GEO SDG Update Report
Work Programme Symposium
Programme Board

9 May, 2017

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Background

The evolving landscape of the 2030 Agenda for Sustainable Development requires the Group on Earth Observations (GEO) to engage with numerous UN activities, multi-stakeholder partnerships, emerging initiatives and voluntary commitments from all stakeholders devoted to support the SDG process. GEO is working closely with users and stakeholders such as: GEO Members and Participating Organizations; national statistical offices and line ministries; relevant international organizations, UN custodial agencies, the United Nations Statistical Division (UNSD), the UN Initiative on Global Geospatial Information Management (UN-GGIM), the United Nations Environment Program (UNEP), and the United Nations Convention to Combat Desertification (UNCCD), among others, to ensure comprehensive alignment and engagement with the SDG implementation process.

Currently, GEO supports the implementation of the 2030 Agenda through: i. implementation of the GEO Engagement Strategy, endorsed at GEO-XIII in 2016, which identifies the 2030 Agenda as one of the three priority areas for coordinated engagement across the entire GEO community; ii. the *Earth Observations in Service of the 2030 Agenda for Sustainable Development* (*EO4SDGs*) Initiative; and, iii. a Programme Board sub-group, which aims to ensure optimal alignment among the GEO Work Programme elements and the GEO priorities, including the SDGs.

NASA, JAXA, and INEGI co-lead the GEO EO4SDGs Initiative. The Initiative aims to: advance a portfolio of national pilot projects in one or more GEO Member countries focused on integrating Earth observations with national statistical accounts to better measure, monitor and achieve the SDGs; organize capacity building activities that aim to provide support to institutions and individuals in the implementation of Earth observation methods and data to achieve the SDGs; support the development of data and information products to advance the provision, access, discoverability, and applicability of Earth observations for use with the SDGs; and develop a portfolio of outreach and engagement activities to promote the consideration and adoption of Earth observations for the SDGs by nations and stakeholders. Further, the Initiative participates in the Inter-Agency and Expert Group on Sustainable Development Goals (IAEG-SDGs) Working Group on Geospatial Information (WGGI) and works to enhance its engagement with the UN, expand GEO's current partnerships, and ensure alignment with international coordinating organizations, foundations, and initiatives, such as the Global Partnership for Sustainable Development Data (GPSDD), the UN Sustainable Development Solutions Network (SDSN), and the International Institute for Sustainable Development (IISD), among others.

Key Activities and Updates

1. Engagement with UN process and entities

- As a means to provide tangible outcomes to the IAEG-SDGs, which demonstrate the value of geospatial information and how it is able to contribute to the SDG Indicators and metadata, the WGGI developed six sub-task teams with a focus on three Indicators, 6.6.1, 9.1.1 and 15.3.1 (water, rural population and land), and three cross-cutting issues (data disaggregation, national versus global data, and other data sources). GEO is leading two of these efforts on Indicators 6.6.1 and 15.3.1. In February 2017, GEO led the production of two reports on 6.6.1 and 15.3.1, summarizing the current status of the Indicators' metadata; examining existing statistical practices; reporting on current UN institutional activities; describing current applicable techniques for geospatial data and earth observations that can be used to provide information on the Indicators based on case studies and data assembly; and finally, providing recommendations on reproducible, scalable combinations of EO and traditional data sources.
- EO4SDGs is being represented at the WGGI Kunming China meeting the week of Monday, May 8th. GEO will participate in discussion regarding the specific indicators selected at the last meeting in Mexico continuing the effort to translate the monitoring and methods supported by Earth Observations into statistical practice for adoption by National Statistical Offices. GEO will also present on Urban Sustainability efforts at a GGIM forum organized with China and scheduled just after the WGGI meeting.
- GEO participated in side meetings of the 48th Session of the United Nations Statistical Commission, including the *Statistical-Geospatial Integration Forum* that was organized by the UN Statistics Division and a side meeting on *Geospatial and Earth Observations in Support of the Global Indicator Framework*, organized by the UN Statistics Division and UN-GGIM.
- Deliberations of the Fifth UN Statistical Commission IAEG-SDGs Meeting on 28-31 March, 2017 in Ottawa led to an extensive schedule of selected and general reviews of the Global Indicator Framework: the IAEG-SDGs designated 33 Targets as mature for study of additional Indicators, with the plan to conclude open consultation processes by the end of 2017, and changes to be proposed by fall 2018. The IAEG also reaffirmed its intent to a schedule for annual refinements of the Indicators, with two comprehensive reviews to be presented to the UN Commission in 2020 and 2025, respectively. GEO is interested in demonstrating how Earth observations can further contribute towards defining supplemental Indicators to inform the Global Goals and Targets, via the UN established process.
- UN Custodial Agency Engagement for Indicators 6.6.1 and 15.3.1:
  Indicator 6.6.1
  - For Indicator 6.6.1 selected by the WGGI in December for study, GEO has been invited to participate in the regular working group meetings (beginning in February 2017) convened by UNEP as lead custodial agency for the Goal 6 series of Indicators, including and particularly regarding 6.6.1.
  - UNEP reached out to GEO to provide an informal briefing prior to the IAEG-SDGs meeting in Ottawa in order to provide a status update. They firmly indicated that they had not asked for 6.6.1 to be considered for elevation from a Tier III Indicator this round, preferring as an alternative to begin a data study that they are initiating for SDG Indicators 6.3.2 and 6.6.1. The questionnaire sent to UN member countries will be the mechanism to provide national input.
  - UNEP has requested that GEO stand by ready to assist with the follow-up stages of this data collection. They would like GEO to activate its network of GEO Principals and contacts when, and if, countries indicate they are having problems responding, or are in fact unresponsive.

They have also requested that GEO assist late in the process (August, September) with reconciliation of results reported by countries in cases where those results are considered anomalous or somehow at odds with expected replies.
    - Both instances of substantive engagement could be taken up by the EO4SDGs group and GEO Secretariat staff. A preliminary agreement to participate in this process has been provided, subject to limitations of available expert resources.
    - In addition to this direct data ecosystem development work, UNEP has asked GEO to give consideration to how these indicators might contribute to the "leave no person behind" ethic imbued in the 2030 Sustainable Development process. This might include examining how the Indicator, and perhaps remote sensing data, can assist with locational disaggregation for specific populations including informal or seasonal settlements, ecosystem services provisioning, and data that can be used to address gender and gender equity issues.

    <u>Indicator 15.3.1</u>
    - Engagement with UNCCD, the lead custodian agency for this Indicator began in Geneva in February 2017 with a meeting among GEO Secretariat, Sasha Alexander of UNCCD and Mark Paganini of ESA /EO4SDGs/ CEOS to quickly write up the short scoping document on this Indicator, as requested by the WGGI. Consistent contact with UNCCD since then included extensive consultation prior to, and during, the IAEG-SDGs Ottawa meeting. UNCCD has reviewed the 5-page paper on 15.3.1 drafted by Mark Paganini on behalf of GEO.
    - Sasha Alexander on behalf of UNCCD has further requested that GEO take up collaboration with CEOS and others "….to provide space-based information and in-situ measurements to assist countries in fulfilling the reporting requirements for SDG indicator 15.3.1…." He has proposed draft language for their thirteenth session of the Conference of the Parties (COP 13), scheduled for fall 2017, to formalize this request and engagement. Barbara Ryan and Bill Sonntag of the GEO Secretariat have preliminarily reviewed this request.

- The high-level UN Conference to Support the Implementation of SDG 14, Life below water will be convened in New York on 5-9 June, 2017, coinciding with World Oceans Day. GEO is organizing its participation in the aforementioned events, especially from the point of view of connecting with countries to demonstrate the benefits of using Earth observations to address SDG 14 and help with data disaggregation at subnational levels. GEO will also be represented at the July UN High Level Political Forum on Sustainable Development participating in side events and plenary activities.

<u>EO4SDGs Country-level Engagement</u>

2. Towards Integration of National Statistics and Earth Observations for SDG Monitoring in Colombia

On 30 March, 2017 EO4SDGs and Global Partnership for Sustainable Development Data (GPSDD) held a joint meeting with the National Administrative Department of Statistics (DANE) at DANE Headquarters in Bogota, Colombia. Participants included the Ministry of Environment and Sustainable Development (MADS), the Institute of Hydrology, Meteorology, and Environmental Studies (IDEAM), the World Bank Group, NASA, ESA, CEOS, and the University of Maryland. Meeting attendees also included the University of Andes and the Center for International Strategic Thinking (CEPEI).

The meeting objectives included the following:

- Discuss national-level progress towards assessing Colombia's information availability for monitoring and achieving the Global Indicator Framework;
- Share insights on ongoing pilot projects conducted by DANE and IDEAM that make use of Earth observations (EO), national statistics, and other data to address specific SDG Indicators;
- Present potential contributions from Earth observations and geospatial information, including global datasets, EO-based methodological approaches, tools and open-source platforms, to support Colombia's monitoring and reporting process on specific SDG Indicators;
- Develop a work plan to enable further engagement and collaborations among Colombia's Government Institutions, EO4SDGs, CEOS, and GPSDD;
- Identify links to the World Bank Group's efforts in collaboration with the National Department of Planning (DNP) to support the adoption and implementation of a multipurpose, rural and urban, cadaster, and develop a national spatial data infrastructure.

Key meeting outcomes and recommendations included:

- Strengthening of cross-institutional collaboration in Colombia: DANE agreed to organize a follow-up, internal technical discussion with MADS and IDEAM, among other institutions, to share experiences and identify ways to make best use of techniques and algorithms already developed by international initiatives and agencies towards achieving the SDGs.
- Development of a work plan of collaboration among the meeting participants to expand ongoing pilots by DANE, which make use of Earth observations and statistical data to address aspects of Goal 11, *Sustainable Cities and Communities* (Indicators 11.3.1 and 11.7.1), and by IDEAM on Goal 15, *Life on Land*, and in particular, projects that focus on forest cover change and land and soil degradation (Indicators 15.1.1, 15.2.1, 15.3.1, and 15.4.2)
- Provision of consultation and algorithm development access to tools, such as the CEOS data cube, for DANE by GEO, CEOS, and other meeting participants.
- Development of capacity building activities and trainings on the use of optical and radar imagery
- Provision of support on EO-based methodological aspects (for instance, use of Global Forest Watch techniques to address elements of SDG 15)
- Analysis of further capabilities of Colombia's existing country-level CEOS data cube, installed at the University of Andes and IDEAM, to help address water-related SDG Indicators and country-based needs, such as water detection and water quality, along with the existing land change detection and forest applications.

3. Coordinating Earth Observation Activities for Sustainable Land Management in Albania and the broader Balkan region

The EO4SDGs is working with CEOS, the inter-Balkan Environment Center (i-BEC), and the Ministry of the Environment in Albania, among other key contributors, to promote the uptake of Earth observation services and data in response to national and regional needs, and tap into the full potential of EO for sustainable land (soil and water) management, to help maximize the provision of environmental services and the long-term achievement of relevant SDGs. To address some of these critical issues and ultimately optimize the use of satellite data, the project aims to develop an Albanian Data Cube, with the vision to eventually help develop a regional Data Cube for the Balkans. NASA is leading this effort, along with the CEOS' SEO, and i-BEC. CSIRO and the GEOGLAM initiative, as well as the World Bank Group are also involved in ongoing discussions. Further, i-BEC is planning to host a high-level meeting in June with participation from the regional ministries of agriculture, among

other ministries, with a focus on promoting the development of this Earth observations (EO)-focused, Balkan Initiative.

4. Engagement with Kenya

The EO4SDGs has engaged with GPSDD and the Data and Innovations Section of the Office of the Deputy President in Kenya to identify specific SDG Targets and Indicators that are in alignment with Kenya's national priorities, and assess data gaps, needs, and opportunities for Earth observations and geospatial information to contribute towards advancing Kenya's SDG monitoring and reporting process, as well as Kenya's commitments and process to meet Agenda 2063, the African continent's long-term vision for the next 50 years.

Kenya has identified the following areas as opportunities for possible collaborations and areas of key national interest:

- Sustainable agriculture (via use of precision agricultural practices, etc.) and food security
- Forest cover extent: stakeholders in forestry initiatives have endorsed the National Forest Programme (NFP) covering the period 2016-2030, to guide the country's management of trees and help increase Kenya's forest cover to 10 per cent in the next 15 years.
- Institutional and technical capacity building in the agricultural sector
- Broader spatial data collaboration / national spatial data infrastructure
- Cross-regional action to help reinforce commitments to strengthen data infrastructure and capacity in Africa

Some key upcoming opportunities for engagement include:

- The second AfriGEOSS Symposium is taking place in Sunyani, Ghana in June 13-15, 2017. The event will focus on showcasing EO's use for the implementation of African policies for sustainable development, including the three GEO priority engagement areas (SDGs, Climate, Disasters).
- EO4SDGs, in collaboration with GPSDD, is looking to support a High-Level Meeting in Kenya in June 29-30, 2017 to help further SDG-related work and demonstrate Earth observation contributions in the aforementioned areas. NASA and USAID's SERVIR program with its Eastern-Southern Africa hub is also looking into possible synergies and contributions.
- EO4SDGs is connecting with Kenya to gain more knowledge on its process of putting together its voluntary SDG progress report to be submitted to the High Level Political Forum (HLPF) in 10-19 July, 2017. GEO is in the process of identifying ways to engage in the HLPF.

5. Engagement with Senegal

EO4SDGs has engaged with the African Development Bank (AfDB), Senegal's National Statistical Office, and Knoema, a company funded by AfDB to provide a website on SDG statistics and visualizations for the African continent, to create a pilot project that will help combine Earth observations and geospatial information with statistics for specific Indicators, per Senegal's national priorities.

In a similar fashion, discussions are underway for initiating similar pilot projects in collaboration with Kenya's and Rwanda's national statistical agencies.

6. Engagement with Ghana

EO4SDGs helped link GPSDD with NASA/ USAID's SERVIR program, which focuses on helping national, regional, and local governments, as well as researchers, track environmental changes, evaluate ecological threats and rapidly respond to and assess damage from natural disasters, in preparation for GPSDD's National Forum on Data Roadmaps for Sustainable Development in Ghana on 5-6 April, 2017. The Forum focused on addressing data gaps, encouraging data use, and solidifying the multi-stakeholder approach to achieving and measuring the SDGs by strengthening the data ecosystem.

The CEOS SEO Office is in communication with the Earth Observation Research and Innovation Centre (EORIC) at the University of Energy and Mineral Resources (UENR) in Ghana, which is the host of the upcoming AfriGEOSS Symposium in June, 2017, and is looking at exploring the potential for developing a country-level, data cube per Ghana's application needs.

7. US Engagement

- NASA is working with the US Census Bureau to revisit the possibility for a joint project that focuses on combining Earth observations and statistical data to achieve aspects of SDG 11, Sustainable cities and communities, and in particular, Indicator 11.7.1, for which the US Census Bureau is the US agency with the reporting responsibility.
- The University of Maryland has developed supplemental EO-based metadata to help monitor SDG Indicators 15.1., *Forest area as a proportion of total land area*, and 15.2.1, *Progress toward sustainable forest management*, using Earth observations in conjunction with forest inventory data, land use data, change factors (e.g., fires, logging) etc. The methods are geographically portable, and support sub-national estimates. Further, the methods have already been implemented and adopted by countries, such as Peru, in the context of Reducing Emissions from Deforestation and forest Degradation (REDD+) monitoring. NASA and the University of Maryland have been in contact with the U.S. Forest Service, and are also seeking candidate countries to test these methods for SDG monitoring (in addition to existing engagement with Colombia, Costa Rica).
- Blue Planet is in the process of organizing a workshop, funded by NASA, on SDG 14, *Life below water*. Blue Planet's Third Symposium, *The Role of the Oceans in Earth's Life Support System* will take place on 31 May- 2 June, 2017 in College Park, Maryland, USA.
- The Marine Biodiversity Observation Network (MBON) is conducting a series of workshops with a focus on generating one or more specific demonstration products to address SDG 14 at the Target level, e.g., Target 14.2, *By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.*

8. Japan Engagement

- JAXA had implemented flood prediction systems using the Global Satellite Precipitation Map (GSMaP) in Bangladesh, the Philippines, Vietnam, and Pakistan in collaboration with the Asian Development Bank (ADB) and UNESCO to address SDG 6, *Clean water and sanitation*.
- Aerosol data from the geostationary satellite Himawari-8 are made available by JAXA every 10 minutes with 5 kilometers ground resolution. Satellite-based estimates of particulate matter

(PM2.5) rely on this data, and can contribute to SDG 11, *Sustainable cities and communities,* and SDG 3, *Good health and well-being.*

- JAXA is cooperating with the Japan International Cooperation Agency (JICA) to assist more than 60 countries in the world to monitor changes in forest using the global forest/non-forest map produced by the Advanced Land Observing Satellite–2 (ALOS-2), thereby serving SDG 15, *Life on land.*

9. EO4SDGs Capacity Building Activities

- The Initiative is looking to coordinate with GEO's Foundational Task, *Capacity Building Coordination,* to help develop and complete activities that focus on supporting institutions and individuals in the ideation, development, and implementation of methods, building capabilities directly with the SDG methods and more broadly with accessing and applying Earth observations.
- NASA's Applied Remote Sensing Training (ARSET) program offered a training webinar on satellite derived annual particulate matter (PM2.5) data sets, linking this to SDG 3 and 11. Further, ARSET is planning two additional webinars for this summer on: Synthetic Aperture Radar (SAR); and on Goal 15, Life on land. Further, ARSET is investigating the possibility of holding a SDG 6, South America - focused training in Spanish, and an in-person, SDG training during the GEO-XIV Plenary in fall 2017.

10. GEO issued a report on added values of Earth observation for SDGs

- To highlight case studies of how Earth Observations contribute towards sustainable development and the potential role for Earth observations in supporting the global Indicator framework for the SDGs, CEOS and GEO put together the "Earth Observations in Support of the 2030 Agenda for Sustainable Development" report, which was distributed at the forty-eighth session of the UN Statistical Commission side meetings on 6-8 March, 2017 at the UN Headquarters in New York. A special thank you to Chu Ishida, co-chair of the EO4SDGs Initiative, and the editorial team for leading this effort.

11. Engagement with the World Bank

- GEO Secretariat participated in the World Bank Land & Poverty Conference through a series of meetings with World Bank staff to update them on GEO's engagement priority areas, including the 2030 Agenda for Sustainable Development. There was a joint presentation with the UN-GGIM Secretariat and the World Bank on the GGIM process and progress, and World Bank reporting on SDG Indicators, with a focus on their areas of responsibility, notably 1.4.2, *Proportion of total adult population with secure tenure right to land*. The GEO Secretariat presented on how EO4SDGs fits with these activities, as well as the importance and opportunities around the integration of national statistical data and Earth observations.
- JAXA/ CEOS initiated a meeting between EO4SDGs and World Bank staff to exchange information on possible synergies, including the identification of "demand heat-maps", based on GEO's SDG work and engagement with countries, and the World Bank's country-level experiences.

12. GEO Programme Board Sub-group on delivery for the Sustainable Development Goals

The GEO Programme Board (PB), a senior GEO Executive Leadership entity, aims to help develop the extensive GEO Work Programme (WP) in a manner that ensures that GEO's work aligns with

existing GEO priorities, including the 2030 Agenda for Sustainable Development. To achieve this, the PB has established a SDG sub-group with the mandate to:

- Identify examples of delivery of SDG indicators or work towards Targets with strong user engagement
- Draw lessons learned about the interactions between GEO Foundational Tasks, Initiatives, and Flagships,
- Design a stepwise process led by the PB to:
    - extend the identification of demonstrations of delivery towards SDG targets or indicators with strong engagement with the decision-making users,
    - encourage 'adoption' of users through examples and a distillation of best practices, including bridging the disconnect between EO and statistics communities within Member States, and raising of national funding
    - recommend enhancements of the GEO WP to scale these examples to a broader set of users through data availability, standard methodologies, and training / capacity-development activities,
    - Embedding these in the work of the relevant GEO Flagships, Initiatives, and Foundational Tasks
- Propose a process and identify the actors to do a light analysis of the SDG Targets, identifying where EO and geospatial data from GEO can, and already do support, the achievement of SDG targets, and then identify gaps, as difference between the reports on what can be done and is already done.
- In all of these steps above, consider the support that can be provided by the EO4SDGs Initiative and the GEO secretariat SDG lead.

13. CEOS SDG Ad-Hoc Team and GEO engagement

The thirtieth CEOS Plenary meeting established a CEOS Ad-Hoc Team on the SDGs (SDG AHT) to help CEOS organize itself in its engagement with the SDG agenda, and to address the need to channel and coordinate considerable efforts existing amongst its member agencies. There are three co-leads for the SDG AHT, each from a CEOS Agency from a different geographical region, including: the Americas; Asia/Oceania; and Africa/ Europe.

The objectives of the SDG AHT include the following:

- Coordinate CEOS' support to the SDG process by undertaking a number of activities, including GEO-led ones. Further, generate, explore, and promote used cases, including those from existing GEO Flagships and Initiatives where CEOS is a partner or a leader
- Provide a forum for sharing and communicating EO best practices in support to the SDGs, and easy access to methodological development, tools and platforms, and discoverability of global and regional data sets
- Analyze new opportunities for satellite-based EO to support SDG Targets and Indicators (new methods, new data, new indicators)
- Engage with other relevant authoritative stakeholders outside the UN system, which provide support to the SDG realization (e.g. the Global Partnership for Sustainable Development Data (GPSDD), Green Fund, World Bank Group, etc.)
- Use CEOS assets and bodies to build user capacity at all levels of the SDG implementation.

The SDG AHT held its first meeting on 8-9 March, 2017 at the Embassy of Australia in Washington, DC.

Some of the highlighted items for follow-up included:

- Identification of the main activities and strategic directions to be undertaken by the SDG AHT;
- Further assessment and promotion of EO contributions to the SDGs at both the Target and Indicator levels;
- Exploring how EO can help define new Indicators to inform the Global Goals and Targets, via the UN established process for refinements and revisions to the Global Indicator Framework; and,
- Enhancing collaboration between GEO and CEOS on the SDG topic, and contribute towards further engaging with the private sector and international banks (e.g. the World Bank).