PhD school in Water-Energy-Food-Ecosystems (WEFE) Nexus

2nd Call

The Suremap team announces the second open call to select further 11 candidates for a PhD summer school in Water-Energy-Food-Ecosystems (WEFE) Nexus, which will be held at the Sekem campus of the Heliopolis University for sustainable development from September 10 to September 24, 2022.

Location

Heliopolis University for sustainable development – Sekem Campus, Belbeis, September 10-24, 2022

The Suremap project and PhD school topics

Egypt's population is predicted to grow by 50% to 150 million in 2050, while already being challenged by the scarcity of natural resources, such as water, energy or arable land. The "Sustainable Development Strategy: Egypt's vision 2030" developed by the Egyptian Government deals with the main challenges affecting sustainable development, specifically related to the physical resources such as water, energy, land and environment. One objective of the SDS is the reclamation of 1.5 million feddan (about 750.000 hectares) of the desert to increase the agricultural land and to create investment opportunities in various fields, including the establishment of projects targeting food industries and logistics areas in addition to developing urban areas in the frame of an integrated and sustainable environment. It has been recognized that water, energy and food security cannot be considered in isolation, but their tight interconnection indicates that the management of each of them must be seen as part of an integrated system. The WEFE nexus provides an innovative framework that captures the interrelationships, synergies, and trade-offs between water, energy, and food demand (and supply) in different environmental contexts. The "Nexus" can be defined as the place where water, energy and food security intersect. It focuses on the interdependencies between these elements and provides a framework for allocating and using resources to ensure water, energy and food security for an ever-growing population at a time of climate change, land use transformation and economic diversification.

The PhD school will provide a deep understanding of the interrelationships between water, energy, food and ecosystems and how these elements influence sustainable development in Egypt. Moreover, integrated management scenarios will be analyzed to develop nexus-related solutions, which require collaboration between stakeholders from different disciplines, even to develop a common language and acquire the skills necessary to work together. The planned activities will introduce junior researchers to assess the interdependencies and interconnectedness of the nexus elements at different geographical levels (Global, Basin, National and Local).

The school will include topics related to the sustainable use and management of natural resources under present and emerging constraints, sustainable agri-food systems, food quality and value chain, as well as modern technologies applied to sustainable agricultural development. Case studies will be used to

demonstrate how the nexus approach could be implemented at different geographical levels. At the global level, the nexus helps to address global challenges such as achieving the United Nations Sustainable Development Goals (SDGs) and the goals proposed in the Paris Agreement under the United Nations Framework Convention on Climate Change. At the basin level, the nexus provides an integrated approach to the transboundary water challenges between different nations (e.g. transboundary rivers). At the national level, the nexus helps policymakers to secure any of the three most valuable resources while considering the others. At the local level, the nexus is considered from a technological perspective, such as the integration of renewable energies and water treatment/desalination for food production. Selected methods and approaches to assess the integration of different nexus elements at different levels will be covered in the school sessions. At least one case study including tools will be introduced at each level. The proposed program will train the participants for a rewarding academic career in the Egyptians Universities, as well as open up opportunities for a diverse range of careers outside of academia.

SUREMAP partners' universities

RWTH Aachen, Germany	Alexandria University, Egypt
CITY College – Sheffield University, Greece	Aswan University, Egypt
Technical University of Madrid, Spain	Heliopolis University for sustainable development, Egypt
University of Palermo, Italy	The American University in Cairo, Egypt

Admission requirements

Application is primarily allowed to PhD students, research assistants and MSc students enrolled in one of the four Egyptian universities participating in the Suremap project. Other participants, not enrolled in any of the Egyptian partners' universities, will be included in a long list and accepted in a subordinate position only if not all the available positions will be covered. Applicants are requested to fill out the provided template which reports the curriculum vitae and other information necessary for the evaluation.

Deadline for application

The deadline for application is July 31, 2022.

Selection criteria

The Egyptian partner universities will follow transparent and rigorous criteria for selecting candidates. The selection process will adhere to equal opportunity regulations, which do not discriminate on the grounds of gender, national or ethnic origin, religious affiliation, functional disability or age. The

selection will be based on the evaluation of candidates' academic qualifications and interviews. The following criteria will be addressed to evaluate the applicants and select the participants:

- English language proficiency.
- Strong communications- and interpersonal skills.
- Awareness of resource-scarcity issues in general and upcoming challenges in rural areas concerning climate change and resulting water scarcity.
- The attending trainee aims to apply or cover the workshop content topics in his/her teaching.
- Aptitude to develop new learning and teaching techniques and evaluation methods.
- Aptitude to integrate technological elements in the taught modules.
- Capacity to integrate new content and methods learned from the workshops into their teaching.
- Predisposition to share acquired new knowledge with peer colleagues through presentations and other forms of interactive sessions.
- How applicants will benefit from the school contents and how they are related to the actual activity

Priority in the selection will be given to research assistants, PhD students and, lastly, MSc students. A total of 13 participants will be selected and admitted within this call to the PhD school. The full list of candidates selected by the Egyptian partners' Universities will be approved by a committee constituted by one representative of each Egyptian partners' University and the University of Palermo. The approved rank list will be published at least 15 days before the beginning of the school.

Grant/Scholarships

According to the available budget, scholarships will be assigned based on the ranking obtained in the selection. In the case of candidates with equal positions in the list, the younger candidate will precede.