

# The Role of the Water-Energy-Food Nexus in Implementing the Sustainable Development Goals in Morocco

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## Abstract

In September 2015, world leaders committed to working towards a list of seventeen Sustainable Development Goals (SDGs) as part of a 2030 sustainable development agenda. Under each of the Goals is a list of quantifiable targets to be achieved in the coming 15 year term. As the international community works toward achieving this agenda, there are risks of potential competition between specific targets which could cause unintended consequences and further challenges to the progress of the Goals. These issues become particularly complex while focusing on the three highly interconnected Water, Energy, and Food Goals (2, 6, and 7). A strategy in one, has direct effects on the others. While it is important that we work toward achieving the 17 Goals, it is as important that we understand the level of interconnectedness and potential competition between them.

In this study, a quantitative methodology and tool highlighting the trade-offs among different pathways associated with achieving the set of targets under SDGs 2, 6, and 7 will be presented. The State of Morocco will be used as a pilot demonstration case study. Morocco has recently announced several national plans for better management of its water, energy, and food systems. That comes with increasing stresses of rapidly growing populations and cities, climate change, and booming industrial sector, particularly its phosphate industry.

This study will specifically: 1. Demonstrate how the SDGs 2, 6, and 7 with their respective targets are interconnected; 2. Present a preliminary pilot platform to assess the impact of the water targets on the food and energy targets in Morocco; 3. Explore possible trade-offs for implementing different levels of the proposed water, energy, and food national plans; 4. Propose interventions within the three national plans (social, policy, technical), at different scales, which have the potential of reducing the existing competition and ensure a more sustainable resource allocation.

Different scenarios of population growth and climate change with different levels of progress toward the three SDGs will be assessed. This will be done by with the developed innovative water-energy-food nexus framework and tool specific to Morocco. Recommendations for integrative planning across different resource systems, governed by multi-stakeholders will be presented.