OCP Policy Center Conference series

Knowledge-Triangle Platform for the Water-Energy-Food Nexus in Egypt

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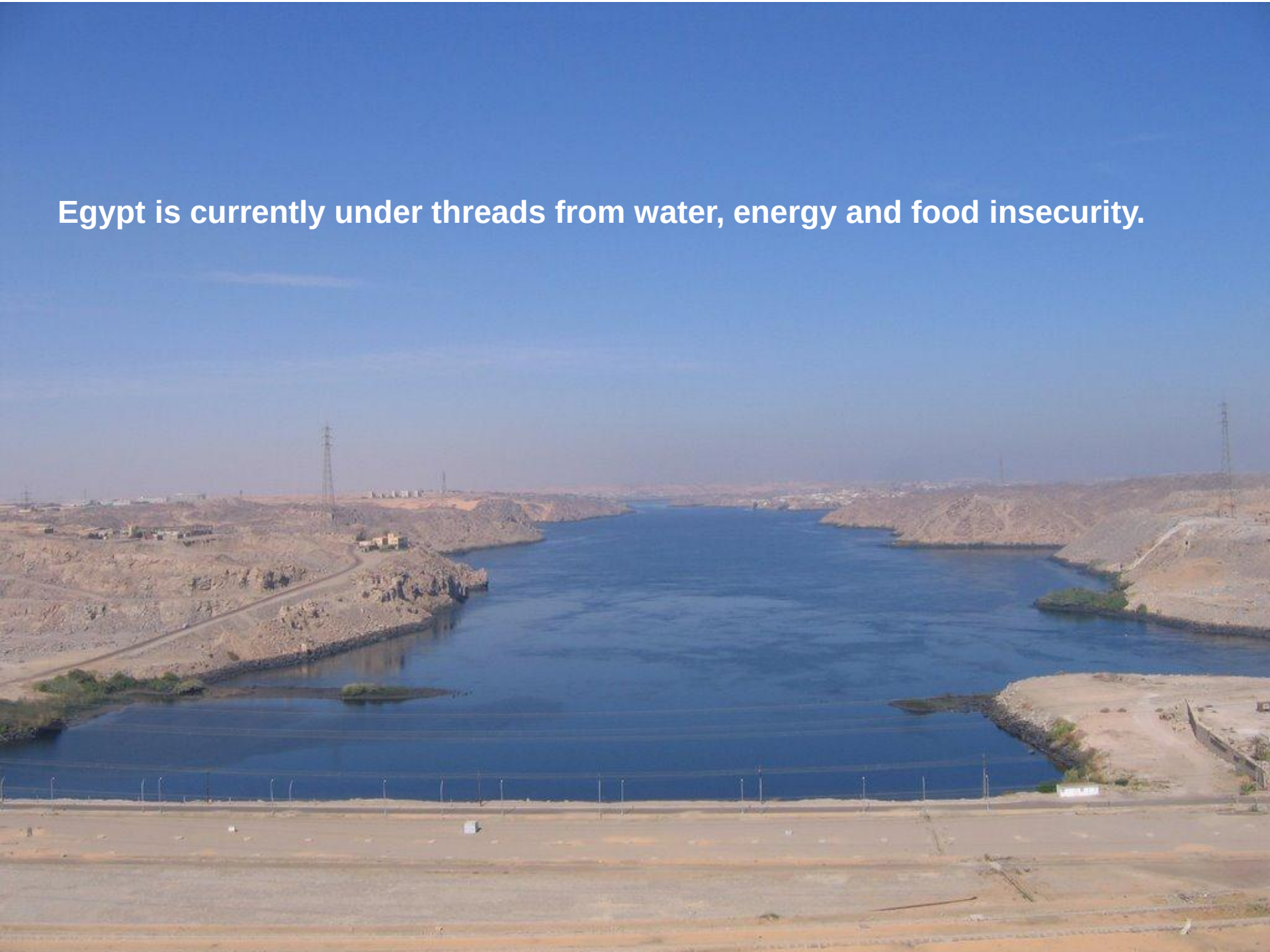
11-13 June 2014


Egypt is currently under threads from water, energy and food insecurity.

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for the Water-Energy-Food Nexus

Context Analysis

Water scarcity

- The **Nile River** supplies **95 %** of the country's total water usage.
- Egypt is dependent on **rain** in other countries to support its rapidly growing population and development.
- Rising populations and economic development in the countries of the Nile Basin are **decreasing the amount of available fresh water**.
- Per capita water share is expected to decline from a current level of 900m^3 to about 670 m^3 in 2017.

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Context Analysis

Energy insecurity

- Originally an exporter of oil and gas, Egypt has today some difficulties in meeting the **domestic energy demand**.
- **Gas consumption** has been doubled over the last decades and the **total fossil fuels consumption** has risen by about one-third covering in 2010 over the **95%** of the primary energy supply.
- **Egyptian National Plan 2012-2017**: the energy mix and efficiency improvement is necessary to mitigate depletion of national reserves and economic affordability of the supply.

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Context Analysis

Food insecurity

- Egypt is threatened by limited water resources and shrinking arable land.
- **Extreme land deterioration**, due to the loss of vegetation and soil moisture, is reducing the area available for cropping.
- **Desertification** is taking place on either side of the Nile River, a major agricultural zone, as the Eastern and Western Deserts encroach inward.
- Around **15 million Egyptians** are considered vulnerable to food insecurity, particularly if government **food subsidies** are removed (The Future of Food and Water Security in New Egypt, 2012).

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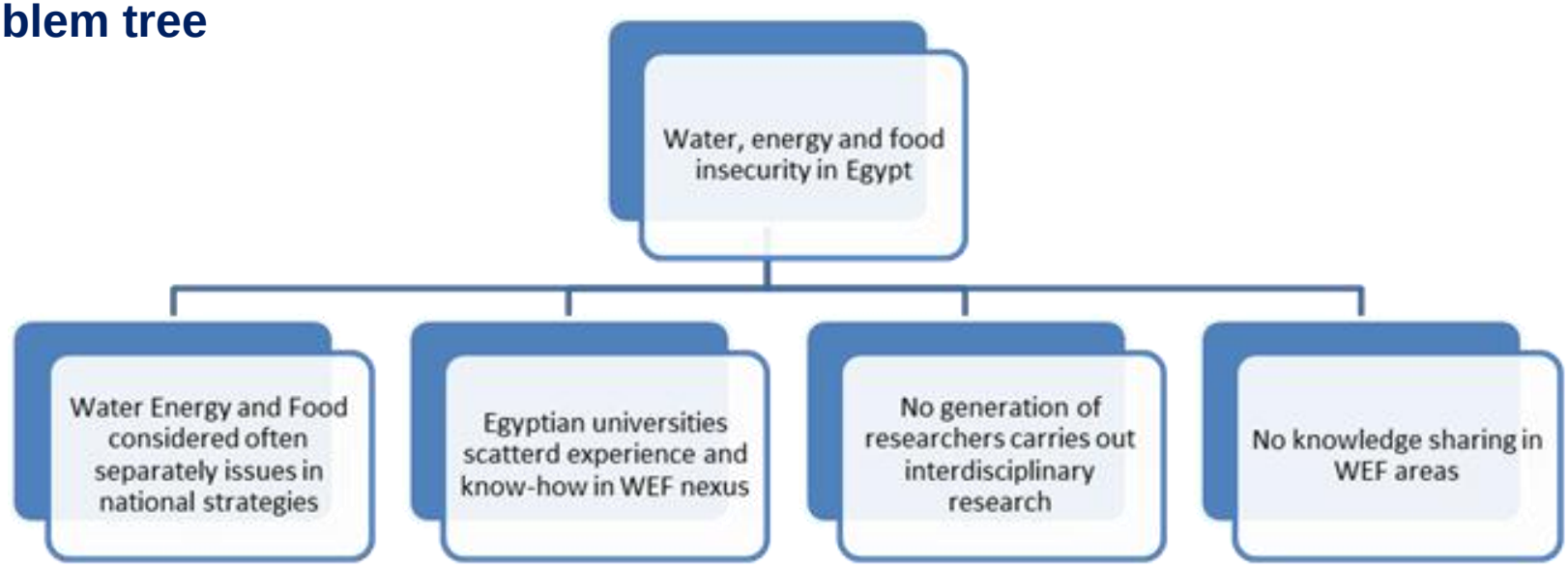
TriNex Project

Problem tree



General objective

To make Water, Energy and Food Nexus the **next research, education and innovation frontier** for **sustainable resource management and development** within the framework of green economy in Egypt.

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Objectives

TriNex Project

Knowledge Triangle for the Water-Energy-Food Nexus (TriNex)

Objective 1

National Strategy & Platform:

Improve the role of universities in the Egyptian society by developing a national strategy & platform to improve the synergy between Research, Education and Innovation (Knowledge-Triangle) in the Water-Energy-Food Nexus (WEF-Nexus).

Objective 2

WEF-Nexus Coordination Bodies:

Strengthen the knowledge-triangle activities dealing with WEF-Nexus across the university and beyond through establishing 4 coordination bodies inside involved universities.

Objective 3

WEF Training Program:

Creating a qualified generation of WEF junior researchers and enable them to cooperate across their universities

Objective 4

PhD Summer Schools:

Developing Euro-Egyptian mechanism to strengthen the cooperation in the WEF-Nexus between junior researchers through long-term PhD summer schools.

Objective 5

Knowledge-Sharing System:

Developing an online knowledge-sharing system to facilitate the cooperation among the European and Egyptian Universities.

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TriNex Project

Partners

Politecnico di Milano (Italy)

RWTH Aachen (Germany)

TU Graz (Austria)

SupAgro (France)

The American University in Cairo (Egypt)

Cairo University (Egypt)

Alexandria University (Egypt)

Bibliotheca Alexandrina (Egypt)

Heliopolis University (Egypt)

EU Tempus grant

€ 978,357

Duration

December 2013 – December 2016

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The WEF Nexus

In a world where the gap between what our planet can provide and what we need is slowly shrinking, the unique approach of the WEF Nexus offers an innovative approach to this challenge.

The Water-Energy-Food Nexus addresses the core issues that we face in the coming decades and, by recognising their interrelatedness, seeks to find new and innovative solutions therein.

For Egypt the problems are direr than in many other places. A shrinking water supply, insufficient energy production, and a rapidly growing population all weigh heavily on Egypt's future. New ideas are needed, and it is through the lens of the WEF Nexus that solutions shall be found.

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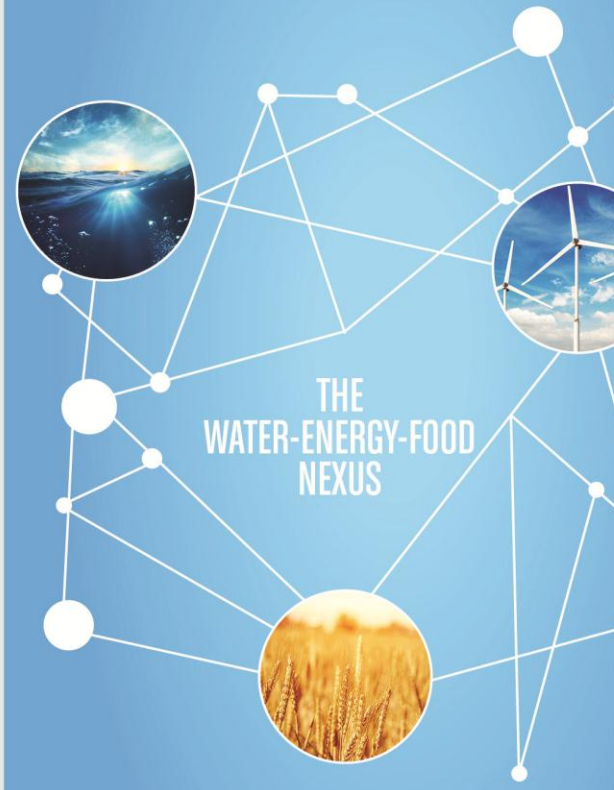

THE WATER-ENERGY-FOOD NEXUS

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TriNex

The need for new and innovative ideas will be crucial to the success of any such project, and TriNex will accordingly be implemented by four European and four Egyptian universities, working together to train a new generation of interdisciplinary researchers equipped to deal with the problems Egypt faces.
Over a period of 36 months, the relevant bodies will be created within these universities, the researchers recruited and trained by the notable European partners, and an online knowledge-sharing system produced to ensure the free flow of information between these institutes.
Once complete, the project's outcome will be permanent centres of knowledge and research that will contribute to Egyptian society's long term well-being.

Partners

Four The project partners are all universities with a strong background in both research and the relevant fields - making each contribution invaluable to the progression of the project.
of the universities are in Europe - the other four are in Egypt. While the Egyptian universities will handle the project's immediate environment, the European institutes shall provide their invaluable expertise and experience, especially in terms of training the researchers. The partners are as follows:

Politecnico di Milano (Unesco Chair "Energy for Sustainable Development", Italy)

RWTH Aachen University (Unesco Chair "Hydrological Change and Water Resource Management", Germany)

Graz University of Technology (Austria)

Montpellier SupAgro (Unesco Chair "World Food Systems", France)

Alexandria University (Egypt)

Cairo University (Egypt)

Heliopolis University for Sustainable Development (Egypt)

The American University in Cairo (Egypt)

Activities and Events

TriNex Best Paper Award

Researchers will submit their work on the WEF Nexus. Winning students will receive support from the partners and participate in the WEF training programme. Furthermore, their work will be presented to the media and authorities.

WEF Best Practice Action Campaign

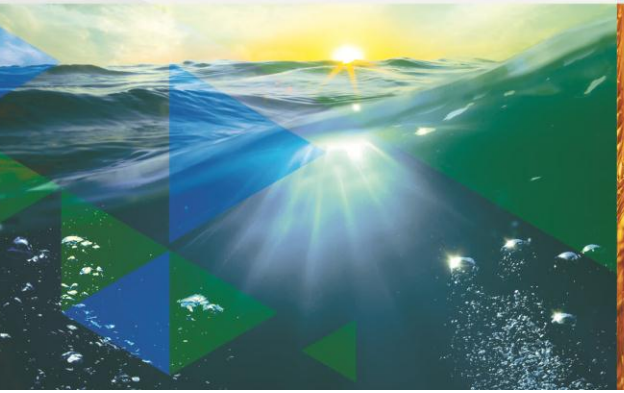
With the involvement of academics, researchers, and industries, models wherein WEF has been integrated will be presented, with particular focus on industries. Good examples will be highlighted and encouraged.

Desalination Action Campaign

A campaign of Alexandria-based conferences and workshops involving researchers, professors, and engineers on the topic of contemporary seawater desalination practices.

Community Awareness Campaign for Solar Applications

PhD and graduate students will chart solar energy-oriented solutions for Egypt. The outcome of this research will be disseminated and communities invited to a public presentation.



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Thank you

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