

Water Scarcity Management in the MENA Region from a Globalization Perspective

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ABSTRACT *In the perspective of globalization, the Middle East and North Africa countries must revise soundly their irrigation strategies, pay more attention to virtual water trade and resolve problems of transboundary water resource management, if they want to maintain an irrigation sector able to secure a minimum food security.*

KEYWORDS *MENA region; irrigation; virtual water trade; transboundary water*

Introduction

Water resources development and management in the Middle East and North Africa (MENA) region have been driven by the highly specific characteristics of climate, geography and the resource itself.¹ This article focuses on major weakness from which the MENA agriculture economy suffers. Specifically, other things held constant, irrigation cost differential allows the humid latitude economies, especially in the North, to produce crops at a cost lower than that in the arid and semi-arid MENA region. Consequently, when artificial trade barriers are lifted according to the World Trade Organization, the MENA agriculture will lose its already modest and declining share in international, as well as the local markets. As a way out, the article calls upon the MENA region to restructure its agriculture economy, pay attention to virtual water and resolve problems of transboundary water resource management.

Redefinition of the irrigation strategy

The irrigation sector, which contributes to the stabilization and the regulation of a highly variable and fragile agriculture in the MENA countries, requires nowadays a sound redesign and a radical redefinition of its strategy to be able to tackle the huge challenges that threaten the viability of the region. The following emerging constraints must be explicitly integrated in the new strategy:

- The increasing international competition in a changing world where globalization is taking place.
- The exponentially growing costs of the new water resources mobilization.

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- The reallocation of the resource to nonagricultural sectors (residential, commercial, industrial, environmental, etc.), which have higher economic yield.

A conception of a strategy that promotes a sustainable irrigation sector must take care of:

- The comparative advantages of certain irrigated crops in the region (biological products, early fruits and vegetables, specific crops, etc.).
- The promotion of new irrigation techniques and new management instruments (decentralization, participatory allocation and the rehabilitation of the traditional techniques).
- The imagination and the implementation of better commercial techniques inside as well as in international transactions.

Virtual water trade

Allan (2003) defines virtual water trade as the 'water imported in terms of products, especially wheat, that have been produced with water farming sector in United States and Europe'. With globalization and the lift of artificial trade barriers, water-short countries in the MENA region have no option other than compensating water scarcity with virtual water import. Models indicate that the effects of trade reforms are larger than those of water reforms and that agricultural water reform is likely to bring benefits only if undertaken after trade distortions are removed. A study in Morocco used a general equilibrium model to estimate the relative effects of broad trade reforms (removing all tariffs on imports of agricultural and nonagricultural commodities) on water reforms (creating a system of tradeable water rights and reforming agricultural water pricing) (Roe *et al.*, 2005). The study found that trade had a higher impact on gross domestic product and wages than did water reform. Because most MENA countries protect cereal production, they inadvertently encourage large volumes of water to be used for low-value production. One model indicates that if Morocco determined to limit wheat imports to the 2.1 million tons imported in 2003, it would have to almost double water diversions

between 1995 and 2025 for the country to have enough to meet domestic demand.

In MENA, trade with Europe is particularly important because the European Union (EU) absorbs over half the region's agricultural exports. Over the past few decades, markets in the EU have been expanding, as higher incomes and changing lifestyles raised demand for Mediterranean fruit and vegetables. During that period, MENA countries gradually received more favourable access to EU markets (Cioffi and dell'Aquila, 2004).

MENA countries have strong advantages in certain products, particularly during the winter months. Fruits and vegetables offer higher returns to land and water than field crops such as the cereals that have historically dominated MENA agriculture. We also note that those high-value export crops generate more employment than do traditional crops such as cereals.

Economic models suggest that, if farmers take advantage of progressive trade liberalization, the rural economy will be transformed. Trade liberalization is crucial for cushioning MENA countries' food production as their per capita water availability declines. It is also vital for moving toward higher-value agriculture. Therefore, measures that enhance trade at all levels will be important. Such measures would be important under any conditions but become even more important in the dynamic, integrated world markets that now prevail. Terms of trade are likely to change, often in unpredictable ways, with changes in energy prices, climate change, rising demand from countries such as China and India, global security and other factors. This dynamism puts an even higher premium on flexible, competitive systems of agricultural production, trade and market access.

Managing transboundary waters for human development

Transboundary waters are critical to human development in MENA region, simply because some 60 percent of MENA's surface water is shared across international boundaries. MENA has the world's highest dependency on international water bodies. In addition, some of the world's major international aquifers characterize the

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region. Countries with a sizeable share of their water resources coming from other countries include Egypt, Iraq and Syria. These countries are affected by decisions made upstream or elsewhere in the aquifer. Therefore, international agreements on water allocation are crucial (Jägerskog and Phillips, 2006).

The MENA region has a striking absence of inclusive and comprehensive international water agreements on its most significant transboundary watercourses. While some sort of arrangements concerning transboundary waters exist for the Helmand, the Jordan, the Kuraaraks, the Nahr El Kebir, the Nile and the Tigris-Euphrates basins, these arrangements are generally not inclusive in their scope and do not deal with optimization or planning, nor do they have at their core established principles of international water law, such as equitable and reasonable utilization and the obligation not to cause significant harm. This is in contrast to other regions where international relations have evolved to a point that initiatives to establish formal, inclusive legal frameworks can be articulated.

The lack of international agreements reflects in large part the weak political and multilateral engagement among the countries sharing the water. In the absence of agreements to allocate water, unilateral actions are perfectly rational. Most countries plan large water-related investments at the national level. The countries that have had the financing available to make these investments are, to a large extent, the countries that have had stronger economies and greater political and military clout. Outdated or unrealistic policies of food self-sufficiency continue to drive these investments in the MENA region.

Most of the published literature on transboundary waters in the MENA region addresses trans-

boundary rivers. However, transboundary groundwater is also a significant issue. The shared aquifers of the region include the Nubian Sandstone Aquifer (Chad, Egypt, Libya and Sudan), the North Western Sahara Aquifer System (Algeria, Libya and Tunisia), the Mountain Aquifer (Israel and West Bank), Disi Aquifer (Jordan and Saudi Arabia), Rum-Saq Aquifer (Jordan and Saudi Arabia), the Great Oriental Erq Aquifer (Algeria and Tunisia) and Al-Kabeer Al-Janoubi (Lebanon and Syria). While some form of project-related arrangements exist on a number of these aquifers (including the Nubian Sandstone and the North Western Sahara Aquifer System), they deal largely with monitoring and exchange of information established under external project support. None of the transboundary aquifers in the MENA region is managed and exploited under a multicountry cooperative framework. The absence of such frameworks has further intensified the drive by the countries most economically able and politically powerful to exploit these finite water resources, establishing 'facts on the ground'.

In the MENA region, some promising initiatives are under way to develop cooperative agreements for international surface and groundwater bodies. Engaging at a national level in agreements about transboundary waters not only helps manage the water but can also lead to broader benefits for all parties.

Changes in international relations can have knock-on effects on domestic water management. As cooperation opportunities begin to take root, the political relationship between countries tends to ease up, thereby opening more opportunities for trade, efficient investment and reduced uncertainty about supplies.

Note

1 In this paper, the MENA region consists of Algeria, Bahrain, Djibouti, Egypt, the Islamic Republic of Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, the Syrian Arab Republic, Tunisia, the United Arab Emirates, West Bank and Gaza and Yemen.

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