



Water and Livelihoods Initiative (WLI) Middle East and North Africa (MENA)

Improving Rural Livelihoods through Sustainable Water and Land-use Management in the MENA Region: Egypt, Iraq, Jordan, Lebanon, Palestine, Syria, Tunisia, and Yemen



Newsletter

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The goal of WLI is to develop and pilot test integrated water, land-use and livelihood strategies which will improve rural livelihoods in areas where water scarcity, land degradation, water quality deterioration, food security and health problems are prevalent in eight participating countries including Egypt, Iraq, Jordan, Lebanon, Palestine, Syria, Tunisia, and Yemen. The main objective is to develop and pilot test integrated water and land management strategies.

WLI's work is aligned with United States Agency for International Development's (USAID) recently launched *Water and Development Strategy* for 2013-2018 (http://www.usaid.gov/sites/default/files/documents/1865/USAID_Water_Strategy_3.pdf) which focuses on improving overall water management and increasing water use efficiency. This newsletter provides a glimpse into the progress made by WLI partners during the period April-June 2013.

During the quarter, WLI stepped up its role as a regional research platform by promoting collaborative research on water and land management strategies at selected benchmark sites by collaborative research teams involving National Agricultural Research and Extension teams in Egypt, Jordan, Lebanon, Palestine, and Tunisia, together with international partners including ICARDA, the International Water Management Institute (IWMI), United States Department of Agriculture –Agricultural Research Services (USDA-ARS), University of Florida (UF), and Texas A&M University (TAMU), the University at Urbana Champaign (UI-UC) and other US University Partners.

WLI's regional socio-economic thematic research group and regional water use efficiency thematic research group were active during a regional methodological workshop on *Livelihood Analysis and Economics of Water Management*, held on 16-18 June 2013 in Amman, Jordan (see information at: http://temp.icarda.org/WLI/news_30.html). The WLI regional thematic research group on modeling made preparations for a regional knowledge exchange on decision-support tools and models. The workshop is scheduled to take place in Tunisia during 23-27 September, 2013.

WLI teams from Egypt, Lebanon, Palestine, and Yemen visited the benchmark site in Jordan during the "Regional Methodological Workshop on Livelihood Analysis and Economics of Water Management" and learned more about the potential of the Soil and Water Assessment Tool (SWAT) to assess effects on runoff, soil erosion and groundwater recharge. Eng. Lubna's presentation on modeling the impacts of water harvesting using SWAT can be accessed through: <http://swat.tamu.edu/media/77367/b32-al-mahasneh.pdf>

Regional discussions of opportunities to improve the scientific basis for decision-making on water management with USAID Office of Middle East Programs (OMEP), Modeling and Monitoring Agriculture and Water Resources (MAWRED), and International Center for Biosaline Agriculture (ICBA) also accelerated.

WLI contributed a publication to UNESCO's book "Free Flow" for the International Year of Water Cooperation 2013. Drafts for two working papers for the WLI publication series and two Technical Notes were circulated amongst regional partners and will be available soon through the WLI website.

Strategies, tools and mechanism for integrating management of land and water

Over 17 water and land management technologies were under pilot testing during this period spanning over 700 ha of land (see reporting of technologies, hectares and numbers of farmers using them in quarterly report (http://temp.icarda.org/WLI/reports_QuarterlyReports.html)). Efforts to identify potential impacts of the strategies continued with particular focus on physical, social, financial, human and natural capitals.

Expansions in scope of research included addition of new crop varieties in Iraq, introduction of small scale water harvesting structures including najarims and half-circles in Lebanon, and experimentation on new forage varieties with high concentration of lipid in Yemen. WLI team in Yemen is finalizing a proposal for MEPI grants to build the capacity of women in management and entrepreneurial skills.

Out-scaling proven successful strategies progressed at varying speeds and intensities. In Jordan the team identified and completed bio-physical characterization of nine outscaling sites located in Al Karak, Al Khanasser and Sabha to disseminate water harvesting technologies for marabs. Discussions for expansion also began in Lebanon, led by the American University of Beirut (AUB). In Iraq the team expanded its research scope to include additional crop varieties and new technologies focusing on forage crops and livestock increasing total land under improved technology by 1.5 ha.

Enhancing Knowledge, Skills and Qualifications

Activities targeted farmers, national research institutions, and graduate students. At the farm level 16 Iraqi women were trained on how to use protected agriculture and improve water productivity, 21 Jordanian women were equipped with essential business management skills, 11 men were trained in installing and using sub-surface irrigation, 57 farmers were trained in various water harvesting and soil conservation practices.

6 members of Jordan's National Center for Agricultural Research and Extension (NCARE) were trained to use Global Earth and Vegmeasure to measure vegetation coverage through collaborative work between Oregon State University and ICARDA. 3 members of the WLI team in Palestine also received an introductory training on SWAT modeling facilitated by TAMU and ICARDA.

Graduate students from TAMU and Jordan University explored potential areas of collaboration between each other and ICARDA to use SWAT models and Soil-Landscape Estimation and Evaluation Program (SLEEP) to conduct research in the Badia. PhD students in Syria continued their research on *water accounting* and *strategies of water resource management* focusing on the downstream of the Orontes River Basin. A graduate student from Lebanese University was selected to characterize the production system in the benchmark site, including agricultural value chains, marketing and post-harvesting strategies. Data collection for the study will begin in July 2013.

Partnering national research centers in Egypt, Iraq, Jordan, Syria, and Yemen submitted research publications to national and international peer-reviewed journals (see details in quarterly report).

Improving livelihoods of rural households

In order to develop a comparison of household-level benefits from different available irrigation management practices and livelihood strategies, the WLI teams focused on assessing on gross margins per hectare under different cropping patterns

and water management systems. As an example, the WLI Yemen team developed a comparison of gross margins generated through traditional spate-irrigated production of sesame, groundnut and cotton to those achievable with groundwater irrigated horticultural crops such as tomatoes and banana, demonstrated that the latter were more profitable on a per hectare basis.

In Egypt, relationships between observed variations in water delivery to different parts of the irrigation system, crop choices, and income levels were studied through ongoing data collection and analysis in both the Old and New Lands. Similarly, an ex-ante impact analysis was conducted by the WLI team in Palestine to assess the potential economic benefits of adopting new drought resistant varieties of wheat and barley in conjunction with simple water harvesting technologies.

A Study on Livelihoods of Rural Households in Ghab Region of Hama province was completed by the WLI team in Syria. Among the challenges identified in the sector were high costs of agricultural inputs, land fragmentation and degradation. The study recommends increased focus on promoting alternative income generating opportunities, and increasing women's role in the sector.

Over the coming months, WLI team in Jordan will explore alternative livelihood options for the community and study farmer's willingness-to-pay to adopt new technologies within the framework of existing policies on water and land management in the Badia.

Upcoming Events

WLI IWLM Decision Support Knowledge Exchange Workshop: 23-27 September, 2013, Djerba, Tunisia.

WLI 6th Annual Coordination and Steering Committee Meetings. Amman, Jordan. *Actual dates to be announced soon.*

A new Journal on **Water Resources & Rural Development**, published by Elsevier, has issued two calls for papers. For more information please visit:

<http://www.journals.elsevier.com/water-resources-and-rural-development/call-for-papers/hydropower-livelihoods-benefit-sharing-innovations/>

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For contact details of team leaders in each participating country, see the WLI website:

<http://temp.icarda.org/WLI/wli-partners.html>.