Land Potential Knowledge System: Sharing Local and Scientific Knowledge to Increase Land Productivity and Resilience

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1. Rationale

In Africa, continued agricultural growth due to land expansion rather than increase productivity, has led to many challenges including a rapidly growing population, land degradation, soil erosion, declining soil fertility and climate change.

Available land must produce more food and pasture to meet the growing demand while preserving the available resources.

LandPKS is a suite of integrated, modular apps connected to cloud-based analytics and user-accessible cloud storage that will allow users to access, share and interpret global knowledge and information relevant to the unique potential of each piece of land.

3. Approach

Land PKS considers the potential of the land based on climate, soils, and topography to support agricultural production, biodiversity conservation and other ecosystem services, and its ability to be degraded resistant and resilient.

2. Objectives

- Co-develop the LandPKS Knowledge engine and Android based data collection tools together with selected developers.
- Develop tools that will provide an estimate of the best use of the land productivity optimizing for both agricultural/livelihood production.
- Build capacity of stakeholders in understanding the Land Potential and in future, provide sustainable land management options.
- Connect users around the globe and allow them to share knowledge on working sustainable land management.

4. Data Sources

- SRTM 30m Elevation data
- NCEP (National Centre for Environmental Prediction) Reanalysis Wind Data
- Harmonised World Soil Database and AFIS soil database
- Climate - SLATE 100 year weather dataset, CRU and AGMERRA
- GAEZ (FAO) soil and productivity datasets
- AFIS / ISRIC Soil grids

5. Outcomes/Anticipated Impacts

Successful implementation of the project will lead to:

- Improved capacity of the ministries of agriculture and extension workers, stakeholders, farmers and other agriculturalists to better predict the productivity and resilience of land to promote sustainable and optimum methods of land use and better land management practices.
- Improved cooperation among extension workers and communities resulting in their ability to better address culturally-specific land management concerns.
- Improved capacity to identify sites for prioritization and monitoring of restoration for forage production, habitat suitability, settlement location resulting in sustainable land management practices and realization of the land potential hence better results.

7. Project Partners

- Food & Agriculture Organization (FAO)
- International Livestock Research Institute (ILRI)
- National Commission for Knowledge and Use of Biodiversity (CONABIO)
- Natural Resource Conservation Service (USDA-NRCS)
- New Mexico State University
- United Nations Convention to Combat Desertification (UNCCD)
- World Agroforestry Centre (ICRAF)
- World Overview of Conservation Approaches and Technologies (WOCAT)
- Mercy Corps

8. Project End Users

- Agricultural and rangeland management sectors and extension workers
- Scientists
- Ministries of Agriculture, environment, lands and resettlement
- Civil societies and NGO field officers engaged in conservation efforts
- Institutions of Higher Learning
- Students and Researchers

6. Results

LandPKS results include two mobile applications, a data portal and a data visualization tool.

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