

**INTERSESSIONAL PANEL OF THE UNITED NATIONS COMMISSION
ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)**

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Contribution by FAO

to the CSTD 2019-2020 priority theme on “Exploring space technologies for sustainable development and the benefits of international research collaboration in this context

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PRIORITY THEME 2: Exploring space technologies for sustainable development and the benefits of international research collaboration in this context

At least 14 of the 17 SDGs can be achieved with the help of space technologies. Earth observations, satellite communications, navigation, and other technologies are helping countries and communities deliver on key sustainable development issues, including land-use management, agriculture and food security, access to digital infrastructure (via satellite communications), the management of ever-expanding urban centres, adaptation and mitigation strategies for climate change, and disaster risk reduction. These efforts are also taking place in the least developed countries, where countries like Bhutan have recently launched satellites. This priority theme will help STI ministers understand the potential opportunities of space-enabled technologies for delivering on the SDGs, and policy options for harnessing space tech for the SDGs. The priority theme will also focus on regional and international research collaboration to support such efforts. The achievement of ambitious global goals in widely differing local contexts requires the combination of space capabilities with detailed local knowledge. Global research collaboration offers great potential to contribute to this process, providing opportunities both to create new knowledge and to increase the impact of research by diffusing existing knowledge.

1. Can you give examples of projects/policies aimed at using space technologies for sustainable development? What are the main challenges confronted while trying to implement these projects/policies in your country or region?

- *Open Foris and System for earth observations, data access, processing & analysis for land monitoring (SEPAL): <http://www.fao.org/3/CA1085EN/ca1085en.pdf>*
- *GAEZ- The global Agro-Ecological Zones. Using GIS in land assessment for crop calanders, productivity and gap analysis. (<http://www.fao.org/nr/gaez/en/>)*
- *FIGIS- Fisheries Global Information System (<http://www.fao.org/fishery/figis/en>)*
- *Fall Armyworm Monitoring and Early Warning System (FAMEWS) App: <http://www.fao.org/3/CA1089EN/ca1089en.pdf>*
- *Abalobi App;*
- *FAO Agricultural Stress Index System (ASIS): <http://www.fao.org/3/CA1088EN/ca1088en.pdf>*
- *Weather and crop calendar app providing digital advisory services to smallholders (part of the Agriculture Services for Digital Inclusion project: <http://www.fao.org/3/i7361en/I7361EN.pdf>) ;*
- *EMA-I APP ANIMAL HEALTH SYSTEM SUPPORT BY FAO*
- *Water Productivity Portal (WAPOR): <http://www.fao.org/3/CA1081EN/ca1081en.pdf>*
- *DINO AGROBOT FOR AGRICULTURE AND VITICULTURE*
- *The use of drones for supporting governments (to monitor how fields, coastlines and forest areas are doing and plan interventions and infrastructure projects that benefit local farmers);*
 - *Aiding to prepare for natural disasters;*
 - *Preventing and controlling pest outbreaks.*

The challenges are: costs, licensing to operate, skilled staff for operations and maintenance, investments in knowledge sharing and capacity development is needed.

2. Can you provide examples of policies/projects/initiatives aimed at promoting international research collaboration in the area of space technologies for sustainable development? What are the main challenges confronted in implementing these projects?

- FAO's contribution to GEOSS global agricultural monitoring system and GeoGLAM
- FAO partnership with Google Earth Engine
- FAO collaboration with Geographic Information System Company (ESRI)

3. What are the actions that the international community, including the CSTD and STI Forum, can take to leverage the potential of space technologies for sustainable development, including through international research collaboration in this context? Can you give any success stories in this regard?

Space technologies can be vital for agricultural innovation, modern agriculture, and precision agriculture. In the past, their use is most common in developed countries due to the high costs. There is a lot of research being done in the use of technology itself and its benefits, in particular in farming and natural resource management, however their universal application remains low, in particular in low-income countries, further widening the knowledge and skills gaps between technology users in developed countries and least developed countries. In recent years, the open-access of geospatial raw data, data products, services, and the lower cost of relevant geospatial IT facilities have made the adoption of it boom in agricultural sector all over the world. It is foreseen that it will contribute more in agriculture in the world, esp. the developing countries. The priorities for the international collaborations in this field should include the development of the agricultural geospatial data infrastructure, agricultural geospatial knowledge platform, standards and protocols enabling interoperability and data sharing, analysis-ready agricultural thematic geospatial data products, and the toolboxes of apps and softwares, and so on.

4. Could you suggest some contact persons responsible for projects/policies, related space technologies for sustainable development and international research collaboration in this context as well as any experts from your Agency, academia, private sector, civil society or government dealing with projects in this area? We might contact them directly for further inputs or invite some of them as speakers for the CSTD inter-sessional panel and annual session.

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5. Do you have any documentation, references, or reports on the specific examples on the priority theme in your country or region?

All reports and documentation shared under Question 6