



Majdiyya Watershed Restoration Pilot Project

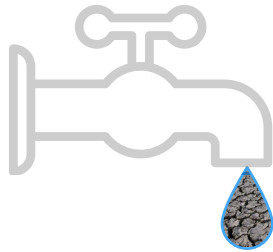
Investing in communities & landscapes for improved water security in Jordan

The Achievement

Restoration partners demonstrate successful proof of concept for upscaling and replicating landscape-level water conservation techniques. Pilot results show a significant amount of rainwater captured and stored underground after only one year of intervention and one year of data.

Storing water underground is a sustainable and efficient approach for long-term water security and will help Jordan diversify its reliance on expensive surface water storage that evaporates rapidly.

The Need



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By 2025 water demand in Jordan will exceed sustainable resources by 26 percent.

—Estimate by the Jordan Ministry of Water and Irrigation

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Jordan could be one of the first countries to run out of water ... a grave threat to national security.

—Newsweek

Jordan’s water resources are diminishing and water scarcity is a growing concern. The country has experienced rapid population growth and an influx of refugees. Aquifers are declining due to excessive groundwater use. Climate change is exacerbating the problem.

Successfully addressing these challenges will require major infrastructure projects coupled with a shift in actions at the community level across the country. The current focus is on “downstream” solutions – expensive infrastructure like desalination, wastewater treatment, and pipelines totaling \$7 billion over the next 10 years.

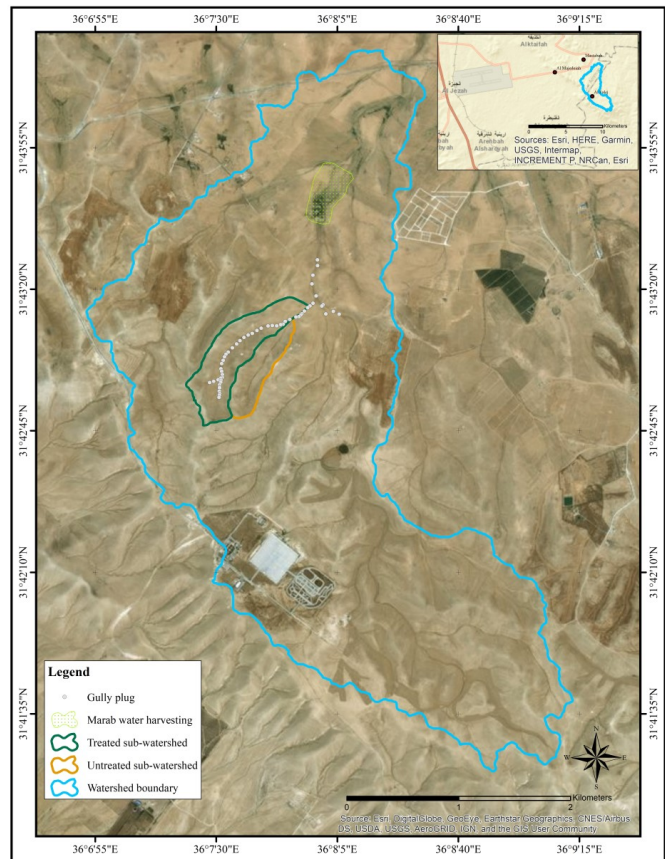
Jordan also needs “upstream” solutions, landscape-level water conservation projects that complement infrastructure solutions and restore functioning ecosystems. The Majdiyya Watershed Restoration Pilot Project is an example of a viable upscale solution.

Restoration Details

The U.S. Forest Service and International Center for Agricultural Research in the Dry Areas (ICARDA) established the Maidiyya pilot site on a 953 acre watershed near Jordan's international airport. The landscape there is typical of Jordan, an arid rangeland that has suffered substantial degradation from overgrazing and low-beneficial barley agriculture.

The site consists of a treated sub-watershed of 32 hectares (green outline) and an untreated watershed of 15 acres (orange outline). Within the treated sub-watershed, USFS and ICARDA employed restoration methods to increase soil moisture, promote groundwater recharge and increase biomass across the landscape.

USFS and ICARDA scientists developed a gross water balance calculation to estimate water trapped in the basins from rainfall events in the 2017-2018 rainy season. They found that **4% of the seasonal rainfall was deeply percolated into the soil and was likely conveyed to the aquifer.** The proportion of rainfall deeply percolating will change overtime, but restored watersheds will more often capture rainfall and allow it to infiltrate.



The Majdiyya Pilot Site, located to the East of Jordan's international airport in Al Jizah.

Successes

The project used healthy native seedlings to stabilize hill slopes and reduce gullies. It utilized innovative planting practices to improve the survivability of seedlings. In the downstream portion of the watershed, USFS, ICARDA, and the Jordan NGO WADI worked with the local community to implement a holistic soil and water conservation treatment. The treatment utilizes water spreading dikes, revegetation, intermittent contour plowing and gully restoration to restore soil and water processes across the landscape over the long-term.

RESTORATION TECHNIQUES



80% survival rate for native seedlings

INSTITUTIONAL CAPACITY BUILDING



8 institutions with increased capacity to manage natural resources

COMMUNITY COHESION



Participatory development of watershed & grazing management plans

CITIZEN SCIENTISTS



Community participation in measuring & monitoring rainfall events & biodiversity