure and sets tradeoffs analysis protocol. The workshop will provide a detailed training on the use of WEF Nexus 2.0 and how to set scenarios, compile data and run various simulations. The workshop will take the tradeoff analysis and outline steps to engage stakeholders for improved decision and policy making.

This session is carried out by Rabi Mohtar and Bassel Daher from AUB/TAMU and Jauad EIKharraz from RCREEE.

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Day 2:

Analysis and Operationalization of WEF Nexus

10.00 – 13.00 CET | Session 3 - NEXUS and Metabolic Analysis: basic concepts

The nexus entails three different challenges for its governance in three different domains: (i) in relation to the process of policy making, because of the unavoidable presence of different legitimate contrasting perspectives among the social actors and the unavoidable presence of uncertainty in models, data and predictions; (ii) in relation to the limited ability of humans to control the biophysical flows determined by processes outside human control; (iii) in relation to the inadequacy of scientific inquiry: the Cartesian dream of prediction and control based on reductionism clashes against the complexity of the nexus. New analytical tools are needed to generate a more effective characterization of the nexus.

This session is carried out by Experts Mario Giampietro and Ansel Renner, Autonomous University of Barcelona | UAB.

14.00 – 17.00 CET | Session 4 - Operationalization of WEF Nexus in agri-food systems in Egypt

Different tools can be used to investigate the WEF nexus framework, such as qualitative indicator-based methods, hydro-economic modelling, the integrated Water-Energy-Food nexus, and operational systems, and it was discovered that data availability and integration remain a significant limiting factor in quantitative assessments of the WEF nexus. As computer power, satellites, and communications technology increase, so does the ability to efficiently provide decision-makers with necessary resource management data and forecasts. To give information for enhanced management and to assess the viability of W-E-F Nexus trade-offs, new monitoring systems are required. It is necessary to provide a structured data and information service based on currently accessible technologies.

Three topics will be discussed:

- The detection of agricultural land changes using remote sensing techniques. A case study in the south of Egypt.
- Impact of Nexus practices on the sustainability of Corn and Summer Legumes Production
- Hydrology modeling for optimized cropping pattern using WEAP software

This session is conducted by Eman Hussen, Darwich Salah and Abdelazim Negm from Cairo University, Egypt.

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Day 3:

Implementation of WEF Nexus Solutions and Successful Nexus Project Proposals

10.00 – 13.00 CET Session 5 | Operationalization of the WEF Nexus: Design and implementation of Nexus solutions in the Mediterranean region

What is the best way to design Nexus solutions? How can they be implemented successfully on the ground? This session will provide an insight into how Nexus projects go from ideation to implementation, and what should realistically be expected through different stages of Nexus projects. This session will provide an insight to the operationalization of WEF Nexus by presenting the experiences from various Nexus projects that have been implemented throughout the Mediterranean region.

This session is carried out by Maria Vrachioli from Technical University of Munich ([Project SIGMA Nexus](#)), Mateo Giuliani from Polytechnic University of Milan ([Project AWESOME](#)), Floor Brouwer from LEI ([Project SIM4NEXUS](#)), and Chrysi Lapidou from University of Thessaly ([Project ARSINOE](#)).

14.00 – 17.00 CET Session 6 | How to write successful proposal for Nexus Calls

It takes more than good ideas to get funding for your research. It requires a little bit of practice and an understanding of a donor's mindset to be able to present your research idea within the framework of donor requirements and the templates of most project proposals. The goal of this session is to provide you with some tricks and tips on how to lay out the research idea within a context that proves its relevance and within a strategy that leads to success (desired impacts). This final session will provide you the awareness, skills and tools to write a well thought-out and achievable project proposal.

This session is carried out by Ali Rhouma from PRIMA.

Register for the 3-day online training here: <https://bit.ly/3CqHCGM>

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