WORKSHOP REPORT

Capacity Building for Extension Agents and Technical Advisors on the Use of Landinfo Mobile App Technology for Agricultural Production

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Introduction

The African Technology Policy Studies Network (ATPS) organized two capacity building workshops for field staff from the Fiber Crop Directorate of the Kenya’s Agriculture, Fisheries and Food Authority (AFFA) in Kisumu, Kisumu County and Kabarnet in Baringo County from 8-11 September, 2015. The one and half day workshops brought together technical advisors and extension agents of the Directorate to learn and experience the new LandInfo app and its application for generating information and knowledge on land potential to support farm decision-making and land use planning for agricultural production and climate change resilience. Each workshop was attended by 10 participants from the respective counties. This is part of an ongoing training of 100 Extension Agents in 10 counties in Kenya being implemented by the ATPS under the auspices of AFFA.

The aim of the workshop was to build the capacity of extension agents and technical advisors through the provision of a new and innovative tool that will assist in generating valuable soil and climate information to support decision-making concerning land use and management practices such as farming, pasture, and restoration. Development/ Extension agents represent a very important link for the dissemination of technologies to farmers/pastoralists and therefore serve as an entry point for the application of LandInfo app in the farmers’ field or pasture land.

The specific objectives of the capacity building workshop were:

- To train participants on underlying principles that inform LandInfo app by introducing them to knowledge on biophysical characteristics of soils, vegetation and the concept of land potential
- To take participants through step by step process of how LandInfo functions, its components and characteristics
- To undertake a participatory field demonstration of LandInfo app with participants to test soils at a selected site

Background to the Workshop

The increasingly complex challenges of urbanization, land degradation and climate change that confront agricultural land in Africa have prompted stakeholders to rethink current land use mechanisms, and devise innovative measures that optimize agricultural productivity and sustainable land management practices. In this era, access to accurate, robust, and timely information and knowledge of land potential will prove to be highly valuable in supporting farm decision-making and land use planning for agricultural production and climate change adaptation.

Fortunately, advances in technological application are paving the way for the development of new innovative tools for inventory, assessment and monitoring, sustainable land use planning, and connecting people across the globe. In this light, the African Technology Policy Studies Network in collaboration with our partners the United States Department for Agriculture (USDA) among others have developed an innovative mobile phone application called the LandInfo that allows individuals and organizations to use a mobile phone to determine land potential at a specific location based on local and global knowledge and information. The LandInfo app makes soil and site characterization fast and easy. Tapping into recent advances in cloud computing to take advantage of information and knowledge provided by the users and available through global knowledge- and data-bases, the LandInfo app allows users to enter point-specific
information about soil texture, topography and easily observable soil properties and in turn obtain site-
specific data including temperature, rainfall, estimated amount of water the soil can store for plants, and
growing season length within about 5 minutes of data upload. It also provides free cloud storage and
sharing platform for all users to access data from any computer as soon as uploads are completed. A
shared knowledge and understanding of land potential by governments, farmers, pastoralists, and
development workers through application of the LandInfo app for decision making has the capacity to
sustainably increase agricultural production and pastureland restoration.

The LandInfo app is a product of the Land Potential Knowledge System (LandPKS) project that designed
to directly support land management decisions by farmers, ranchers, and pastoralists; inform land
planning and investments in land management by governments, non-governmental and overseas
development assistant organizations. The overall goal of the project is to globalize knowledge by
collecting, sharing and integrating local and scientific knowledge about the potential productivity and
resilience in order to support long-term sustainable land productivity.

Expectations of Participants

Participants outlined their expectations from the capacity building workshop which included:

- Knowledge about soils, soil types and factors the influence soils and agricultural production
- Knowledge of the use of the LandInfo App to determine soil quality
- Understanding how the LandInfo App can assist farmers in making informed decisions
- Knowledge of the capacity of the LandInfo App to determine lab soil chemical analysis
- Understand how the LandInfo App can be used to increase soil and crop productivity
- Understand how the LandInfo App function to generate information to assist farmers
- Use the training workshop to establish networks and contacts with other participants
- Understand how to apply the LandInfo App in conducting soil test in the field

Training Approach

The workshop combined participatory, interactive and field demonstration approaches to engage
participants in order to attain absolute exposition of the LandPKS components, functions and application
on the field.

On day One of the training, participants had a very good insight about both the theoretical insights that
informs the LandInfo app as well as gained practical experience. Participants were also taken through a
step-by-step guide into the app, its functions and application.

On day Two, participants had the opportunity to demonstrate their knowledge of the LandInfo app on the
field. During the on-site demonstration, participants had firsthand interaction with the LandInfo app
which is available on Google Play of android based mobile phones. Participants had the opportunity to go
through the LandInfo app step by step, to data on site observation of the land cover and use, slope, slope
shape, soil erosion, runoff and soil conditions. Field Demonstration entailed the excavation of soil (up to
1 meter depth) to allow for the description of surface and subsurface texture. This activity allowed participants to identify the type of soils at each layer through soil texture analysis. At the end of the demonstration, participants gained understanding and knowledge on how to use the LandInfo app to obtain data and take genuine and evidence based farm and pasture decisions to increase agricultural productivity especially in the face of climate change and environmental challenges.

**Outcomes**

A discussion during the closing session revealed that:

- Participants have deepened their knowledge of biophysical characteristics of soils, vegetation and land potentials
- Participants have gained knowledge on the LandInfo mobile app operation and its application on the field
- The training workshop has provided participants with an opportunity to broaden options with regards to decisions on interventions and management of agricultural lands.
- Participants have gained insight into the capabilities and limitations of the LandInfo app
- Participants have contributed to the future development of the LandInfo app by providing valuable feedbacks

**Feedbacks**

Participants concluded that the training was good and relevant to their day to day professional activities. However they were of the view that, there is a need for a quick guide which will assist technical advisors during their training and interpretation of outputs from the LandInfo app to farmers. From their field of operation, participants were also keen on the capacity of future updated LandInfo app to provide information on the ecological requirements of various crops, including fibre crops. This would provide information on the suitability of the various crops at the touch of a button which any literate farmer would use.
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| 1.    | To train participants on underlying principles that inform LandInfo app by introducing them to knowledge on biophysical characteristics of soils, vegetation and the concept of land potential | Training of participants on underlying principles of LandInfo app, knowledge on biophysical characteristics of soils, vegetation | Classroom     | • Deepened knowledge of biophysical characteristics of soils, vegetation and land potentials  
• Insight into LandInfo app capabilities and limitations | Day One  |
| 2.    | To take participants through step by step process of how LandInfo functions, its components and characteristics | LandInfo training                                                       | Classroom     | • Gained knowledge on the LandInfo mobile app operation and its application on the field  
• Ability to take decision farm/pasture/land use | Day One  |
| 3.    | To undertake a participatory field demonstration of LandPKS app with participants at a selected site | Field demonstration and testing of LandPKS app                           | Field         | • Widened options with regards to decisions on interventions and management of agricultural lands  
• Contribution to future app development by providing valuable feedbacks | Day Two  |
Photos of the LandInfo Training Sessions

LandInfo App Training Session in Kisumu

Participants at the LandInfo Training Session in Kisumu
Field Demonstration of LandInfo App Use in Kisumu

Participants at the LandInfo Training Session in Kabarnet
Field Demonstration of LandInfo App Use in Kabarnet
Participants testing the LandInfo App in Kabarnet