

Web Annex 3:

Agro-informatics, a new IT instrument for digital agri-food systems and public goods

Background

1. Digital technologies hold the potential to revolutionize agriculture by dramatically reducing information and transaction costs to increase productivity and efficiency, enhancing sustainability and profitability, improving farmers' access to markets, creating new jobs, generating new income streams, saving resources and making value chains efficient, and accelerating the evolution of agricultural and food value chains. They have the power to harness and scale innovative ideas with impact on food and agriculture, transferring data, information, knowledge and technical innovations into productivity, making food systems more productive and resilient, contributing to all dimensions of sustainable development – economic, environmental, and social.
2. In transforming food systems to achieve the 2030 Agenda for Sustainable Development and the Sustainable Development Goals, digital technologies form part of the solution. As agriculture is a knowledge-intensive activity, and technology can be present at every stage of farming, marketing and processing, it has been proved that technological improvements have greatly facilitated decision-making processes in that field. Though the access to technology and the rate of adoption differ greatly across the world and also within countries, digitalization can nevertheless produce significant gains in terms of supporting decision-making and increasing efficiency. Digital technologies can facilitate well-functioning markets, making them more inclusive and transparent, and enhance traceability and sustainability while bearing in mind the needs of smallholder farmers and the vital role played by women and youth.
3. FAO recognizes the disruptive aspect of digital technologies and innovations in the food and agriculture sector. Digital technologies are poised to affect the entire global food system and every actor in this system with their long-term transformative impact. In that perspective, FAO promotes the use of safe, human rights-based, sustainable and trustworthy digital technologies by developing relevant applications, databases, and platforms to support the work being carried out in countries worldwide on sustainable basis.
4. FAO Digital Services aim at sustaining this momentum of transformation and encouraging actions that will support progress in the promotion of digital public goods in food and agriculture, digital FAO and agricultural digital transformation, at the national, regional and global levels. Agro-informatics is a key element of this transformation.
5. Through Agro-informatics, FAO digital services are set to increase access to useful, usable and used, and actionable data, information, maps, and statistics, guiding countries in developing and implementing their own digital strategies and applications. Moreover, FAO also provides a range of tools and knowledge products, which governments are using to confront many challenges, including COVID-19 and the desert locust outbreak. Agro-informatics play a crucial role in this data collection and dissemination to find tailored solutions.
6. Led by the Digital for Programmes Unit in close collaboration with relevant divisions, offices and centres in FAO and external partners, FAO Agro-informatics is growing and developing a series of tools and mechanisms, including the setting up of a platform for digital transformation in agriculture and ensuring it be an integral part of FAO's Information Technology (IT) services. It plays an essential role in FAO's digital innovation and upscaling to ensure the delivery of continued improvements and major enhancements in core IT areas.

Key functions

7. FAO Agro-informatics is engaging more specifically in the following activities:
 - Agricultural data federation and sharing with geospatial IT and other information technologies;
 - Platform and application (including mobile apps) development facilitating agricultural information and knowledge sharing and services;
 - Standard and protocol development in coordination with relevant partners in this domain in the world.

8. FAO Agro-informatics lead and contribute to the delivery of the following FAO IT services:
 - Geospatial IT infrastructure development including data visualizations and analytics;
 - Agri-informatics data federation, respective platform and applications (models, analytical tools and systems) development;
 - Agro-informatics standards and cloud services.

9. Building on the objectives stated above, several projects and platforms are in the framework of Agro-informatics including:
 - **The Hand-in-Hand Geospatial Platform**
Agro-informatics helped to build the Hand-in-Hand (HiH) Geospatial Platform which contains a rich set of data on food, agriculture, and more to strengthen evidence-based decision-making in the food and agriculture sector, using the most sophisticated tools available, including advanced geo-spatial modelling and analytics to identify the biggest opportunities to reduce the inequities of rural populations.
 - **The Digital Services Portfolio (DSP)**
The DSP is a cloud platform enabling information availability in a structured and agile way to mobile devices (i.e. smartphones and feature phones) to offer information and advisory messages (e.g. IVR, SMS, USSD) in local languages to the farmers in the field and connect directly governments to farmers thanks to a mechanism that includes Input Tools, FAO/UN data sources and local information from countries (Egypt, Iraq, Jordan, Niger, Rwanda, Senegal and Tanzania, in particular)
 - **Integrated Agricultural Data Visualization and Analytics (Situation Rooms, Dashboards)**
through the establishment of an FAO Data visualisation and analytics platforms, information can be further analyzed, and from various sources (geospatial, statistics, other) offering insights and decision-making tools, including predictive analysis capabilities.

Ways of Working

10. FAO Agro-informatics will work in close collaboration with relevant divisions, offices and centres in FAO and external partners, bringing together over 20 technical units from multiple domains across the Organization, from Animal Health to Trade and Markets, integrating data from across FAO on Soil, Land, Water, Climate, Fisheries, Livestock, Crops, Forestry, Trade, Social and Economics, among others, as well as external partners to gather and disseminate data.

11. FAO Agro-informatics is part of several digital agriculture solutions developed by FAO's Information Technology Services Division (CSI) to support Members in different aspects and in the development of an enabling agriculture innovation system, critical for the long-term digital transformation of the food and agriculture sector worldwide.