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

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Contribution by Austria

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

22. Commission on Science and Technology for Development (CSTD)

Input to Priority Themes by Austria

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

1. Can you give examples of projects/policies in your country 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?

Examples of projects/policies

In the framework of the EU, the space infrastructure in the area of satellite navigation (the space programme Galileo) and earth observation (the space programme Copernicus) provide contributions to the fulfilment of the Sustainable Development Goals. Austria as a member state contributes to the development and implementation of the programmes: The following projects are particularly relevant in this context:

- The Austrian company ENVEO led the FP7 Project **CryoLand** (FP7= Framework Programme of the EU for research and technological development). They developed and implemented the European standard service on snow and land ice monitoring as a Downstream Service for Copernicus. The service provides geospatial products on the seasonal snow cover, glaciers and lake / river ice derived from Earth observation satellite data (in particular Sentinel 1) in response to user needs. Some products became part of Copernicus Global Land (http://land.copernicus.eu). The other near-real time information products on snow and land ice are available via ENVEO: http://neso1.cryoland.enveo.at/cryoclient/.
- The Austrian ***Earth Observation Data Centre for Water Resources Monitoring*** provides international cooperation in order to foster the use of Earth Observation data, in particular data that can be used for water resources monitoring. EODC is enabling services based on Sentinel data, and providing infrastructure, archive data, base services and on-demand data service. https://www.eodc.eu/
- Climate change causes more and more and more drought events. Participating in the Interreg project **DriDanube Droughtwatch**, the University of Technology of Vienna and the Earth Observation Data Center (EODC) are measuring the soil moisture of large areas of in the Danube region using radar satellites. Using a web-based tool, the soil moisture/drought data measured by the satellites can be visualized and thus drought events can be detected and assessed at an early stage. This new service will benefit all countries in the Danube region. The development of the technology was funded by the Austrian Space Applications Programme (ASAP). https://droughtwatch.eu/

Challenges in the assessment of user needs

Assessing space User Need is a continuous challenge in the implementation of large space programmes. The following recommendations are the outcome of a workshop consisting of representatives of the UNSPIDER Programme of the UN-Office for Outer Space Affairs and representatives of the Austrian Earth observation community on 10.01.2019)

Within the EU Programme *Galileo,* the User Consultation Platform (UCP) serves as the main mechanism for meeting the user requirements. There are annual user reports from different market sectors. Standardization is important for the industry in order to adopt the technology.

Within the EU Programme *Copernicus,* user needs are being articulated and assessed via consultation with entrusted entities and potential users, workshops, expert groups and task forces; dedicated studies are conducted in order to find out user requirements for the further development of the programme. User requirements are being prioritized. Challenges are the synchronization of political and technological discussions, transparency, traceability, representativeness, completeness and steady evolvement. The involvement of users in the development stage is being recommended. Products/solutions should be suitable for integration into users' every-day workflow, and build on / complement in situ data acquisition systems.

Usually, the European scenario is different from that of developing countries. Often not many in-situ data are available in developing countries. The modelling approach and data availability can be very different. Although in-situ data is highly relevant, space data sometimes become the only reliable source, if in-situ data are not available.

There are challenges in using Earth observation data, especially if the need arises to change processes based on previous experiences.

Data should be accurate, and services should be provided on a continuous basis. Therefore, adaption of services would certainly be more successful than replacement of already well-known services.

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?

Examples of projects/policies

The ***UN-SPIDER (United Nations Platform for Space-based Information for Disaster Management and Emergency Response)*** platform for humanitarian aid and emergency response aims at strengthening capacity to manage disaster risks in particular in developing countries, enhancing preparedness and resilience and making space-based sciences and technologies available for disaster management. http://un-spider.org/.

Challenges

Recently, the UNSPIDER Program has been evaluated: IED-19-003: Evaluation of the United Nations Office for Outer Space Affairs, https://oios.un.org/page?slug=evaluation-report, p 26).

The following challenges have been identified: Cross-regional collaboration and standardization has not yet been tackled. Up to date records of the network of national and regional focal points and organisation is a prerequisite for systematic coordination between UN-SPIDER and UN entities with significant field presence. Progress has to be monitored to ensure implementation of recommendations of evaluations and foster sustained institutional linkages. Activities should focus on realization of longer-term strategy of sustainable impact and on longer-term institutionalization of support. Systematic coordination of the OOSA with the Regional Centres as an indigenous capability should be adequately resourced and monitored. The technical curricula should be updated regularly.

3. What are the actions that the international community, including the CSTD, 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 from your country or region?

It would be valuable to support pooling of user needs at national and regional level. This would ease the organisation of capacity building and data access and utilization.

4. Could you suggest some contact persons of the nodal agency responsible for projects/policies, related space technologies for sustainable development and international research collaboration in this context as well as any experts (from 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?

Copernicus in support of the UN SDGs
https://www.copernicus.eu/sites/default/files/documents/Brochure/Copernicus_SDG_Report_July2018pdf.pdf

Study of the United Nations Office for Outer Space Affairs: European Global Navigation Satellite System and Copernicus: Supporting the Sustainable Development Goals:
http://www.unoosa.org/res/oosadoc/data/documents/2018/stspace/stspace71_0_html/st_space_71E.pdf

European Space Agency Online catalogue

A toolbox for the Sustainable Development Goals
https://sdg.esa.int/