



IWMI
in
MENA
MIDDLE EAST AND NORTH AFRICA



A water-secure world



CONFRONTING SEVERE WATER STRESS

For centuries, the control and delivery of water has shaped states and economies across the Middle East and North Africa (MENA) region. In the 20th century, infrastructure development tamed key river systems and led to huge expansion in irrigation, as population nearly quadrupled. More recently, MENA has experienced severe water stress against a background of recurring droughts and worsening environmental degradation, rapid urbanization and persistent food insecurity, compounded by conflict and civil unrest, giving rise to mass migration.

In Jordan, for example, climate change and the refugee crisis have reduced water availability per person to 140 cubic meters (far below the globally recognized threshold of 500 cubic meters for severe water scarcity), mirroring conditions elsewhere in the region. Despite important advances in water management, MENA is thus becoming a hotspot of unsustainable water use, and in some countries, withdrawals per capita per annum are already twice the available resources.

Drawing on the best global and national expertise, the region must urgently develop innovative technical and business solutions for improved water management and water security, which is central for rapid progress toward the Sustainable Development Goals (SDGs). Large-scale uptake of these solutions requires major changes in water policy and practice.

In support of these efforts, the International Water Management Institute (IWMI) conducts research for development in MENA and helps build the capacity of water professionals and leaders. Our researchers work with national colleagues through an expanding portfolio of projects to develop integrated solutions for sustainable management

of water and land resources, with the aims of achieving water and food security, enhancing rural livelihoods and building resilience in the face of climate change.

Our work in the region is sharply focused on agricultural water productivity, water management and governance, and the water-energy-food nexus, including wastewater reuse.

**A HOTSPOT OF
UNSUSTAINABLE
WATER USE**

**MORE THAN
60%
OF MENA'S
POPULATION
is concentrated in
places suffering from
HIGH OR VERY HIGH
SURFACE
WATER STRESS**

(Source: World Bank)



AGRICULTURAL WATER PRODUCTIVITY

IWMI's research helps boost water and crop productivity by enhancing the effectiveness of irrigation systems and introducing other changes that lay the foundations for sustainable agricultural intensification. In Lebanon, for example, our researchers are strengthening local capacity to increase water productivity and crop yields in rainfed and irrigated systems through improved timing of water application in irrigation schemes,

and better planning of cropping cycles in rainfed areas. In Jordan, IWMI is designing and implementing a water-use monitoring system, while strengthening the capacity of national institutions to monitor water savings and undertake water accounting. **Building on successes in Asia, where changes in policies and incentives have improved water use on a large scale, our work on improved water productivity in MENA will result in more "income per drop."**

WATER MANAGEMENT AND GOVERNANCE

IWMI researchers are working on several fronts to help achieve effective and equitable water governance and management.

Water accounting – Accurate water accounting is vital for understanding hydrological processes, managing water flows and informing dialogue about water. For this reason, various organizations, including IWMI as well as the Food and Agriculture Organization of the United Nations (FAO), other UN agencies, IHE Delft and the Australian government have joined forces to develop standard frameworks for water accounting. **MENA can benefit richly from this collective effort to create an independent, international and scientifically sound water accounting system, which helps improve water management, allocate water equitably between sectors and users, and boost agricultural yields and water productivity.**

Transboundary water management – Since about 65% of MENA's population relies on surface water originating outside the region, collective and integrated approaches to sharing transboundary natural resources are crucial. Such approaches

will gain importance in the near future, as a result of worsening water scarcity, climate change and variability, and continuing population increase. **IWMI has a strong track record in addressing transboundary water issues through the Transboundary Waters Initiative, which draws on experience from more than 10 major basins around the world.**

Groundwater governance – Overexploitation of groundwater has reached crisis proportions across the MENA region. In search of solutions, IWMI has focused on the crucial issues of governance and policy. Our researchers have supported multi-stakeholder platforms and dialogues at the local, national, and regional levels to facilitate the sharing of ideas and solutions. Given the strategic importance of groundwater for future water security, this work must continue, with emphasis on participatory mechanisms for ensuring sustainable groundwater use. **Techniques for managed aquifer recharge, which IWMI has developed and tested in sub-Saharan Africa and Asia, could help MENA achieve sustainable groundwater use.**



THE WATER – ENERGY – FOOD NEXUS

To help achieve address multiple SDGs related to water, food and energy as well as climate change, IWMI promotes a variety of integrated solutions, two of which show particular promise for MENA

Solar-powered irrigation – Building on a large body of work with sustainable business models for solar-powered irrigation in India, Ethiopia and Ghana, IWMI can deliver solutions for MENA that enhance rural livelihoods based on sustainable groundwater use. Taking into account natural resource requirements as well as the economic and social context, the business models offer inclusive opportunities to boost rural incomes. **IWMI researchers have devised a suitability mapping tool to guide planning and investment in solar-powered irrigation, which has significant potential to benefit isolated, off-grid populations, including migrants, through projects such as Egypt’s 1.5 Million Feddans initiative.**

Wastewater reuse – The growing volume of municipal wastewater produced in MENA represents a serious threat to environmental and human health but also an opportunity to combat water scarcity and pollution at the same time. Emerging successes within and beyond the region demonstrate that water and nutrients can be safely recovered and reused for multiple purposes, such as forestry, agriculture, landscaping and aquifer recharge. Building on two decades of research and capitalizing on experiences from around the world, **IWMI has embarked on a new initiative with partners in Lebanon, Jordan and Egypt, supported by the Swedish International Development Cooperation Agency (Sida), to formulate plans and boost capacities for safe reuse of wastewater.**

IWMI AND MENA’S DEVELOPMENT AGENDA

IWMI is expanding its research across the MENA region, while cultivating strong national and international partnerships, with the aim of providing evidence-based solutions to sustainably manage water and land resources for food security, people’s livelihoods and the environment.

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