



Thinking, rethinking and optimizing the relationship between energy production and storage, water management and food is becoming a challenge in the Middle East and North Africa. A region of the world where climate change will increasingly impact water resources and where temperatures will be incompatible with agriculture. In order to ensure the food security of populations, should we not stimulate innovation and cooperation in order to generalize best practices in the Mediterranean?

At a time when the threshold of 8 billion inhabitants has just been crossed, the question arises of the food security of the populations, in particular in the countries of the Middle East and North Africa (MENA) marked by episodes of intense drought.

This region concentrates 63% of the world's population with only 2% of drinking water, 80% of the fresh water consumed being imported. Water stress is worsening as global warming raises the question of the proper use of water. The economic losses linked to the lack of water will represent between 6 and 14% of the GDP in 2050. [1]

Agriculture in these countries consumes between 65 and 86% of water compared to only 59% in Europe[2]. While water is a key resource for energy production (hydroelectric dams), a quarter of the energy is used to produce food.

The integrated water-energy-food (WEF) approach has many benefits in terms of the emergence of a resilient agricultural policy. It will also stimulate innovation, cooperation and technology transfer in the region.

In order to support this strategy, the [WEF-CAP](#) project (Technology Transfer and Capitalization of Water Energy Food Nexus), in which Femise is a partner, aims to strengthen a regional metacluster in order to build a strategy around a common vision. In this sense, the WEF-CAP project advocates an integrated approach to water, food and energy issues and aims in particular to identify and replicate best practices through a territorial approach (international, regional, cross-border and national), by analyzing the level of technological maturity and the impact of the scientific community on the dissemination of information.

[1] World Bank. 2017, "Beyond Scarcity: Water Security in the Middle East and North Africa MENA Development Report. The World Bank Group. Washington, D.C

[2] Ganoulis, Jacques. 2021, FEMISE MED BRIEF no. 31: "Resilient Mediterranean Agriculture in the context of Water Scarcity under Climate Change". pp. 1-10

Societal adaptation to climate change

According to [Femise](#)[3], societal and economic challenges could benefit from effective regional cooperation: “Regional cooperation is becoming a necessity, particularly between Research and NGOs. We must help entrepreneurs in the region to develop ideas and improve the legal framework relating to the use of natural resources while strengthening collaboration between ministries and national agencies”

Each country must find solutions adapted to the context. Paradoxically, some states, like Algeria, characterized by abundant gas and electricity resources, are forced to import agri-food goods and large quantities of cereals.

Admittedly, a few rare initiatives are emerging, some of which relate to the use of recycled wastewater intended to improve yields. A drop of water in an ocean... knowing that 82% of wastewater is not recycled in the region.

The integrated approach to efficient use of water and energy resources will contribute to food security through the development of smart agriculture and the contribution of solution providers. At the government level, an evolution of the legal framework to optimize management in a context of scarce resources is recommended, as well as the improvement of collaboration and communication between ministries. With the now inevitable rise in temperatures, it will be necessary to show inventiveness and resilience to build an ecosystem with neighboring countries. Societal adaptation to climate change in the European Union and Mediterranean partners countries is becoming an imperative necessity.

- This article is based on the [WEF-CAP](#) policy Brief No. 1 entitled: WATER-ENERGY-FOOD NEXUS: The Way Forward for the Mediterranean Region in the Face of Insecurities. Link to the Policy Brief: <https://www.femise.org/en/non-classe-en/wef-cap-policy-brief-no-1-water-energy-food-nexus-the-way-forward-for-the-mediterranean-region-in-the-face-of-insecurities/>
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