Leveraging Space Technology for Agriculture and Food Security

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FAO’s work - a general overview

FAO plays a fundamental role in support to food security, monitoring natural resource, and provision of information for policy relevant solutions based on geospatial data, information and services.

FAO supports development plans, growth strategies and decision-making processes in member states through the transformation to MORE efficient, inclusive, resilient and sustainable agri-food systems for better production, better nutrition, a better environment, and a better life, leaving no one behind.
Integrated solution using geospatial technology

Hand-in-Hand (HIH) Geospatial platform

The Hand-in-Hand (HIH) Initiative supports the implementation programmes to accelerate agrifood systems transformations by eradicating poverty (SDG1), ending hunger and malnutrition (SDG2), and reducing inequalities (SDG10), using geospatial modeling and a partnership-building approach.
The West African Land Cover Reference System serves as a reference framework in support of land cover monitoring for various national and/or regional efforts, such as the monitoring of land, forests, crops, greenhouse gases, biodiversity and many others. In addition to providing a strong foundation for the harmonization and integration of land cover information from West African nations and organizations, the system helps to connect land cover information from different sources and make it interoperable based on the latest international standard on land cover (ISO 19144-2).
Example of integrated solutions

*Restoration monitoring through integrated approach using geospatial data and methods*

Spatially information from geospatial assessments integrated with technical guidelines for sustainable land management and an adaptive management strategy was critical in enabling a collaborative, multi-disciplinary and evidence-based approach to successfully restoring degraded landscapes in a displacement setting.
Challenges: Strategic space missions planning for agriculture

- Increasing number of redundant space missions
- Spatial and temporal gaps in data acquisition
- Few agriculture-specific satellite missions
Challenges: Global adoption of standardized geospatial information

Space segment / Upstream Segment

Midstream Segment

User segment / Downstream Segment

- Space data cost and access restrictions
- Data format Interoperability and quality
- Non-harmonized reference systems and incompatible scales
- Lack of adoption of existing standards for spatial data
Challenges: Standardized framework for user-driven agriculture applications

Space segment / Upstream Segment

Midstream Segment

User segment / Downstream Segment

Underutilized available data for agriculture product development

Information gaps in agricultural monitoring platforms

Redundancy in global and national agricultural monitoring solutions and platforms

Lack of user-driven standard framework for satellite development for agriculture
Space technology for agrifood security

FAO, in collaboration with UNOOSA, aims to develop a publication to further leverage space technology for agriculture development and food security.

This initiative goal is to:

1. analyze the current state of space technology for agriculture applications
2. identify gaps in the space technology value chain for agriculture applications
3. provide recommendations to strengthen the peaceful use of space technology for agriculture
What are the benefits of the initiative?

Support space sustainability by reducing redundant missions through a solution-driven space operational framework for agriculture applications.

Increased collaboration for global interoperability of spatial data infrastructure for agricultural applications.

Enhanced technology adoption for information gap filling in agricultural monitoring.
Ongoing Activities:

Stakeholder Consultation

- Research and Scientific Community
- Government Agencies
- Commercial and private sector
- Non-governmental Organizations
- UN System
Thank you for your attention!

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