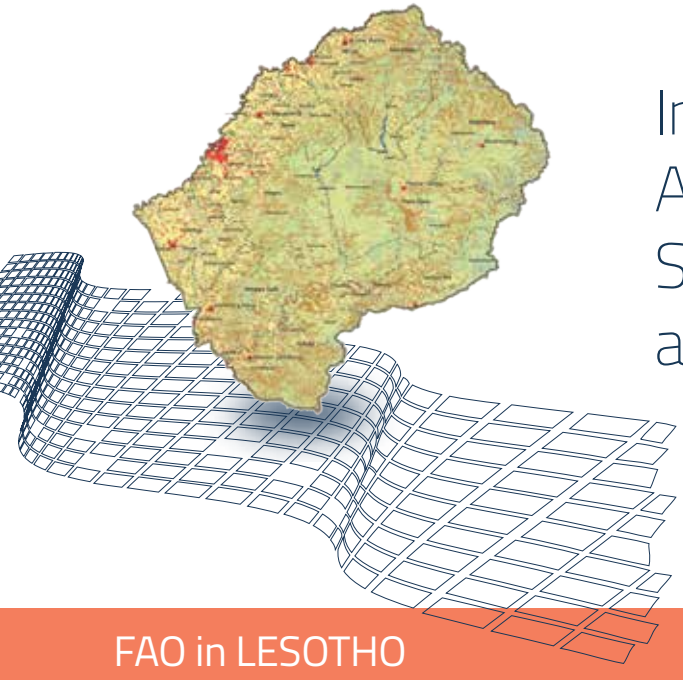
Food and Agriculture Organization of the United Nations



Improve **LESOTHO** AGRICULTURAL MONITORING SYSTEMS using Geospatial and GIS technologies

FAO in LESOTHO

FAO's assistance in Lesotho is based on four strategic priorities:

1. Sustainable food and nutrition security.
2. Enabling environment for sustainable agribusiness.
3. Sustainable management of natural resources with focus on:
   - decrease land degradation;
   - sustainable utilization of natural resources.
4. Improved agricultural service delivery, particularly with a view to improving farming communities' access to agricultural advisory services.

High resolution Land Cover Database and Atlas

FAO and Government of Lesotho have successfully developed the Land Cover database in the framework of the FAO Resilience Strategy Programme. LCDB provide a robust baseline of the current state of land cover, and support diverse range of applications:

- Agriculture monitoring. trend analysis assessment and agriculture statistics generation.
- Disaster Risk assessment like Land Degradation and Erosion Risk.
- Monitoring and trend analysis of the Land Cover Change over time.
- Baseline for Agro-Ecological Zoning assessment and development of a Land Resources Information System.
- Above-ground Biomass assessment and change, etc.

The project

IMPACT

National agriculture monitoring and production system are strengthened and Government adopts improved strategies for increasing and diversifying production potentials.

GOAL

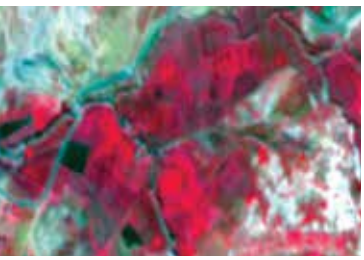
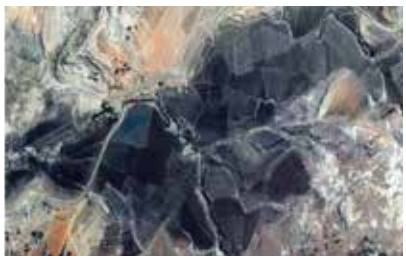
Establish an improved and operational agriculture monitoring system based on sustainable methods, tools and technology that improve the quality of agriculture information and reporting based on the integral use of geospatial technology.

OBJECTIVES

1. Develop an enhanced and operational agriculture monitoring system.
2. Identify state of the art methods and strategy for acreage and yield estimation optimized through the use of remote sensing.
3. Improve agriculture information and reporting approach at provincial/local level.
4. Enable national institutions working with agriculture to collect near-real time crop field information and use it operationally for the monitoring.
5. Enhance the capacity at national and provincial levels and transfer and exchange of knowledges and development solution on agriculture monitoring through South to South Cooperation.

OUTCOME

Established national and operational agriculture monitoring system that improves quality of agriculture information and reporting based on geospatial technology.

Outputs

OUTPUT 1

Innovative, up to date and complementary agriculture monitoring systems enabling the integration of satellite remotely-sensed data are developed. The baseline of current approaches, gaps and limitations of current procedures are established.

OUTPUT 2

Crop area and yield estimated through integration of remote sensing, GIS and sampling in the field. Sustainable methods and tools for crop area and yield estimation are identified and developed.

OUTPUT 3

Provincial crop reporting capabilities to provide crop area and yield estimations to the public through regular and timely market-oriented reports are improved;

OUTPUT 4

Capacity development through transfer of relevant methods, good practices and learning materials and, exchange of development solution through South to South Cooperation on agriculture monitoring optimized by use of geospatial technology are achieved.

Strategy

Evaluate the agriculture monitoring methodology existing in the country, with focus on the Ministry of Agriculture at central and provincial level. Identify the main sustainable methods and tools.

Validate the field data collection methodologies. Generate crop mask and crop area estimation based on recent satellite imagery and the new medium/high resolution land cover map. Identify areas for improvement.

improve area and yield forecasting, crop monitoring and estimation, data collection, analysis and dissemination systems (based on advanced approaches, technology and integral use of remote-sensed data).

integrate more fully the use of remotely sensed data into the provincial agriculture and statistics offices with focus on agriculture statistics generation.

Grow provincial/local capacity in agriculture monitoring and ground data collection for improved crop estimates.

Results

1. The baseline of current approaches, gaps and limitations of current AM procedures within the Ministry of Agriculture and Food Security (MAFS) established.

2. The main sustainable methods and tools, and areas for improvement are identified.

3. The traditional list frame sample designs versus area frame sample designs in the Lesotho contest are evaluated and the most appropriate type of area frame identified.

4. Crop area and yield production for country major crops for 2017 are estimated.

5. MAFS enabled and capable to collect near real time crop field information and use it operationally for the monitoring.

6. Crop masks for some crops based on multi-temporal satellite imagery (e.g Sentinel 2) and LCDB developed.

7. The provincial capacity for improved crop estimates, forecasting and reporting are enhanced and the use of remotely sensed data are fully integrated into the provincial crop reporting services.

8. Regularly scheduled series of actionable crop production reports developed by the provincial agriculture offices that fully utilize area-yield survey data, along with remotely sensed information.

9. National capacities enhanced, and guidelines, methodological documents, learning/training materials developed

I7226EN/1/05.17