Obtaining agro-hydrological datasets in the marginal drylands of Jordan: two-sided lesson shared by scientists and farmers

Stefan Strohmeier (1), Joren Verbist (2), Mira Haddad (1)

1) International Center for Agricultural Research in the Dry Areas (ICARDA), Beirut, Lebanon
2) Wageningen University, Utrecht, The Netherlands

Abstract

Explicit feedback on the tediously applied intervention's effectiveness is key for the prove of concept, fine-tuning and out-scaling of agricultural technologies around the globe. Obtaining sound datasets can be complex; that's undoubtedly true in the remote drylands of Jordan.

A recently conducted initiative aims at investigating the rural watershed rehabilitation interventions in Jordan's dry agro-pastoral areas, the so called Badia, where Bedouin tribes used to commute. A combination of locally confined high-yield agricultural operations with traditional and nature-based solutions in the watershed's uplands are among the most robust and promising technologies. However, concise data acquisition and interpretation using e.g. WOCAT methodology require both i) state of the art assessment, to stand the required standards for verification and publication, and ii) applicability and management through the local communities. Sometimes it even requires a mix of those: advanced monitoring conducted by the local communities, as the sole option for on-site verification of processes easily biased or miss-interpreted. In a holistic monitoring approach various robust and high-tech assessment methods of soil, water and plant dynamic processes have been merged to eventually feed into WOCAT datasheets for documentation towards potential out-scaling. Automated Time Domain Reflectometry (TDR) soil moisture sensing was linked to vegetation growth, recruitment and grazing management, pursued by local herders. Young scientists and students from Utrecht University (The Netherlands) and Tottori University (Japan) interacted closely with the local community for two sided learning and monitoring. Research student from Wageningen University (The Netherlands) supported the process to increase awareness of methods for better data access and availability, which will loop back for expanding Sustainable Land Management measures in the region. Adaptive approaches to overcome current COVID-19 constraints were deployed favouring digital dialogues. Virtual exchanges helped to assess various limitations and suggestions to upgrade agricultural technologies databases.