



Food and Agriculture Organization
of the United Nations



IMPROVED AGRICULTURAL MONITORING SYSTEMS THROUGH SATELLITE IMAGERY FOR IRAN

THE PROJECT: focal points

1. IMPACT

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

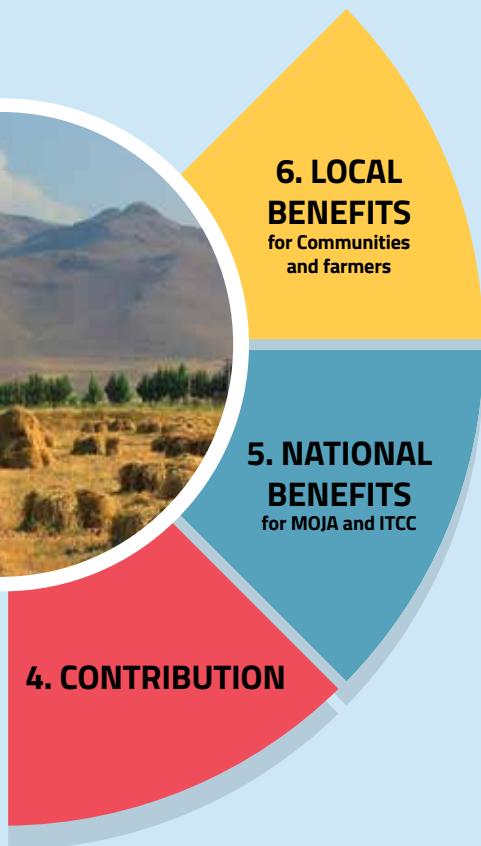
2. GOAL

Establish an operational Agriculture Monitoring System based on sustainable methods, tools and technology, that improves the quality of agriculture information and reporting based on the integral use of geospatial technology.

3. OBJECTIVES

- Develop a demonstrator agriculture monitoring system.
- Identify methods for acreage and yield estimation optimized by remote sensing.
- Testing/monitoring crops as a demonstrator for a larger project.
- Improve agriculture information and reporting procedures.
- Enable MOJA to collect real time crop field information to use it for the monitoring.
- Exchange of knowledge and development of advanced solutions for agricultural monitoring through South/South Cooperation.





6. LOCAL BENEFITS

- Economic benefits and improvement of the production.
- Strengthened capability of agriculture monitoring approaches.
- Linkage to provincial and farmer level users.
- Warnings related to agriculture, water, drought management.
- Improved forecasts and estimates of crop yields methodologies.

5. NATIONAL BENEFITS

- Enhancement sustainable agriculture methods through integrated use of geospatial technology.
- Assessment of an agriculture statistic data collection country-wide system.
- Integration of remotely sensed data into the national/provincial agriculture offices.
- Improvement of the crop forecasting and reporting capabilities (regularly scheduled crop production reports, bulletins etc).
- Provision of satellite-based estimates of area of crops, vegetation indices and natural resources status.

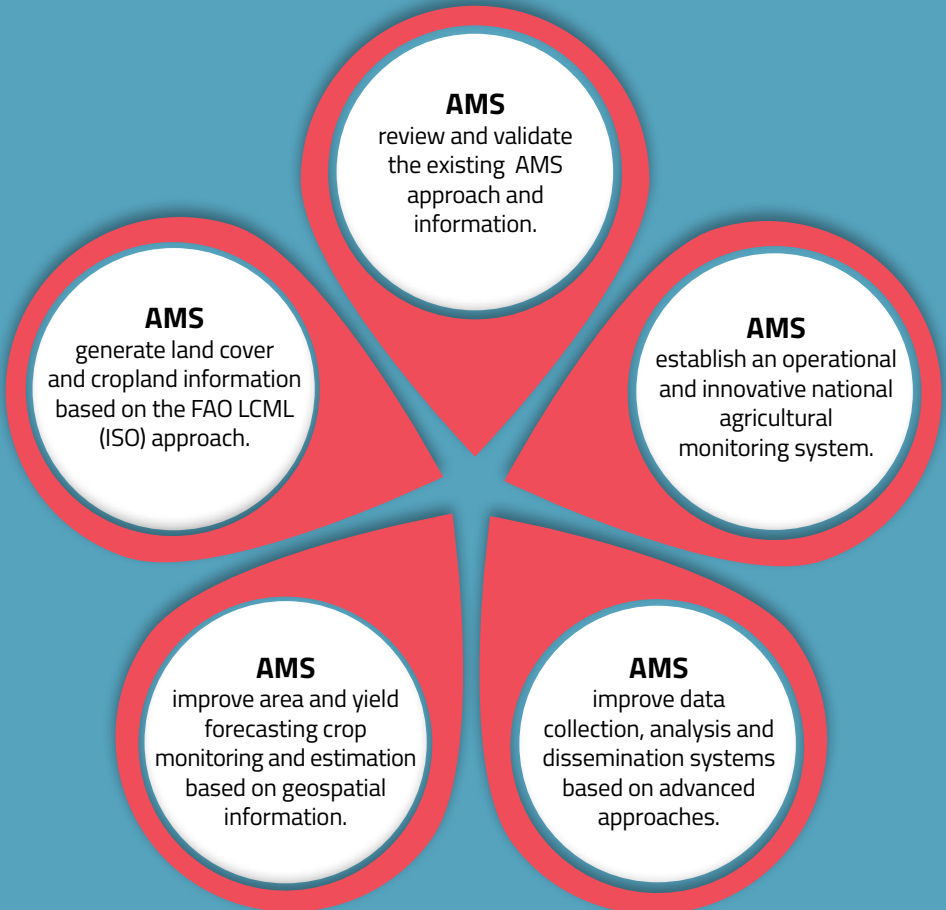
4. CONTRIBUTION

- To the Country Programing Framework (CPF) - Government priority1: Environmental Sustainability of Agricultural and Rural Development Management Practices is ensured.
- To the MOJA ongoing key priorities related to agriculture monitoring.
- To improve the agriculture production and economic benefits.
- To support the progress of techniques, policy and investments.



AGRICULTURE MONITORING SYSTEMS (AMS)

GOAL: Establish an operational national agricultural monitoring system based on sustainable methods, tools, geospatial technology and in situ data.



All kinds of available existing agriculture, geographic and administrative information on crops (estimates of acreage of main crops in the area, ground data of the previous years, cropping calendars, satellite data, etc.) will be collected and validated. The project will focus on rice productivity assessment and crop area estimation based on recent high resolution geospatial information (e.g. Sentinel-1&2).



CROP AREA AND YIELD ESTIMATION

GOAL: Identify state of the art methods, and suggest improvements for moving forward to improve national forecasts and estimates of crop yields.

KEY APPROACH:

01

Identify sites for crop cutting, crop area and yield estimation through sampling in the field.

02

Generate crop area and yield estimation for the selected sites, based on geospatial information (e.g. Sentinel 1 and 2).

03

Validate the existing crop production information through remote sensing indicators and identify the main seasonal crop dynamics.

04

Develop crop masks for some major crops and selected sites based on multiseriessatellite imagery - as a demonstrator for a larger UTF.

05

Develop an efficient and low cost stratification for application within an area frame for improved agricultural estimate.

06

Propose a cost-effective methodology for estimating the area under major crops at national level (for a larger project).

The project will benefit from the multi-temporal satellite images for testing monitoring across a range of crops. An "Action plan" for scaling-up at national level of tools and approaches will be developed.



CROP FORECASTING AND REPORTING

GOAL: Enhance provincial capacity for improved crop estimates and integrate the use of remotely sensed data into the provincial crop reporting services.

KEY APPROACH:

- Set-up functional operational units in the selected provincial agriculture offices as a demonstrator for a larger project.
- Enhance the provincial offices capability to fully utilize area-yield survey data and remotely sensed information.
- Deliver regularly scheduled series of actionable crop production reports.



- Establish the system of agricultural experts geographically dispersed (national and provincial level) which can report on crop stage and condition.



The reports/bulletins will provide satellite-based estimates of area of crops, vegetation indices representing crop growth pattern and also information on the status of other natural resources and agricultural inputs.



CAPACITY DEVELOPMENT

**Transfer of relevant methods, good practices and learning materials.
Exchange of solutions on agriculture monitoring, optimized through the use
of geospatial technologies South/South Cooperation.**

KEY APPROACH:



Provide support and undertake high level Training of Trainers, on-the-job training and distance learning in Remote Sensing for land cover mapping, agriculture monitoring and crop area and yield estimation.

Improve provincial capacity to develop reports/bulletins based on satellite-based estimates of area of crops, vegetation condition, agricultural inputs, and crop yield estimates.

Develop e-learning curriculum on "Geospatial information and technology for agriculture monitoring and statistics".

Deliver high-quality training materials on geo-information technology and their application, using the best available geospatial data and processing techniques.

Exchange of knowledge, technology experiences and good practices, through South/South Cooperation initiatives with operational units in Pakistan.

The project will incorporate distance learning, on-the-job-trainings and training of trainers (from main department/division staff) who can then cascade down training of others (e.g. to provincial staff). This programme will provide technical certification through MOJA and incorporate teaching skills development.

