



Delivering Food and Water Security in a Middle East in Flux: Transferable Lessons for Jordan and Palestine

Goal: New knowledge on how to achieve sustainable agricultural and water sectors balances food and water security and promotes regional development.

Duration: January 2016 - December 2017

Situation Analysis: The Middle East is among the most water scarce regions in the world. While agriculture consumes the majority of water resources, the sector contributes only marginally to GDP (<5%, OECD 2010). At the same time these states battle high unemployment and poor competitiveness in the global economy. Population growth will only exacerbate these trends in years to come; moreover, WANA (2015) has linked food-water insecurity with increased risk of conflict. These countries must find ways to enhance productivity and simultaneously address resource insecurity and environmental decline. The favoured path is to move labour away from inefficient agricultural production, modify crop composition and mainstream water-saving

production methods. Other country contexts that share a similar geography, have managed to increase agricultural production while reducing pressure on water resources through modifications to agricultural composition and practices. This research will explore the scope for Jordan and Palestine to employ similar strategies to restructure their agricultural sectors to accommodate growth without degrading water resources. By examining the utility of agricultural production vis-à-vis water use, food security and growth, the study will articulate potential improved agricultural production levels, composition and key technologies. Focus areas will include an evaluation of blue (irrigation) to green (rain-fed) water production, irrigation of treated waste water and climate resilient crops as reduced-water avenues to agricultural expansion. It will also examine the political and economic pathways and institutional underpinnings to facilitate such change and deliver improvements in both socio-economic and environmental outputs.



Research components

New knowledge on how to achieve sustainable agricultural and water sectors balances food and water security and promotes regional development

The project will develop the idea of decoupling (advanced by UNEP, 2011, 2012) in a way that recognises the specifics of water resources management in the Middle East, particularly the importance of strategies that target local/national (rather than global) water and food security. Critically, the research will exemplify a pathway to translate a water-specific decoupling theory into policy. By analysing economic and population growth trends, FAO food balance sheets, and 'water footprint' data (Mekonnen and Hoekstra, 2011; Shtull-Trauring, 2015, and OECD, 2010), it will identify where changes in agricultural production, production techniques and import choice can reduce pressure on fresh water resources. It will also highlight which crops and agricultural practices could be usefully targeted for efficiency improvements based on global and regional comparisons, providing a policy pathway for analysis.

Having analyzed water and agricultural data sets for Jordan and Palestine, a wider qualitative policy analysis will be carried out to illuminate the socio-economic and geopolitical trade-offs necessary to achieve the recommended changes. A key area of investigation will be the risk ensembles of vulnerability to global food prices and supply versus the risks of water insecurity, unsustainable agriculture and economic activity, extending the application of 'risk based' water management (Sadoff et al., 2015) to a political-economic analysis. Finally, the research will investigate the viability of extending the decoupling model to other MENA economies as a means of enhancing broader water security and food productivity.

Activities	Objectives	Indicators
<ul style="list-style-type: none"> Assess agricultural practices, technologies and policies Identify policy recommendations to support transition towards water-'light' sectors Develop the theory and application of water resource decoupling and food-water modeling 	<ul style="list-style-type: none"> Two policy reports covering regional geopolitical and economic lessons An evidence-based assessment of ideal agricultural production levels and water allocation Articulation of a pathway and rationale to regional water- and food security for Jordan and Palestine 	<ul style="list-style-type: none"> Findings promote a better understanding of the risks of current production patterns under future population scenarios, facilitating the roll out of controlled adjustment strategies Evidence informs planning and policy on food-water security, raising agricultural productivity and promoting livelihoods sustainability Findings foster requisite political will to reform of the agriculture economy and alleviate water shortages