THE LAND POTENTIAL KNOWLEDGE SYSTEM (LANDPKS) INCREASING LAND PRODUCTIVITY AND RESILIENCE

J. E. Herrick[1], K.C. Urama[2], J. Boos[3], J. Karl[1], C. Kosnik[3]
[1]United Stated Department of Agriculture (USDA-ARS),
[2]African Technology Policy Studies Network (ATPS)
[3]United States Agency for International Development (USAID)

Africa must significantly increase agricultural production to meet the needs of a growing population. Current efforts focus on intensifying production on currently used lands and expanding to un- or under-utilized lands. The success of both strategies requires understanding the land's potential productivity, and its resilience: its ability to resist or recover from degradation. Both potential productivity and resilience can vary widely across areas from less than a hectare to thousands of square kilometers, depending on soils, topography and climate. An understanding of land potential is therefore needed by governments for land use planning and climate change adaptation, and for negotiating land contracts that will ensure that a nation's productive capacity will be maintained. It is needed by national extension and international development organizations to target their investments. Finally, this understanding is needed by individual farmers to determine how to best feed their children today, while ensuring that future generations will also be able to feed themselves.

Much of the necessary information and knowledge to understand land potential already exists in the scientific literature and as local knowledge, but is often not accessible or easily integrated and shared. Where the information and knowledge are accessible, the types of land to which they are relevant is often unclear. In some cases,.the most similar soil and climate conditions (and therefore the best places to look for successful management strategies) may exist within a country, while in others the closest analogy may be on a different continent.

The USDA and ATPS have established a partnership to develop a Land-Potential Knowledge System (LandPKS) with initial support from USAID, following on an ongoing ATPS social innovation project supported by the Rockefeller Foundation. The LandPKS will use mobile phone technologies and web-based knowledge engine to allow policymakers and land managers to share and access the most current information and knowledge for their specific type of land. A secondary function of this system will be to directly connect farmers, including women, with nearby farmers who have developed innovative strategies that they have tested on the same type of land. It will also increase the value and efficiency of existing agricultural extension workers by providing them with the tools and information necessary to communicate more specific and timely recommendations to particular groups of farmers (e.g., providing information on drought management specifically to those farmers with soils that are the most sensitive to drought).

Following the development of the knowledge engine and mobile phone applications (2013), LandPKS will be piloted in Kenya and Namibia (2014). These countries were selected because they include a broad range of biophysical conditions (soils and climate), large areas that are currently undergoing different types of land use change, a diversity of land ownership systems (communal, private and public), and very different levels of local knowledge, and management objectives, including both agricultural production and biodiversity conservation. Beginning in 2015, we expect to make LandPKS globally available. LandPKS is being designed to complement and increase the value of the work of a large number of other projects and initiatives, including AfSIS, and we look forward to developing new partnerships as the system evolves. Like many other social innovations, the development and implementation process will rely strongly on partnerships as the benefits of participating in the system are expected to vastly exceed adoption costs for both individuals and organizations.

Keywords: Land potential knowledge system, Resilience, Land information, Innovative strategies, USDA, ATPS