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Office for Outer Space Affairs



High Level Forum: Space as a Driver for Socio-Economic Sustainable Development

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Assessing synergies between GNSS and Earth Observation: Supporting the SDGs

Simonetta Di Pippo, Director

United Nations Office for Outer Space Affairs

United Nations Office at Vienna

www.unoosa.org



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2030 Agenda: SDGs



All countries and stakeholders are acting in **collaborative partnership** to implement the **2030 Agenda for Sustainable Development**.



Memorandum of Understanding UN/European GNSS Agency (GSA)

- Dated 29th June 2016
- Areas of cooperation:
 - Joint studies, in particular concerning GNSS strategic dimension and applications
 - User needs assessment (i.e. integration of GNSS and EO, and applications of international interest)
 - Pilot projects
 - Education in the field of satellite navigation



Collaboration UNOOSA/GSA

17 PARTNERSHIPS FOR THE GOALS



- The proposed new partnership responds to an explicit call by the SDG 17 contributing to the implementation of the 2030 Agenda for Sustainable Development
- UNOOSA and the new collaboration to have a clear role within the SDG processes to represent the space community at large, to convey its inputs and coordinate its support to countries.



Joint UNOOSA/GSA Study



- The study falls into the Partnership to demonstrate how the two EU flagship programmes, Galileo (E-GNSS) and Copernicus, contribute to the SDGs
- It is an analysis on which SDG targets could be benefited most from the integration of the two programmes.



The Importance of Synergies

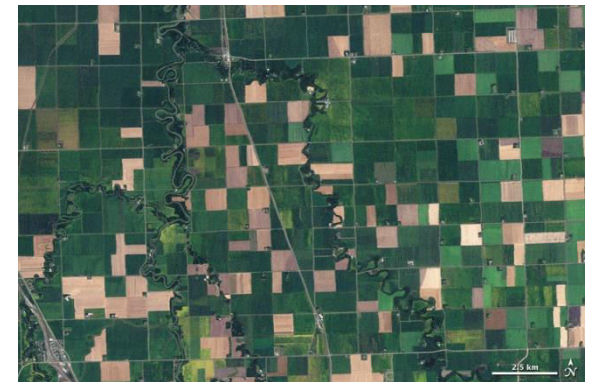
- The Study has put on relief that several synergies between EGNSS and Copernicus could be exploited:
 - ❑ At **satellite service provision level**, two types of synergies between EGNSS and Copernicus have been identified:
 - Synergies at the **satellite infrastructure level** and in the provision of satellite services;
 - Synergies at **management and organisational** levels;
 - ❑ Synergies across the downstream value chain:
 - Market and technology monitoring;
 - Coordination of downstream stakeholders;
 - Communication and awareness building;
 - Capacity building;
 - R&D supporting innovation in application development; and
 - Funding with a special focus on start-up support.



The Importance of Synergies

- The combination of the two (Copernicus and EGNSS) will allow both the **monitoring** and the **achievement** of some of the targets that are associated with the Goals:
 - **Monitoring** – enhancing the quality of data collected to help monitor the status of SDG implementation;
 - **Achievement**, which envisages direct support from *EGNSS* and *Copernicus* in achieving specific SDGs.

Example: EGNSS-enabled applications such as precision farming can directly contribute to achieving the “zero hunger” goal in developing countries by offering a cheap, entry-level solution for crop monitoring, while for developed countries it enables precision farming machinery, which further increases the crop production

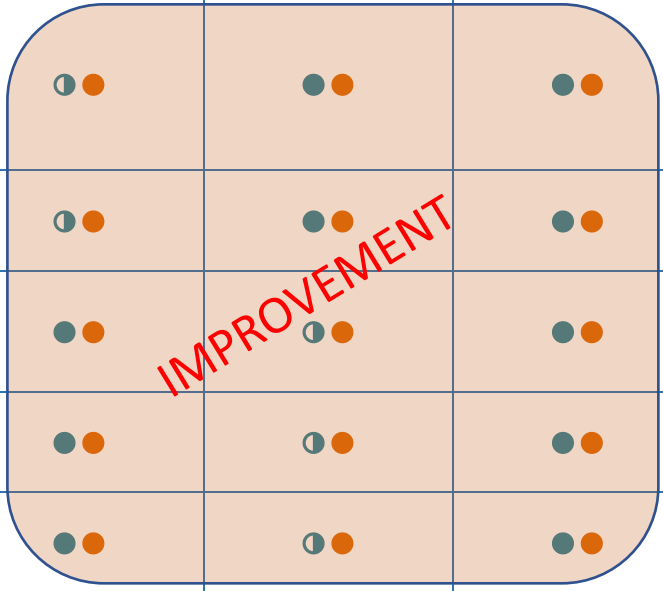


Precision farming in Minnesota.
Credit: NASA



The Importance of Synergies: First Tier

N°	Global Goals for Sustainable Development	EGNSS	Copernicus	Synergies	Examples of applications
1	No Poverty	🟡 🟠	🟡 🟠	🟡 🟠	Natural disaster forecast Crop productivity optimisation
2	Zero Hunger	🟢 🟠	🟢 🟠	🟢 🟠	Crop productivity optimisation Livestock management optimisation
3	Good Health and Well-Being	🟡 🟠	🟢 🟠	🟢 🟠	Prevention of vector diseases Disability assistance Air quality monitoring Reduction of air pollution through road traffic optimisation eCall emergency response service Wearables for health promotion and disease prevention
6	Clean Water and Sanitation	🟡 🟠	🟢 🟠	🟢 🟠	Water quality monitoring Meteorological forecasting
7	Affordable and Clean Energy	🟢 🟠	🟡 🟠	🟢 🟠	Infrastructure monitoring Power grid synchronisation Seismic surveying Solar and wind energy production forecasting
8	Decent Work and Economic Growth	🟢 🟠	🟡 🟠	🟢 🟠	Supporting global economies GDP growth Lone workers monitoring
9	Industry, Innovation and Infrastructure	🟢 🟠	🟡 🟠	🟢 🟠	Infrastructure mapping and monitoring Construction surveying Smart mobility
11	Sustainable Cities and Communities	🟢 🟠	🟢 🟠	🟢 🟠	Urban planning Infrastructure monitoring Improvement of city services Air quality monitoring Disaster management Search and rescue operations



Legend: Level of contribution in monitoring/achieving part of a target/indicator

🟡 🟠 Limited Contribution 🟢 🟠 Significant contribution



The Importance of Synergies: First Tier

N°	Global Goals for Sustainable Development	EGNSS	Copernicus	Synergies	Examples of applications
12	Responsible Consumption and Production				Natural resources management Food and dangerous goods traceability
13	Climate Action				Climate change monitoring Disaster management Search and rescue operations
14	Life Below Water				Mapping and monitoring of natural and protected areas
15	Life on Land				Bio-geophysical land surface monitoring Animal tracking
17	Partnerships for the Goals				International cooperation initiatives

Legend: Level of contribution in monitoring/achieving part of a target/indicator Limited Contribution Significant contribution

The combination of the two system allows the delivery of enhanced services to end users, exploiting the synergies of the two systems results in a **better contribution to the 2030 Agenda for Sustainable Development**



The Importance of Synergies: Example SDG 1


















- Thanks to remote sensing and EGNSS, governments and supranational institutions can:
 - Forecast natural disasters and better coordinate subsequent aid;
 - Maximise the exploitation of natural resources; and
 - Contribute to providing more efficient support to vulnerable people

Solutions integrating GNSS and EO data can achieve yield increases in excess of 10%, while reducing inputs such as fuel, fertiliser and pesticides by up to 20%.



The Importance of Synergies: Example SDG 1

Targets	EGNSS	Copernicus	Synergies
1.1			
1.2			
1.3			
1.4			
1.A			

Legend: Level of contribution in **monitoring/achieving** part of a target/indicator   Limited Contribution   Significant contribution

Space technologies are a key asset contributing to the achievement of SDG 1

EGNSS and Copernicus contribution is linked to 5 out of a total of 7 of the SDG 1 targets



Global Space Partnership for Sustainable Development Goals

- Establish a direct link between Space and SDGs implementation through one authoritative organization;
- Identify countries' needs (“space assets users’ needs”) and foster the availability of Space Systems capacity to meet them; this is a critical gap not currently addressed at the right level - global and interdisciplinary.
- Coordinate and complement the ongoing supporting actions at different levels thus improving the cost effectiveness of the global process.



Way forward

- **IMAGINE IF...** not only E-GNSS and Copernicus, but also telecommunications is included, at regional level and including all different systems from various countries
- This **joint activity UNOOSA/GSA** paves the way for the global space partnership for helping MS to achieve sustainability through the integrated access to space-based data and infrastructure
- The **Global Space partnership** is a reality that is just waiting to pile up on existing and future space assets, under the umbrella of the UN

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THANK YOU



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