

CEOS 2020-2021 Work Plan on SDGs

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in consultation with the GEO EO4SDG Executive Secretary (NASA)

EXECUTIVE SUMMARY

The **CEOS 2020-2021 Workplan on SDGs** is provided by the CEOS Ad-Hoc Team on SDGs (CEOS SDG-AHT) for information at CEOS 33rd Plenary, as a support documentation to the invitation to the CEOS Principals to approve the renewal of an additional and final year of extension to the CEOS SDG-AHT for the year 2020.

The 2-year workplan has been developed as a flexible plan of activities that will be transferred after one year - which means at the end of the lifecycle of the SDG-AHT - into the new CEOS structure on SDGs that will be decided at CEOS 34 Plenary.

Pending on this approval, the Ad-hoc Team will use CEOS Agencies' best efforts to continue supporting the United Nations through the Group on Earth Observations (GEO) to mainstream Earth Observation in the national processes and systems on SDGs, starting with three primary SDG indicators which are amongst the most ready to integrate EO in their production workflows, but for which they are still some data, methodological and capacity issues to be addressed:

- SDG 6.6.1 on water-related ecosystems (change in the extent of water-related ecosystems over time)
- SDG 11.3.1 on sustainable urbanization (ratio of land consumption rate to population growth rate)
- SDG 15.3.1 on land degradation neutrality (proportion of land that is degraded over total land area)

The CEOS 2020-2021 Work Plan on SDGs has been developed with the necessary flexibility to allow the SDG-AHT to continue his work on SDGs with a detailed plan of work, while preparing the roll-out of the Ad-Hoc Team in an organizational structure that would optimize the use of CEOS Agencies' resources along the unique role that CEOS should play as a coordination body of Space Agencies' efforts on SDGs.

The 2-year workplan allows to have a mid-term vision that goes beyond the lifetime of the Ad-Hoc team, while focusing the 2020 CEOS activities on the 3 primary SDG indicators, in agreement with GEO EO4SDG and the Working Group on Geospatial Information (WGGI) from the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs).

TABLE OF CONTENT

1. SCOPE OF THE DOCUMENT	3
2. ALIGNMENT WITH GEO EO4SDG IMPLEMENTATION PLAN FOR THE PERIOD 2020-2024.....	4
3. OUTLINE OF THE CEOS 2020-2021 WORK PLAN ON SDG	5
Criteria’s for streamlining CEOS activities on SDGs	5
Priority SDG Indicators	6
Involvement of CEOS bodies in CEOS activities on SDGs	6
CEOS cardinal activity lines on SDGs	7
Target Audience	8
4. WORK PLAN SCHEDULE	9
5. LIST OF DELIVERABLES	11
6. WORK ORGANIZATION	12
7. GEO FEDERATED APPROACH ON SDGS	14

1. SCOPE OF THE DOCUMENT

The CEOS Plenary at its 30th session in Brisbane in November 2016 established a CEOS Ad Hoc Team on the Sustainable Development Goals (CEOS SDG AHT). The Terms of Reference (ToR) of the CEOS SDG AHT was approved at the CEOS SIT 32 meeting in April 2017 in Paris.

In October 2017 in Rapid City, the CEOS 31 Plenary renewed the SDG AHT for a 2nd year with the same mandate and Terms of Reference. In October 2018 in Brussels, the CEOS 32 Plenary renewed again the SDG AHT for a 3rd year with an action to bring a proposal to SIT-34 on the way forward on how to tackle SDGs within CEOS, addressing the organisational aspects depending on the proposed solutions.

Given the current internal discussions in CEOS on the changes to be applied to the CEOS internal processes to better respond to user communities’ requests, including the SDGs, given the new GEO federated approach on SDGs and related workflows that is currently being defined by the GEO EO4SDG initiative and which will include a role for CEOS, given the current lack of CEOS Agencies support to create a Working Group on SDGs (option 3 of possible organisational evolutions of CEOS on SDGs), the SGT AHT requests to CEOS 33 Plenary a renewal of another year as an AHT so that CEOS can continue support GEO (through the coordination of the GEO EO4SDG initiative) in all its SDG actions, by ensuring the provision and facilitating the access to accurate, continuous and reliable satellite data , by supporting the development of EO methods, tools and platforms that enable countries to mainstream Earth Observation in their national SDG processes and systems, and by supporting the development of EO capacities and skills in the countries.

This document contains the CEOS workplan to continue its activities after CEOS 33 Plenary. It is provided as a 2-year workplan (2020-2021), which will be transferred within the new “CEOS structure on SDGs” that will be decided at CEOS 34 Plenary in October 2020, including the possibility to transfer some activities outside of CEOS if a light structure on SDGs is decided at CEOS 34 Plenary.

The CEOS 2020-2021 workplan on SDGs follows the strategic discussions on the lifecycle and way forward of the CEOS Ad-Hoc Teams initiated by CEOS SIT Chair team in September 2018, reckoning with the work of the CEOS Working Group Study Team (WGST) created by SIT 34 to study how CEOS should re-organise itself for a more efficient response to the increasing requests from user communities (in large parts lead by GEO). Although the CEOS strategic discussions on the lifecycle of the AHTs and on the CEOS reorganization to better respond to user communities are still on-going, the 2-year workplan on SDGs has been defined in a flexible way, first to have a mid-term vision that goes beyond the lifetime of the SDG AHT, and second to be easily adapted to any CEOS organisational evolution that will emerge from the CEOS internal strategic discussions.

The CEOS 2020-2021 workplan on SDGs is also aligned with the incoming SIT Chair priorities (CSIRO/GA) for 2020-21 and the proposed timelines and outcomes.

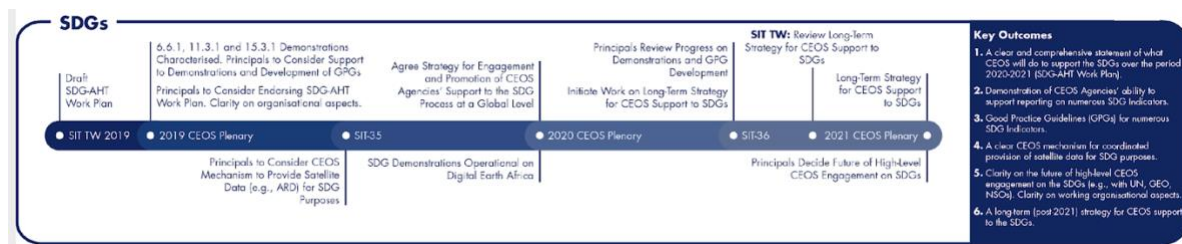


Figure 1 SDG priorities for the SIT Chair 2019-21: timeline and outcomes

To summarize, the incoming SIT Chair (CSIRO/GA) aims at:

- Ensuring efficiency in delivering CEOS SDG outcomes, including clarity between CEOS & GEO activities.
- Focusing on a few specific indicators and deliver Good Practice methods, demonstrations and ARD for at least one indicator.
- Encouraging stronger CEOS Agencies involvement and support Ad Hoc team traction.
- Establishing longer-term strategy for CEOS support to SDGs.

2. ALIGNMENT WITH GEO EO4SDG IMPLEMENTATION PLAN FOR THE PERIOD 2020-2024.

The CEOS 2020-2021 workplan is aligned with the GEO EO4SDG Strategic Implementation Plan for the period 2020-2024.

The GEO EO4SDG 2020-2024 Implementation Plan serves as a baseline for CEOS to synchronize the GEO and CEOS activities on SDGs and better align its activities with the plan of work of EO4SDG, in order to maximize overall impact and avoid unnecessary duplication of efforts.

The GEO EO4SDG implementation plan is built around 3 main goals, which are further developed into 4 main implementation elements on projects, capacity building, data and information products, and outreach and engagement:

1. To demonstrate how EO, geospatial information and socio-economic and other data contribute in novel and practical ways to support the SDGs.
2. To increase skills and capabilities in use of EO for SDG activities and their broader benefits.
3. To broaden interest, awareness and understanding of EO in support of the SCDGs.

Given CEOS mandate to act as the “space arm” of GEO, CEOS focuses its efforts on facilitating the exploitation of satellite observations by the SDG stakeholders, while GEO prioritizes its activities towards mainstreaming the use of Earth Observations (not limited to satellite observations) in the SDG systems and processes at UN and country levels.

GEO EO4SDG has initiated a process to harmonize its workflows (activities and deliverables) and amplify its collaboration with other GEO Work Programme Elements and SDG stakeholders including CEOS. The main outcomes of this reorganisation can be summarized in 4 main topics: GEO Workflows on SDGs, GEO Federated Approach on SDGs, EO Toolkit on SDG Indicators and GEO Secretariat Support on SDGs.

Reorganisation aspect	EO4SDG action	Impact on CEOS
GEO Workflows on SDG Indicators	GEO EO4SDG will define some harmonized workflows of activities with common sets of deliverables, which will be applied to each SDG indicator. The definition of GEO Workflows on SDG Indicators will be followed by the set-up of an EO4SDG organizational structure to optimize the allocation of resources (often available on a best effort basis) and maximize overall quality of delivery.	<i>As space-arm of GEO, there are a number of tasks and deliverables that GEO will delegate to CEOS and its Agencies. The GEO Workflows on SDG Indicators will include some activities that will be assigned to CEOS.</i>
GEO Federated Approach on SDGs	A new federated approach will be defined by GEO EO4SDG to make sure all available competence and expertise inside and outside GEO (including CEOS) are properly utilized in order to maximize impact.	<i>The new GEO Federated Approach on SDGs will include a role for CEOS and a number of tasks and deliverables will be assigned to CEOS.</i>

EO Toolkits on SDG Indicators	GEO EO4SDG will start to "package" all available EO datasets, tools and platforms in practical guidelines and toolkits for an easy implementation by countries	<i>Many CEOS agencies have activities related to the production of global EO datasets, the development of EO software tools, the implementation of EO platforms, the production of EO tutorials, the organization of capacity building workshops on EO. All these CEOS and CEOS Agencies' assets can be customized, at minimum cost, to serve the data and information needs for SDG indicators.</i>
GEO Secretariat support on SDGs	Although the SDG is one of the 3 engagement priorities of GEO (with the Paris Agreement on climate change and the Sendai Framework on disaster risk reduction), the GEO secretariat does not have currently any staff that supports the SDG activities in GEO. The Terms of Reference for the SDG support staff at GEO secretariat will be defined.	<i>The ToR of the GEO Secretariat support staff on SDGs will include the relations with the GEO Member States and Participating Organizations (including CEOS).</i>

Table 1: Main aspects of the GEO EO4SDG re-organization that will follow the EO4SDG 2019 annual meeting

The alignment of the **CEOS 2020-2021 workplan on SDGs** with the **GEO EO4SDG 2020-2024 Implementation Plan**, and in particular with the future **GEO Federated Approach on SDGs and related workflows**, allows to embed the CEOS activities and deliverables within an overall SDG framework that include all major SDG stakeholders. It also allows to streamline the work of CEOS on SDGs along the unique role that CEOS should play as a coordination body of the Space Agencies and to a level that is commensurate with the resources available in CEOS, and eventually to maximize benefits for CEOS and its agencies.

3. OUTLINE OF THE CEOS 2020-2021 WORK PLAN ON SDG

Criteria's for streamlining CEOS activities on SDGs

The following criteria have been used by the SDG AHT to streamline the CEOS engagement on SDGs and to define the primary activities and deliverables that CEOS should conduct and produce in the **CEOS 2020-2021 workplan on SDGs**:

1. The CEOS activities on SDGs must reflect the mandate of CEOS to act as a coordination body of the Space Agencies, and consequently **must serve the interest of CEOS and offer tangible benefits to all CEOS Agencies**.
2. The **permanent CEOS entities** (Working Groups, Virtual Constellations, Systems Engineering Office) **must be involved in the SDG activities** in order to leverage their knowledge and skills and maximize overall benefits for the CEOS Agencies and for the SDG stakeholders.
3. The CEOS activities on SDGs **must focus on the unique role that CEOS should play** to enable an easy and seamless exploitation of satellite observations by the SDG stakeholders.
4. The CEOS activities on SDGs **must complement rather than duplicate the GEO community efforts on SDGs** done principally under the coordination of the GEO EO4SDG initiative.
5. The CEOS activities on SDGs **must be connected to the SDG processes in place** and in particular anchored into the workplan of the **IAEG-SDGs Working Group on Geospatial Information (WGGI)** and of the **Custodian Agencies**.
6. The CEOS activities on SDGs and deliverables **must be embedded in the GEO Federated Approach on SDGs and related workflows**.
7. The CEOS activities on SDGs and deliverables **must be commensurate with the resources available in CEOS to deliver** as planned.

Priority SDG Indicators

The CEOS 2020-2021 Work Plan on SDGs will focus its activities on 3 SDG indicators that are most ready to integrate EO in their processes but for which they are still some methodological and data availability issues. These indicators are also priority indicators in the GEO EO4SDG Strategic Implementation Plan and in the plan of work of the IAEG-SDG Working Group on Geospatial Information (WGGI).

#	Indicator	EO relevance for the SDG sub-indicators	Custodian Agency
6.6.1	Change in the extent of water-related ecosystems over time	<ul style="list-style-type: none"> ▪ Changes in the spatial extent of open waters (lakes, artificial water bodies, rivers and estuaries); ▪ Changes in the spatial extent of vegetated wetlands (including mangroves); ▪ Water quality of lakes and artificial water bodies ▪ Water discharge in rivers and estuaries; (through modeling); 	UN Environment
11.3.1	Ratio of land consumption rate to population growth rate	<ul style="list-style-type: none"> ▪ Mapping of Human Settlements; ▪ Mapping of Population density; (through disaggregation of census data); 	UN Habitat
15.3.1	Proportion of land that is degraded over total land area	<ul style="list-style-type: none"> ▪ Land degradation from the changes in land cover; ▪ Land degradation from the changes in land productivity; ▪ Land degradation from the changes in Carbon Stock (above- and below-ground biomass, dead organic matter, and soil organic carbon); 	UNCCD

Table 2: Primary SDG indicators addressed in the CEOS 2020-2021 Work Plan on SDGs

Starting with these 3 indicators allows CEOS to build on the privileged relationships some of the CEOS Agencies already have with the 3 custodian agencies. For all three indicators, some CEOS agencies (e.g. CSIRO, ESA, NASA, EC/JRC, JAXA) already provided some expertise to the UN Agencies to develop the methodological guidelines. Although the CEOS activities in the 2020-2021 workplan will mainly focus on the 3 primary SDG indicators, a number of CEOS activities will be extended to other SDG indicators such as indicator 2.4.1 on sustainable agriculture and indicator 14.1.1 on coastal eutrophication.

Involvement of CEOS bodies in CEOS activities on SDGs

The CEOS SDG AHT will leverage the wide expertise available within CEOS, involving all CEOS permanent bodies that can contribute to the activities of the **CEOS 2020-2021 workplan on SDGs**:

CEOS Entity	Proposed Contribution to the CEOS activities on SDGs
VCs	<ul style="list-style-type: none"> ▪ (support) Analysis of satellite data requirements for the SDG indicators. ▪ (lead) Guidelines on the use of Satellite Analysis Ready Data (ARD) for the SDG indicators.
WGCapD	<ul style="list-style-type: none"> ▪ (support) Awareness webinars on the importance of EO for the SDG targets and indicators. ▪ (support) Capacity Building webinars/training on advanced satellite-based methodologies for SDG indicators.
WGISS	<ul style="list-style-type: none"> ▪ (support) Analysis of EO-enabling infrastructures (tools and platforms) for the SDG indicators. ▪ (lead) Development of a CEOS SDG Community Portal for EO data discovery and access.
WGCV	<ul style="list-style-type: none"> ▪ (support) Guidelines on EO Quality standards for SDG indicators.
SEO	<ul style="list-style-type: none"> ▪ (lead) Customization of the CEOS Data Cube for monitoring and reporting on SDG indicators.

Table 3: CEOS Entities involved in the CEOS 2020-2021 Work Plan on SDGs

CEOS cardinal activity lines on SDGs

The CEOS 2020-2021 workplan on SDGs includes the following 6 cardinal activity lines that will be spanned along the 2-year time frame, and which will be conducted with the support from the CEOS permanent bodies indicated on the last columns of **Table 4**. All these activities will be fully integrated in the GEO Federated Approach on SDGs and related workflows coordinated by GEO EO4SDG. Similarly, all CEOS deliverables will be embedded in the GEO deliverables that are defined in the GEO EO4SDG Strategic Implementation Plan for the period 2020-2024.

#	Activity Title	Activity Description	Deliverable	CEOS bodies	
PRIMARY ACTIVITIES	1	Satellite Data Requirements	<ul style="list-style-type: none"> Review the satellite data requirements for the production of SDG indicators, including satellite data coverage, satellite data continuity, availability of satellite Analysis Ready Data. Use CEOS MIM Database with a “SDG Filter”. Start with a geographical focus on countries with specific data needs (e.g. Pacific Islands, Tropical and small territories). 	<ul style="list-style-type: none"> Technical Notes on “Satellite Data Requirement” (one TN for each SDG indicator) 	LSI-VC (on ARD and satellite data coverage)
	2	EO Enabling Infrastructures	<ul style="list-style-type: none"> Review of the EO-enabling infrastructures (software toolboxes, cloud processing platforms, EO data processing and analytics tools including data cubes) available in CEOS agencies and which can facilitate the uptake of satellite observations by SDG stakeholders: <ul style="list-style-type: none"> - Inventory of tools and platforms developed by CEOS Agencies to assist in data access, storage, and processing, and SDG indicator analysis / reporting. - Identify synergies between different systems. 	<ul style="list-style-type: none"> Technical Notes on EO enabling infrastructures for SDG indicators (one TN for each SDG Indicator) 	WGISS SEO
			<ul style="list-style-type: none"> Development of a CEOS SDG Community Portal for discovery of and access to satellite ARD and EO data sets, based on WGISS Connected Data Assets. (IDN/CWIC, FedEO) 	<ul style="list-style-type: none"> CEOS Community Portal on SDG for EO data discovery and access 	WGISS
	3	EO Awareness and Capacity Building	<ul style="list-style-type: none"> Capacity Building webinars/training on advanced satellite-based methodologies for SDG indicators, including the use of EO enabling infrastructures. 	<ul style="list-style-type: none"> Capacity building webinars (one webinar per SDG indicator) 	WGCapD WGISS
			<ul style="list-style-type: none"> Contribution to GEO Massive Open On-line Courses (MOOCs) on EO for SDG indicators. 	<ul style="list-style-type: none"> material for the GEO MOOCs on SDGs (one MOOC per SDG goal) 	WGCapD WGISS
	SECONDARY ACTIVITIES	4	EO Good Practices Guidance	<ul style="list-style-type: none"> Support GEO EO4SDG in the collection of EO good practices on SDG indicators (including the use of global data sets, open source s/w, EO platforms) conducted by CEOS and CEOS agencies, to be included in EO Toolkits on SDG indicators Production of good practice guidelines including guidance on the use of Analysis Ready Data. 	<ul style="list-style-type: none"> EO Good Practice Guidance for SDG indicators (one GPG for each SDG indicator)
<ul style="list-style-type: none"> Develop with GEO EO4SDG an R&D agenda for improved EO methods in response to indicator data gaps and/or to improve uptake of EO. 				<ul style="list-style-type: none"> R&D agenda on improved methods for SDG indicators (one for each SDG indicator) 	
5		EO Demonstration Use Cases	<ul style="list-style-type: none"> Support GEO EO4SDG in the demonstration of EO solutions for SDG monitoring and reporting (EO demonstrations coordinated by GEO/CEOS or undertaken by individual CEOS Agencies) done in partnership with the custodian agencies and/or national authorities. 	<ul style="list-style-type: none"> Collection of EO Demonstration Cases for SDG indicators. (one per SDG indicator) 	
			<ul style="list-style-type: none"> Customization of CEOS ODC workflows (in whole or in part) for SDG indicator monitoring. 	<ul style="list-style-type: none"> Deployment of EO workflows for SDGs on the CEOS Data Cube 	SEO
6		EO Quality Standards	<ul style="list-style-type: none"> Development of quality standards on the use of EO satellite data in the SDG global indicator framework. Production of guidelines for countries on the accuracy assessment and associated level of confidence regarding the integration of EO in SDG indicator workflows 	<ul style="list-style-type: none"> EO Quality Standards for SDG indicators (one guideline per indicator) 	WGCV

Table 4: Cardinal activities lines of the CEOS 2020-2021 Work Plan on SDGs

The 6 CEOS cardinal activity lines on SDGs have been classified in two categories:

- **Primary activities** which are to be considered as the principal activities that shall be conducted by the Ad-Hoc Team on SDGs, without the need to create dedicated sub-teams on each indicator. The primary activities include the analysis of the satellite data requirements, the review of the EO enabling Infrastructures and the organisation of awareness / capacity building events.
- **Secondary activities** which concern a number of tasks and deliverables that require the set-up of dedicated expert teams from the CEOS agencies on each of the 3 primary indicators (Water, Urban and Land Degradation). The secondary activities include the production of EO Good Practice Guidance, the demonstration cases and the development of quality standards.

It should be noted that for some of these activity lines (e.g. EO Good Practices Guidance, EO Demonstration Use Cases), CEOS and his agencies will contribute to an overarching workplan coordinated by GEO EO4SDG and in some cases by thematic GEO Initiatives (e.g. GEO LDN Initiative for SDG indicator 15.3.1). Other activities such as “Satellite Data Requirement” are fully delegated to CEOS. The roles and responsibilities of CEOS, including delegation of responsibilities, will be precisely defined in the forthcoming concept note on the “GEO federated approach on SDGs”.

Target Audience

The CEOS activity lines on SDGs and related deliverables are tailored to 3 types of communities:

- The **satellite data providers**, i.e the CEOS Space Agencies and the commercial satellite data vendors
- The **information providers**, i.e. the Earth Observation and Geographical Information experts who have the required skills and expertise to comprehend the technical guidelines.
- The **end-users**, i.e. the beneficiaries of the end-to-end workflows

The following table indicate the target audience for each of the deliverables:

Satellite Data Providers		Information Providers		End Users	
#	Activity Title	Activity Deliverables	Target Audience		
1	Satellite Data Requirements	▪ TN on Satellite Data Requirements (one TN for each SDG indicator)	■		
2	EO Enabling Infrastructures	▪ TN on EO enabling infrastructures for SDG indicators (one TN for each SDG Indicator)		■	
		▪ CEOS Community Portal on SDG for EO data discovery and access		■	
3	EO Capacity Building	▪ Capacity building webinars/training (organized by SDG indicator)		■	■
		▪ Support to EO4SDG MOOCs on SDGs (one MOOC per SDG goal)		■	■
4	EO Good Practices Guidance	▪ EO Good Practice Guidance for SDG indicators (one GPG for each SDG indicator)		■	
		▪ R&D agenda on improved methods for SDG indicators (one for each SDG indicator)	■		
5	EO Demonstration Cases	▪ Collection of EO Demonstration Cases for SDG indicators (one per SDG indicator)		■	■
		▪ Deployment of EO workflows for SDGs on the CEOS Data Cube		■	■
6	EO Quality Standards	▪ EO Quality Standards for SDG indicators (one guideline per indicator)		■	

Table 5: Target Audience for the deliverables of the CEOS Activities on SDGs

4. WORK PLAN SCHEDULE

The overall planning of the CEOS 2020-2021 workplan is provided in Figure 2. **Figure 2**

The CEOS activities on SDGs will be coordinated by the CEOS SDG AHT until CEOS Plenary 34 (October 2020) and will mainly focus on the 3 primary indicators (6.6.1 on water-related ecosystems, 11.3.1 on sustainable urbanization and 15.3.1 on land degradation). Only the first activity line (satellite data requirements) will also address the data requirements of other SDG indicators (starting at SIT 35 and only for SDG 2.4.1 on sustainable agriculture and SDG 14.1.1 on coastal eutrophication).

All activities will be executed with the support of the CEOS bodies (VCs, WGs and SEO) as indicated in Table 4. Stronger links, consultations and joined workshops/ meetings with LSI-VC, SEO and identified WGs will be necessary.

During 2019 Q4, until CEOS 33 Plenary, the CEOS AHT on SDGs will:

- Produce Satellite Data Requirement Draft Tables for the 3 priority indicators (*action SDG-5 from the 2020-2021 workplan*), which will constitute the baseline for the Indicator TN on the Satellite Data Requirements that the AHT will prepare in 2020 Q1.
- Demonstrate CEOS Data Cube algorithms starting with SDG 6.6.1 (*action SDG -6 from 2020-2021 workplan*) and collect feedback from statistical agencies and other SDG stakeholders (line ministries of the pilot countries).
- Continue the discussion with WGISS on the conceptual design of the CEOS Community Portal SDGs (for discovery of and access to satellite ARD and EO data sets.)

After CEOS 33 Plenary (2020 Q1), the SDG AHT will start preparing the other CEOS activities on SDGs and present the respective approaches at SIT 35. This includes the specification of the TN on enabling infrastructures (in collaboration with WGISS and SEO), the organization of Capacity Building webinars on advanced satellite-based methodologies for SDG indicators (in collaboration with WGCapD), the specification of the R&D agenda on improved EO methods, the approach to the development of Good Practices Guidance, and to the collection of demonstration cases.

The preparation of all these activities will follow the overarching guidelines that will be prepared by EO4SDG during 2019 Q4. All activities that will be initiated after SIT 35 will be done in close collaboration with the GEO EO4SDG and GEO thematic initiatives (e.g. GEO LDN, GEO HPI/GUOI, GEO Wetlands, GEO Aquawatch) and integrated in the workflows and deliverables of the GEO federated approach on SDGs.

The CEOS efforts on all activity lines is expected to gradually increase during the second year of the workplan.

Activity	Deliverables	2019	2020				2021			
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
		33 Plenary	SIT-35	TW 2020	34 Plenary	SIT 36	TW 2021	35 Plenary		
1	Satellite Data Requirements TN on Satellite Data Requirements	Satellite Data Requirement Tables	SDG 15.3.1	SDG 6.6.1 - 11.3.1	SDG 2.4.1 - 14.1.1		Other SDG Indicators			
2	EO Enabling Infrastructures TN on EO enabling Infrastructures CEOS Community Portal on SDG		TN specification	SDG 6.6.1 - 11.3.1 - 15.3.1			Other SDG Indicators including 2.4.1 and 14.1.1			
			Conceptual design with WGISS	SDG 6.6.1 - 11.3.1 - 15.3.1			Other SDG Indicators including 2.4.1 and 14.1.1			
3	Awareness and Capacity Building Capacity Building Webinars GEO MOOCs on SDGs		Webinar Preparation	SDG 11.3.1	SDG 15.3.1	SDG 6.6.1	Other SDG Indicators including 2.4.1 and 14.1.1			
				MOOC Preparation SDG 6.6.1 - 11.3.1 - 15.3.1			MOOC Execution SDG 6.6.1 - 11.3.1 - 15.3.1			
4	EO Good Practice Guidance Good Practice Guidance R&D agenda on improved methods		GPG Set-up	SDG 6.6.1 - 11.3.1 - 15.3.1			Other SDG Indicators			
			R&D Agenda Specifications	SDG 6.6.1 - 11.3.1 - 15.3.1			Other SDG Indicators including 2.4.1 and 14.1.1			
5	EO Demonstration Use Cases Demonstration cases for SDG indicators EO workflows on CEOS Data Cube		Demonstration Cases Definition	SDG 6.6.1 - 11.3.1 - 15.3.1			Other SDG Indicators			
		SDG 6.6.1	SDG 11.3.1	SDG 15.3.1	Other SDG Indicators					
6	EO Quality Standards EO Quality Standards for SDG indicators			TN Definition	SDG 15.3.1		SDG 11.3.1		SDG 6.6.1	

Figure 2 Activity planning of CEOS 2020-2021 Workplan

5. LIST OF DELIVERABLES

The following table provide the list of deliverables with the respective timelines for the 3 primary indicators).

CEOS Activities	CEOS Deliverables	6.6.1 (water)	11.3.1 (urban)	15.3.1 (land degradation)
Satellite Data Requirements	TN on Satellite Data Requirements	2020 Q2 (TW 2020)	2020 Q2 (TW 2020)	2020 Q1 (SIT-35)
EO Enabling Infrastructures	TN on EO enabling Infrastructures	TN Specification by 2020 Q1 (SIT-35)		
		2020 Q4 (plenary 34)	2020 Q4 (Plenary 34)	2020 Q4 (Plenary 34)
	CEOS Community Portal on SDG	Conceptual Design by 2020 Q1 (SIT-35)		
		2020 Q4 (Plenary 34)	2020 Q4 (Plenary 34)	2020 Q4 (Plenary 34)
Awareness and Capacity Building	Capacity Building Webinars	Webinar preparation by 2020 Q1 (SIT-35)		
		2020 Q4	2020 Q2	2020 Q3
	GEO MOOCs on SDGs	MOOC concept by 2021 Q1		
		2021 Q4 (Plenary 35)	2021 Q4 (Plenary 35)	2021 Q4 (Plenary 35)
EO Good Practice Guidance	Good Practice Guidance	GPG collection set-up		
		2020 Q4 (Plenary 35)	2020 Q4 (Plenary 35)	2020 Q4 (Plenary 35)
	R&D agenda on improved methods	R&D Agenda specification by 2020 Q1 (SIT-35)		
		2020 Q4 (Plenary 35)	2020 Q4 (Plenary 35)	2020 Q4 (Plenary 35)
EO Demonstration Cases	Demonstration cases for SDG indicators	Demonstration Case Definition by 2020 Q1 (SIT-35)		
		2020 Q4 (Plenary 35)	2020 Q4 (Plenary 35)	2020 Q4 (Plenary 35)
	EO workflows on CEOS Data Cube	2019 Q4	2020 Q1	2020 Q2
EO Quality Standards	EO Quality Standards for SDG indicators	TN Specification by 2020 Q2		
		2021 Q3	2021 Q2	2020 Q4

Table 6: List of Deliverables from CEOS 2020-2021 Workplan

6. WORK ORGANIZATION

During the first year of the 2020-2021 workplan (up to CEOS 34 Plenary), all CEOS activities on SDGs will be coordinated by the co-leads of the SDG-AHT with the support of an Executive Secretary provided by CSIRO. The co-leads of the SDG-AHT will be responsible for the overall coordination of the CEOS activities on SDGs and for reporting to CEOS SIT and Plenary.

After CEOS 35 Plenary, the responsibility will be transferred to the leading CEOS body that will be in charge of coordinating all CEOS activities on SDGs.

A light work organization will be put in place during the first year, with a number of sub-teams that will lead the different tasks. This work breakdown would allow to maximize the resources available. It is also expected that an organization of the work with well-defined activities, deliverables and deadlines will create an incentive for CEOS agencies to assign resources.

The following sub-teams will be created:

AHT sub-teams	Responsibilities	Leads	Contributors	CEOS Bodies
Satellite Data Requirements	Coordinate the review of the satellite data requirements for the production of the SDG indicators.	CSIRO and NASA	ESA, JAXA	LSI-VC
EO Enabling Infrastructures	Coordinate the Technical Note on EO Enabling Infrastructures, with the support of the thematic sub-teams for the platforms & tools specific to the subject indicators.	ESA	CSIRO, NASA	WGISS, SEO
Capacity Building	Contribute the GEO/CEOS joint webinars/MOOCs on advanced satellite-based solutions for SDG indicators.	NASA	CSIRO, ESA	WGCapD
LDN sub-team	Lead the thematic activities on indicator 15.3.1 (EO Good Practices Guidance, R&D agenda, EO Demonstration Cases, EO Quality Guidelines).	CSIRO	ESA, SANSa, NASA	SEO
Urban sub-team	Lead the thematic activities on indicator 11.3.1 (EO Good Practices Guidance, R&D agenda, EO Demonstration Cases, EO Quality Guidelines).		NASA, ESA, JAXA	SEO
Water sub-team	Lead the thematic activities on indicator 6.6.1 (EO Good Practices Guidance, R&D agenda, EO Demonstration Cases, EO Quality Guidelines).		NOAA, GA, ESA, NASA, CSIRO, JAXA	SEO

Table 7 AHT sub-teams, roles and leads

The work of the AHT sub-teams will be fully integrated in the GEO Federated Approach on SDG as depicted in **Error! Reference source not found.**

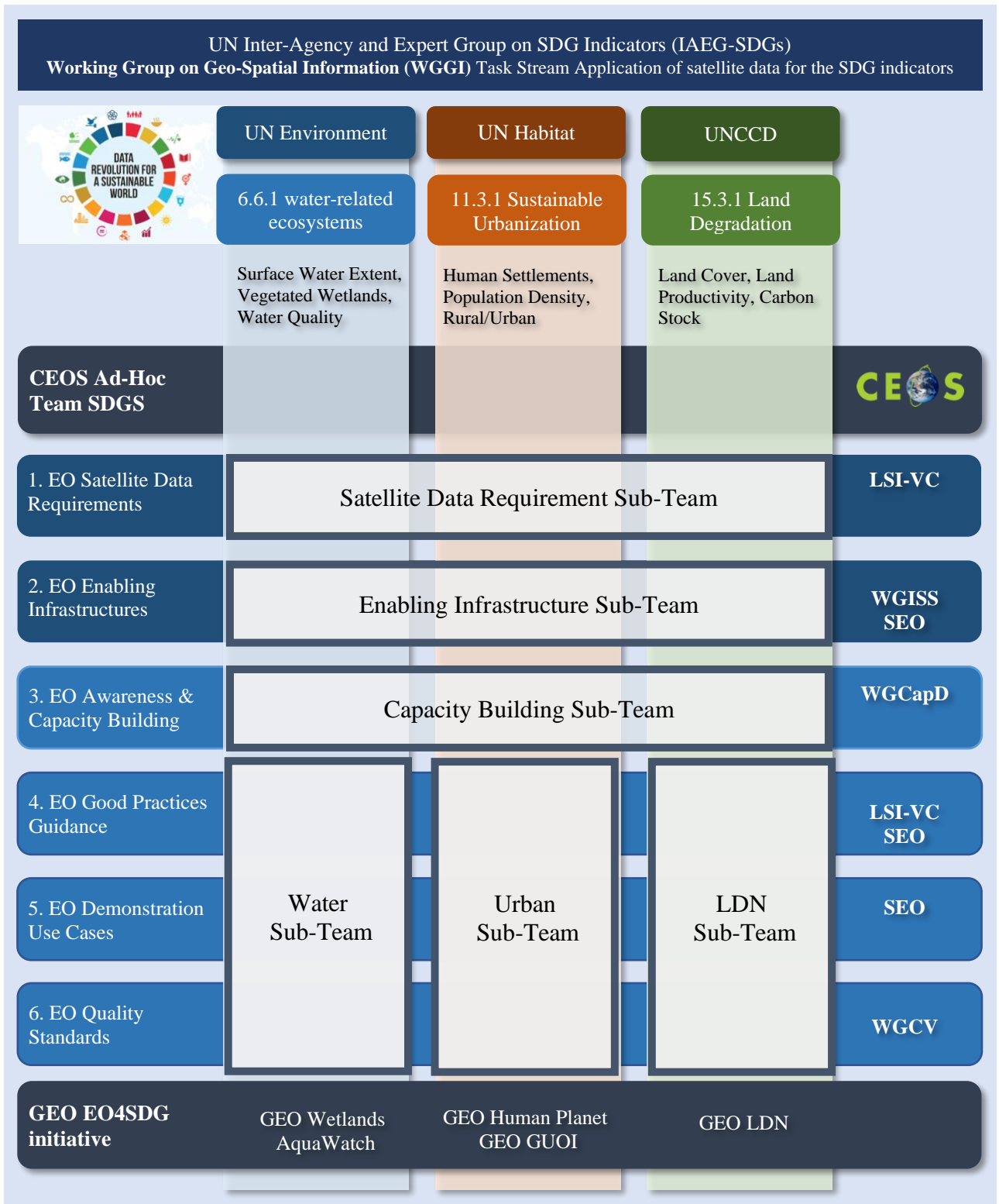


Figure 4: CEOS agencies and bodies involved in the CEOS 2020-2021 Work Plan on SDGs