

CEOS SDG AHT Future Options

Synthesis Paper

Version 1.4, 10 March 2021

Prepared by the CEOS Ad-Hoc Team on Sustainable Development Goals

Executive Summary for CEOS SIT-36 decision

At its 34th CEOS Plenary in October 2020, CEOS Principals agreed to extend the SDG Ad-Hoc Team on Sustainable Development Goals (SDG AHT) for one final year, with direction to the SDG AHT to plan a transition of its activities to a permanent internal (within CEOS) and/or external entity(ies) by the 2021 CEOS Plenary.

The SDG AHT was created at the 30th CEOS Plenary in October 2016 with the objective to coordinate the efforts of CEOS Agencies in support of the Group on Earth Observations (GEO) in its mandate to engage with the UN system and countries requiring support on EO, and to advance the uptake of satellite observations in the implementation of the 2030 Agenda on sustainable development. The recognition of the value of satellite observations in the 2030 Agenda, thanks to the joint efforts of GEO and CEOS, has solidified the need for CEOS to decide how to sustainably support the 2030 Agenda, whether that be through a permanent mechanism within CEOS or by supporting an entity outside CEOS.

In the complex and multifaceted landscape of the UN 2030 Agenda on Sustainable Development, the role of CEOS is to act as a “Space Enabler” and Space Arm of GEO, and to facilitate access to and use of satellite data. Along the lines of the CEOS role and domains of activities on SDGs, three possible scenarios/options were discussed during a ***SDG AHT Future Workshop*** on the 11th February 2021, with several participants from CEOS and GEO. These were:

- **Full scale option:** Create a new CEOS Working Group on SDG.
- **Federated option:** Transfer the CEOS work on SDGs into existing CEOS entities under an internal CEOS coordination mechanism.
- **On-demand option:** Reduce the scope of CEOS support to GEO on SDGs to a responsive model, in line with CEOS External Request process.

The workshop participants retained, with a large majority, the first 2 options (full scale option and federated option), showing their willingness to maintain a proactive role on SDGs within CEOS, excluding the option of dissolving the team and stopping all CEOS work on SDGs, and of reducing the role of CEOS to an only responsive model to external requests.

The two most favourable future scenarios (full-scale option and federated option) would have significant implications in terms of efforts and resources to be provided by CEOS Agencies, with the following major pros and cons to be considered. A more in-depth review of the 2 scenarios is provided in the document.

Option	Pros	Cons
1. Full Scale Option: Create a new CEOS Working Group on SDGs.	<ul style="list-style-type: none"> CEOS will keep an important role in the 2030 Agenda, with high visibility for CEOS and its Agencies. Maximises the impact on SDGs for CEOS and its Agencies. A Working Group on SDGs would be the 3rd thematic WG on the GEO Engagement Priorities. The WG membership can be built with the right experts (from both CEOS and non-CEOS agencies) to properly address each specific SDG target and indicator. Dependencies on other CEOS entities would be less important, limiting the risk that some key SDG activities may not be addressed with the highest priorities. 	<ul style="list-style-type: none"> More sustained investment and efforts are required by CEOS agencies, with a firm commitment to actively contribute to the WG work plan. Requires a solid governance structure (including Lead and co-Lead and executive secretariat), an ambitious work plan and regular reporting mechanisms. SDGs are very broad and cross-cutting, requiring a large range of EO competences. The new WG on SDGs would need many experts to cover all the issues that the WG will address. The new WG on SDGs will still need to work closely with the other CEOS entities (VCs, WGs, SEO) to benefit from their expertise.
2. Federated Option: I.e. Transfer the SDG work into existing CEOS entities under CEOS coordination.	<ul style="list-style-type: none"> Can be the most flexible, cost-effective and practicable solution, allowing CEOS to stay responsive, while best using resources and expertise available within existing CEOS bodies. Could be considered as a transition solution towards the creation of a working group on SDGs (option 1), should the interests grow within CEOS agencies. The need for additional resources to be assigned by CEOS Agencies will be limited since the work will be essentially done within existing CEOS entities, except for the coordination task. The CEOS Work Plan will still reflect SDG deliverables and activities defined and will still be managed through the CEOS annual processes. 	<ul style="list-style-type: none"> Existing CEOS WGs may be overcommitted already and adding extra activities and deliverables on SDGs may be an unacceptable additional burden? Need to restrict the CEOS activities to a number of prioritized deliverables achievable with the limited resources available to coordinate and perform the work. The <i>CEOS Governance and Processes paper</i> does not address the concept of a coordination mechanism which will need to be embedded in the CEOS processes. Requires a commitment from CEOS Agencies to nominate an individual or a team of individuals to be the coordinator/coordination team within CEOS. It is expected that limited resources will be made available by the CEOS bodies which will have to do the SDG activities in addition to their existing Work Plan responsibilities.

The CEOS SDG AHT invites the CEOS Principals at the 36th CEOS SIT to endorse the request from the SDG AHT to further develop the two most favourable future scenarios (full scale option and federated option), through extended discussions with all stakeholders within CEOS (i.e., CEOS agencies and CEOS entities) and outside of CEOS (i.e., GEO secretariat, GEO EO4SDG and GEO SDG-related work programme activities), in order to come with a substantiated proposal to be reviewed and finalised with all key stakeholders during the CEOS SIT Technical Workshop in September, before its formal submission for approval to CEOS Principals at the 35th CEOS Plenary.

Document Control

Document Management		
Version / Date	Notes	Authors
1.0 / 26 Nov 2020	First draft, seeking to capture main elements for future options	SDG AHT Co-chairs, Brian Killough and supporting team
1.1 / 16 Dec 2020	Refinement of pros and cons for proposed future 6 (six) options	SDG AHT co-chairs and supporting team
1.2 / 12 Jan 2021	Paper updated following the SDG AHT group meeting call on 21 December 2020 and the decision to reduce the number of future options from 6 scenarios (as proposed in version 1.1) to 3 scenarios	SDG AHT co-chairs and supporting team
1.3 / 9 Feb 2021	Further refinement on the 3 proposed options to be presented at the "CEOS SDG-AHT Future workshop" (11/02/2021)	SDG AHT co-chairs and supporting team
1.4 / 10 Mar 2021	Further development on the two most favourable (voted) options to be presented at SIT-36	SDG AHT co-chairs and supporting team

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1. Context

The CEOS Ad Hoc Team on Sustainable Development Goals (CEOS SDG AHT) has been in existence for several years and is poised to transition into a permanent structure, in whole or in part, within CEOS.

During its four years of existence, the CEOS SDG AHT closely cooperated with the Earth Observation for Sustainable Development Goals initiative of the Group on Earth Observations (GEO EO4SDG) to raise awareness of and showcase the importance of satellite data in the Sustainable Development Goals (SDGs) of the 2030 Agenda on Sustainable Development.

Data is at the core of the 2030 Agenda on Sustainable Development and the success of the 2030 Agenda depends on the availability of high quality, timely and universally accessible data. The effective use of Earth Observation (EO) data in support of national monitoring and reporting against the SDG Global Indicator Framework, as well as of informed decision-making on development policies, requires close collaboration between national statistical offices and EO data providers. Thanks to the joint efforts of GEO and CEOS, in partnership with the UN Committee of Experts on Global Geospatial Information Management (UN GGIM), the SDG community now recognizes the significant value satellite data contribute to measuring progress toward SDGs.

This recognition of the value of satellite observations to the 2030 Agenda has solidified the need for CEOS to conclude how to sustainably and permanently support the Agenda, whether that be through a permanent mechanism within CEOS or supporting an entity outside CEOS. Ultimately, CEOS needs to develop a plan for communicating the value of its Agency resources to the SDG community, improving access to and use of those resources, and facilitating the adoption of satellite technology by countries and other SDG stakeholders.

2. SDG AHT Life Cycle

The CEOS SDG AHT is an Ad Hoc Team of CEOS and de facto not a permanent structure of CEOS. Per [CEOS Governance and Processes](#), CEOS Plenary has the ability to create Ad Hoc Teams with defined term limits in the event that permanent mechanisms (Working Groups and Virtual Constellations) are not adequate to undertake a particular activity within CEOS.

The CEOS SDG AHT was created at the 30th CEOS Plenary in October 2016 with the objective to coordinate the efforts of CEOS Agencies in support of GEO in its mandate to engage with the UN system and countries requiring support on EO, and to advance the uptake of satellite observations in the implementation of the 2030 Agenda.

At its 34th CEOS Plenary in October 2020, CEOS Principals agreed to extend the SDG AHT for one final year, with direction to the SDG AHT to plan a transition of SDG activities to permanent internal (within CEOS) and/or external entity(ies) by the 2021 CEOS Plenary, with a plan to fully transition SDG AHT activities starting in 2022.

Following the approval from the CEOS principals to extend the AHT for another year, the SDG AHT planned a series of actions to allow a seamless transition of CEOS activities on SDGs into existing or new permanent bodies inside and/or outside of CEOS.

The SDG AHT 2021 Transition Roadmap includes a number of milestones where decisions are taken based on discussions with CEOS agencies, CEOS entities, GEO secretariat, GEO

EO4SDG and relevant GEO work program activities (i.e. flagships, initiatives and communities).

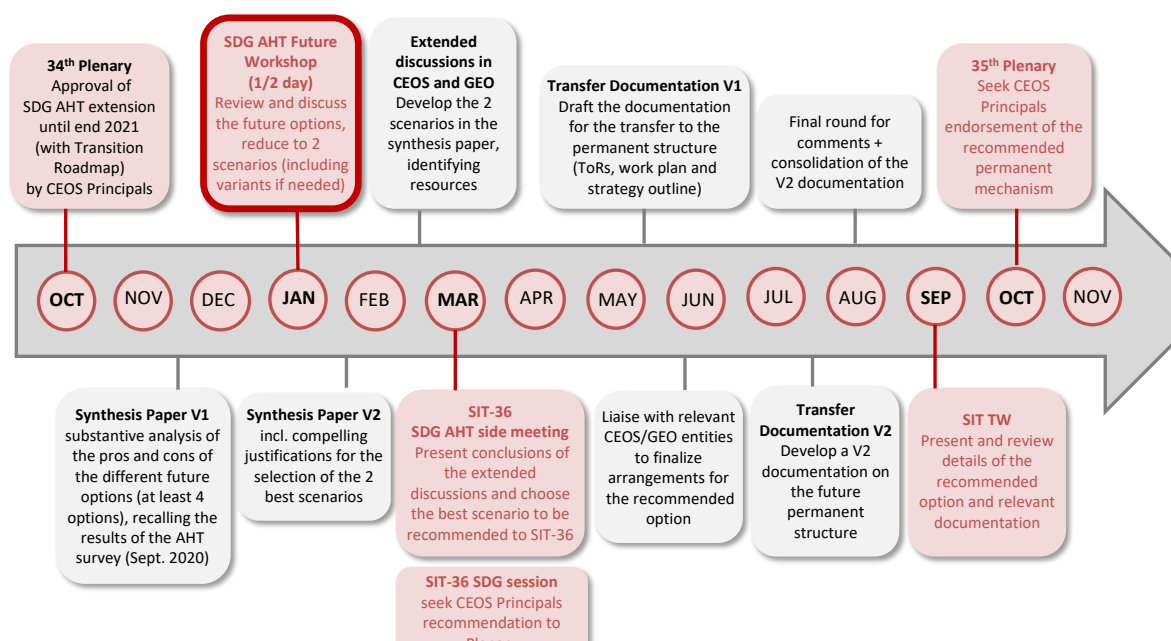


Figure 1: SDG AHT 2021 Transition Roadmap

One important milestone in the SDG AHT 2021 Transition Roadmap has been the “[SDG AHT Future Workshop](#)” organised on the 11th February 2021, where participants reviewed and discussed the future options with the goal to reduce the number of options to two scenarios to be presented to CEOS principals at SIT 36.

3. CEOS role on SDGs

In the complex and multifaceted landscape of the 2030 Agenda on Sustainable Development, the role of CEOS is to act as a “Space Enabler” and Space Arm of GEO and facilitate access to and use of satellite data. The overarching goal is to support GEO in its efforts to help the UN system and countries embracing EO technology in the global and national processes on SDGs. Agreement was reached with GEO to streamline CEOS efforts on SDGs along the unique role that CEOS should play as a coordination body of the Space Agencies and to match CEOS activities with the needs and expectations of GEO, optimizing the collective CEOS Agency resources available via CEOS and GEO and avoiding duplication of efforts.

All CEOS activities on SDGs are therefore embedded within the GEO “*Federated Approach*” on SDGs, which aims to coordinate and harmonise the GEO collective efforts on SDGs, harnessing all expertise available inside and outside of the GEO Work Programme (including CEOS expertise) in order to maximise impact. This implies that all CEOS activities on SDGs are conducted in close collaboration with the GEO EO4SDG initiative and other relevant GEO Work Programme activities (Flagships, Initiatives, and Community Activities) related to SDGs. More specifically, the CEOS activities on SDGs contribute to the development of the “*SDG EO Toolkits*” led by GEO EO4SDG for the provision of practical guidance on EO approaches (including the use of CEOS assets) for SDGs, for an easier appropriation by countries.

4. Elements to be considered

No matter the decision reached on the future of CEOS activities on SDGs, CEOS will need to continue to use its Member Agencies' best efforts through the work of GEO, who has the responsibility to collate the EO requirements (in terms of EO data needs, access and use) from the SDG community. The approach for CEOS to channel its efforts on SDGs mainly through GEO aims to benefit from and leverage GEO's unique "*convening power*", through which most EO actors can be engaged within an internationally coordinated framework. It helps provide an entry point and consistent communication vehicle to SDG stakeholders for connecting with the broad EO community, including CEOS Agencies.

The 2030 Agenda is one of three GEO Engagement Priorities, together with the Paris Agreement on Climate Change and the Sendai Framework on Disaster Risk Reduction. CEOS has two permanent Working Groups supporting two of these three Engagement Priorities, the Joint CEOS-CGMS Working Group on Climate (WGClimate) on the Paris Agreement and the Working Group on Disasters (WGDisasters) on the Sendai Framework. A decision should therefore be considered on whether CEOS should uniformly instantiate a new permanent Working Group on Sustainable Development.

For all future scenarios envisaged for CEOS activities on SDGs, there are two main roles that need to be considered when analysing the activities that CEOS does and would continue to undertake on SDGs:

- **The coordination of CEOS Agencies/Entities support to GEO on SDGs.**
'What' and 'how' CEOS should respond.
This includes all SDG coordination activities, including capturing CEOS contributions as deliverables in the CEOS Work Plan.
- **The implementation of the work on SDGs by the CEOS Agencies/Entities.**
'Who' in CEOS will do the work.
This includes all activities and resources required by CEOS Agencies and Entities to support CEOS contributions to the SDGs.

When analysing the future scenarios of CEOS activities on SDGs, it is also important to analyse how CEOS can harness the collective expertise existing in its entities (VCs, WGs, AHTs and SEO). Examples of relevant CEOS assets for the SDGs are capacity building (within WGCapD), Analysis Ready Data (within LSI-VC), EO-enabling infrastructures including CEOS Data Cube (within SEO and WGISS), and quality standards (within WGCV).

There are three domains in which the Space Agencies support and response to the SDGs could transpire.

- **CEOS:** within the CEOS Working Teams (VCs, WGs, AHTs, SEO, CEO), including possibly a dedicated Working Group on SDGs, or across existing or new CEOS working teams.
- **GEO:** within the GEO EO4SDG initiative and the broader GEO response to SDGs (i.e. other GEO Work Programme Flagships, Initiatives and Community Activities).
- **CEOS Agencies:** within individual Space Agency programs dedicated to providing direct or target support to particular SDG topics, generally within the scope of agency interest, capabilities, and national interests.

5. Future Options

Along the lines of these roles and domains of activities to be considered and after a few iterations with the members of the SDG AHT, three (3) future options, also called future scenarios, were presented for consideration to the participants to the SDG AHT Future Workshop on 11th February 2021.

The three options are listed below, ordered from the most 'hands-on' to the least 'hands-on' contributions from a CEOS perspective. As one moves from option 1 to option 3, the level of CEOS intervention decreases, as does the scope of the work and the work plan to be undertaken (i.e., option 1 requires a higher CEOS capacity than option 2 and even more with respect to option 3).

Option 1 (Full-scale option): Create a new CEOS Working Group (WG) on SDGs.

This is the most 'hands-on' and 'proactive' solution for CEOS, and is likely to achieve the highest impact as the WG would be a permanent CEOS entity, with all associated resource implications necessary to support. This option requires a strong commitment from CEOS Agencies, with one CEOS Agency chairing the WG for an initial 2-year term and a second CEOS Agency committing to be the Vice Chair for 2 years and then the Chair in 2 years for a total commitment of 4 years. In accordance with the [Working Group Process Paper](#), this option also requires development of the Terms of Reference (ToR) of the Working Group and an ambitious Work Plan.

The new WG on SDGs will still need to work closely with the other CEOS entities (VCs, WGs, SEO) to benefit from their expertise.

This solution offers the highest organisational flexibility, scalability and responsiveness that will not only allow CEOS to become a fully trusted GEO partner on SDGs but also a UN system partner.

Work: The new Working Group would have its own capacity and resources to perform SDG tasks, in coordination with other CEOS bodies when specific competencies are required and available in other CEOS entities.

Coordination: The Working Group would perform the full coordination function for CEOS support to GEO on SDGs, including the supervision of the CEOS Work Plan deliverables and the detailed work plans of the new Working Group.

Level of Resources for CEOS Coordination: The level of CEOS Agency effort required to coordinate a CEOS Working Group on SDGs is estimated to be 0.2 FTE for the Chair (20% of a Space Agency staff on average), 0.1 FTE for the Vice Chair and, if so chosen by the CEOS Agency committing to the chairmanship, 0.25 FTE for a WG secretariat.

Option 2 (Federated option): Transfer the CEOS work on SDGs into existing CEOS entities under an internal CEOS coordination mechanism.

This solution requires the CEOS work on SDGs to be fully decentralised and shared among existing working teams of CEOS (SEO, Working Groups, Virtual Constellations, and Ad Hoc teams). Some overall CEOS coordination will be provided, essentially to develop the CEOS annual work plans on SDGs and monitor progress of CEOS SDG related activities.

Option 2 is like having the current AHT situation indefinitely but eliminates a centralised work capacity since it implies that the current AHT sub-teams will have to find their own homes

within existing CEOS working teams, as already done for the SDG coastal sub-team which is a component of the CEOS COAST Ad Hoc Team.

This solution would require a single individual from a CEOS Agency (SDG Coordinator) or a team of individuals from multiple CEOS Agencies (SDG Coordination Team) to be the SDG lead for CEOS and to provide the connection between CEOS working teams and external requirements (essentially from GEO and UN agencies). It is likely that this coordination would require substantial resources and regular reporting to CEOS leadership (CEOS SIT and CEOS Plenary). A variant could be to assign the coordination to an existing CEOS body (e.g., SEO). The SDG Coordination Team (single individual, team of individuals or existing CEOS body) will be the CEOS point of contact on SDGs for GEO and the SDG community and needs to have a firm grasp of the SDG landscape and be capable of reaching out to CEOS Agency representatives that may not be otherwise engaged in CEOS working teams.

Work: CEOS work in support of the SDGs would be fully decentralised and performed across existing CEOS working teams and entities. Option 2 would require more work to be done by the CEOS bodies (WGs, VCs, AHT, SEO) than in Option 1 where most of the work will be conducted in the new Working Group. Existing CEOS bodies might need to extend their expertise in order to undertake the activities requested on some specific SDG indicators.

Coordination: There would be an identified SDG Coordinator or Coordination Team (single individual or group of persons) to which the CEOS coordination role on SDGs would be delegated. The SDG Coordinator/Coordination Team would work with the CEO to define the SDG-related deliverables in the annual CEOS Work Plan cycle, coordinate and monitor the SDG activities done in the CEOS working teams and entities, and represent CEOS in the international fora on SDGs. The SDG Coordinator/Coordination Team would also have the responsibility to engage the CEOS entities (SEO, Working Groups, Virtual Constellations, Ad hoc teams) and support the definition and implementation of SDG-related CEOS Work Plan deliverables by the CEO working teams engaged.

Level of Resources for CEOS Coordination: The level of CEOS efforts required to coordinate CEOS activities on SDGs is estimated to be 0.2 FTE for the SDG Coordinator/Coordination Team (single individual or group of persons).

Option 3 (On-demand option): Reduce the scope of CEOS support to GEO on SDGs to a responsive model, in line with CEOS External Request process.

This solution proposes to maintain a CEOS involvement on SDGs but at a minimal level and with a reduced scope, whereby CEOS' role would be essentially limited to the coordination of satellite observations and data access, based on external requests received from GEO (and possibly also from other SDG stakeholders such as UN agencies). Under this "on-demand" setting, CEOS would, for example, perform an in-depth satellite data analysis for a given SDG indicator, following a specific request received from GEO EO4SDG or directly from a UN agency such as FAO, UNEP, WHO or UN Habitat in accordance with steps outlined in the *CEOS External Request Process Paper*.

This solution proposes to implement a 'responsive' model where CEOS would initiate SDG activities only on external requests (e.g. coming from the GEO EO4SDG initiative). The handling of such external requests would include a role for CEO and SEO (in support to SIT Chair), along the lines of the [CEOS External Request Process Paper](#) and [CEOS New Initiatives Process Paper](#). This solution implies, as a baseline, that the CEOS work on SDGs be accommodated within CEOS work plans (existing or new) and assigned to existing CEOS

entities (e.g., SEO, WGs, VCs, and AHTs). Exceptionally, SDG external requests can result in the creation of a new CEOS entity (e.g. new Ad Hoc team).

In addition to the CEOS collective responses to external SDG requests, CEOS Agencies would be individually responsible for any further contributions on SDGs without any CEOS coordination, either by contributing directly to the relevant GEO Work Programme activities (e.g. EO4SDG and thematic GEO Work Programme activities) or by liaising directly with the SDG stakeholders (U.N. and countries). Such a solution would leave a minor role for CEOS in the 2030 Agenda, while it is recognised that there is a continuing need for satellite observations and a growing impact of satellite data and tools for the SDGs.

Work: CEOS would only take action if requested by GEO or by the SDG community (e.g. UN agencies) and essentially for activities in line with the work plans of existing CEOS entities. As described in the CEOS External request Process Paper, there is no guaranty that an incoming external request will automatically be approved by CEOS leadership. Any further contribution from Space Agencies to the SDGs will take place outside of CEOS, based on Agencies' priorities and interest.

Coordination: The response coordination will be provided by CEOS, in accordance with the [CEOS External Request Process Paper](#). It is likely that the CEO (Step A initial consideration), SEO and SIT Chair (Step B high level and detailed assessments) would triage SDG requests per the existing processes in place and accommodate SDG requests within existing or new CEOS Work Plan Deliverables.

Level of Resources for CEOS Coordination: No CEOS effort is required to coordinate CEOS activities on SDGs. Only a response coordination (to be provided by CEO, SEO and CEOS-SIT as per CEOS External Request Process Paper) is required.

6. Scale of CEOS Work

The final decision on which scenario to choose depends on what CEOS Agencies want to take on collectively, and to which level CEOS Agencies can provide the capacity to do so. The impact of the CEOS activities on SDGs is commensurate to the level of resources available. If not enough resources are made available by CEOS Agencies, then CEOS should not commit to create a new Working Group (Option 1). If the conditions are not met to form a new Working Group, then CEOS would have to opt for a light coordination (Option 2) or leave the coordination to the existing CEOS processes when dealing with external requests (Option 3).

The primary role of CEOS on SDGs should be dedicated to a coordination of the space agencies' support to the provision of satellite data for the 2030 Agenda. CEOS activities on SDGs should therefore address principally issues related to access and use of satellite data, e.g., which satellite data are required to monitor the SDG indicators? Is the availability of satellite observations enough in time and in space to derive the EO-relevant SDG indicators, leaving no country behind? How can CEOS help countries better access satellite data and process/analyse satellite-derived information to make informed decisions on SDGs?

The following table provides a list of CEOS activities on SDGs for each of the three scenarios, outlining the scale of SDG work in CEOS, given the available support and capacity from CEOS Agencies and entities.

CEOS Activities on SDGs	Full-scale Option	Federated Option	On-demand Option
Satellite Data Analysis for SDG indicators	P (full range)	P (limited range)	P (on request)
EO enabling infrastructures (including development of SDG workflows and sandboxes on CEOS data cube)	P (full range)	P (CEOS Data Cube) S (others)	S (on request)
EO Awareness and Capacity Building	P	P	S (on request)
EO Good Practices for SDG indicators	P	S	O (on request)
Development of EO methodological guidelines for Custodian Agencies.	P	O	
Development of EO Quality Standards for SDG indicators	P	O	
Demonstration of EO solutions for SDG monitoring and reporting	S		
Satellite Data Analysis for SDG targets (target setting and monitoring)	S		

P: Primary activity S: Secondary activity O: Optional activity (only if resources available)

7. Pros and Cons of future Options

The pros and cons for each of the 3 options proposed are summarised below.

Option	Pros	Cons
1. Full Scale Option: Create a new CEOS Working Group on SDGs.	<ul style="list-style-type: none"> The creation of a WG would allow to have a dedicated and focused CEOS response on SDGs, pulling together specific expertise that might not be engaged in existing CEOS groups or activities The creation of a WG would allow to ensure a sustained coordination / cooperation of the SDG-related activities undertaken by CEOS Agencies. CEOS will keep an important role in the 2030 Agenda with high visibility for CEOS and its Agencies. Maximises the impact on SDGs for CEOS and its Agencies. 	<ul style="list-style-type: none"> The creation of a working group would require a higher investment from CEOS Agencies. More sustained efforts and resources are required from CEOS agencies, and a firm commitment to actively contribute to the WG work plan (including the nomination of the WG chair and co-chair). Requires a solid governance structure (including executive secretariat), an ambitious work plan and regular reporting mechanisms. The high level of resources needed from CEOS agencies might be seen too premature to have a fully operational and active Working Group starting in 2022.

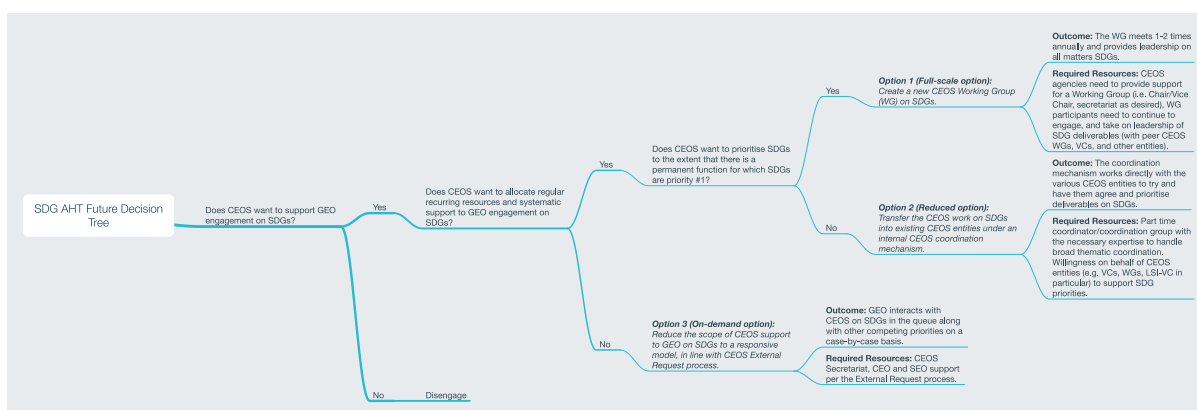
	<ul style="list-style-type: none"> • A Working Group on SDGs would be the 3rd thematic WG (with Climate and Disaster) that CEOS would have instantiated in response to the 3 GEO Engagement Priorities and main global societal agendas (Sendai Framework, Paris Agreement and 2030 Agenda) • The successful implementation of the SDGs requires some cross-community data integration. For example, the source of marine litter is primarily from land and needs monitoring of inland waste sites and river discharge. A working group on SDGs would be a transversal activity by definition, allowing to address issues that are cross-cutting across VCs. • The WG membership can be built / organised with the right experts (from both CEOS and non-CEOS agencies) to properly address each specific SDG target and indicator. That's particularly interesting for SDGs for which there is no current expertise in the CEOS WGs and VCs (similar to what was done with the WG Disasters and the creation of 3 specific groups on volcanoes, floods and seismic hazards where expertise could not be provided by any existing CEOS WGs and VCs). • Dependencies on other CEOS entities would be less important, limiting the risk that some key SDG activities may not be addressed with the highest priorities by the other CEOS entities. 	<ul style="list-style-type: none"> • To justify the existence of a new CEOS Working Group, the Work Plan must be more ambitious than the current SDG AHT activities and cover a broader range of activities. The risk of duplication with existing GEO activities will need to be well coordinated with GEO SEC and EO4SDG. • SDGs are very broad and cross-cutting (land, marine, atmosphere) requiring different EO competences (scientific, applications, satellite data, EO infrastructures, capacity building, accuracy assessment). CEOS would need many experts to cover all the issues and build a proper WG. Managing such a large group of experts will be challenging. • The new WG on SDGs will still need to work closely with the other CEOS entities (VCs, WGs, SEO) to benefit from their expertise. The contribution of the other CEOS entities to the WG workplan will need to be well coordinated.
2. Federated Option: Transfer the SDG work into existing CEOS entities under CEOS coordination.	<ul style="list-style-type: none"> • The federated option would be consistent with the approach followed by CEOS in past AHT activities which have been integrated within existing CEOS entities (e.g., GFOI SCDG and GEOGLAM integration within LSI-VC). • Can be the most flexible, cost-effective and practicable solution, allowing CEOS to stay responsive, while best using resources and expertise available within existing CEOS bodies. • Could be considered as a transition solution towards the creation of a working group on SDGs (option 1), should the interests grow within CEOS agencies. 	<ul style="list-style-type: none"> • The CEOS SDG coordination team will need to prepare an annual "Work List" of activities that CEOS Entities would need to accomplish in support of SDGs. This requires a more top-down, hands-on and directed situation of CEOS leadership, rather than the traditional bottom-up approaches of CEOS activities • Need to restrict the CEOS activities to a number of prioritized deliverables achievable with the limited resources available to coordinate (by CEOS individuals or groups of individuals) and perform (by existing CEOS entities) the work.

	<ul style="list-style-type: none"> • CEOS will keep a role in the 2030 Agenda, and will still be recognised as a key partner by the SDG community to facilitate access and use of satellite data in the SDGs. However, it is expected that CEOS will be less visible in the international arena and will contribute less to GEO SDG activities than with option 1. • The need for additional resources to be assigned by CEOS Agencies will be limited since the work will be essentially done within existing CEOS entities, except for the coordination task. • The coordination role to be performed by a single individual or a team will provide CEOS with the conduit to maintain and support SDG-related deliverables in the annual CEOS Work Plan cycle, coordinate and monitor the SDG activities done in the CEOS working teams and entities, and represent CEOS in the international fora on SDGs. • Some SDG activities can naturally be transferred to other CEOS entities, such as the collation of EO best practices and the development of a centralised capacity building program on SDGs which can be assigned to WGCapD. • The CEOS Work Plan will still reflect SDG deliverables and activities defined by the working teams and will still be managed through the CEOS annual processes. 	<ul style="list-style-type: none"> • The <i>CEOS Governance and Processes paper</i> does not address the concept of a coordination mechanism (done by CEOS individuals or group of individuals). Such a coordination mechanism will need to be embedded in the CEOS processes. • Requires a commitment from CEOS Agencies to nominate an individual or a team of individuals to be the coordinator/coordination team within CEOS and provide the connection between CEOS working teams and external requirements (GEO and U.N.). • It is expected that limited resources will be made available by the CEOS bodies which will have to do the SDG activities in addition to their existing Work Plan responsibilities. • There is a risk that the SDG activities will not be taken as high priority tasks by other CEOS entities. A strong lobby with these entities will be needed to ensure that the SDG activities are adequately addressed in their respective work plans. • The lack of SDG experts within CEOS will result in less or no support for some SDG targets and indicators, compared to option 1. • CEOS impact on the SDG processes cannot be maximised due to the limited resources that the existing CEO entities can dedicate to the SDG-related deliverables. • CEOS will not have a prominent international presence on SDGs as for option 1 and will have limited contacts with the SDG stakeholders (UN and countries).
3. On-demand Option: Reduce the scope of CEOS support to GEO to a responsive model in line with CEOS External Request process.	<ul style="list-style-type: none"> • Level of resources needed in CEOS will be reduced to the bare minimum as well the CEOS support to GEO SDG activities • CEOS role will be limited essentially to the EO satellite data coordination access for SDGs, based on external requests from the SDG community (e.g. GEO EO4SDG), which is one of the core activities of CEOS. 	<ul style="list-style-type: none"> • CEOS role will be passive and solely reactionary to external requests. • The “on-demand” option would give the message of a low CEOS engagement on SDGs from CEOS. • No internal coordination of CEOS activities on SDGs will be available anymore. Only a CEOS “response” coordination will be provided (handled by CEO, SEO and SIT chair in accordance with the processes defined in the <i>CEOS External Request Process Paper</i>)

	<ul style="list-style-type: none"> • No need for additional Space Agency resources to coordinate the CEOS activities on SDGs. The "response" coordination will be provided by CEO, SEO and SIT chair in accordance with the processes defined in the <i>CEOS External Request Process Paper</i>. • Individual CEOS Agencies can still be active on SDGs through their direct participation to GEO EO4SDG and SDG-related WP activities (e.g. HPI, Blue Planet, GEO LDN, AquaWatch, GEO Wetlands), according to their priorities and interests. • No concern about possible overlapping activities between CEOS and GEO since all CEOS activities on SDGs will be initiated by GEO. • GEO and the UN can still benefit from the broad range of expertise of CEOS and its entities. 	<ul style="list-style-type: none"> • CEOS role on SDGs will be marginal and limited to a support role, without any strategic coordination and with no international presence. • CEOS impact on the SDG processes will be marginal. • CEOS role will be limited to support GEO (EO4SDG) and the UN with all the critical satellite activities on SDGs. • There is a risk that current activities within the CEOS SDG AHT will be discontinued. • The CEOS external request process to handle GEO/UN requests on SDGs might be too cumbersome and will not allow a fast and quick response. • Without a CEOS coordinated approach and leadership, SDG work and efforts by CEOS Agencies may be duplicated.
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8. Summary: Strengths & Challenges

The decision process to choose between the 3 future options can be summarised with the following "simplified" decision tree that highlights key questions that CEOS as a group needs to answer on its collaborative engagement on SDGs.



It is essential for CEOS to remain flexible in how it organises its collaborative engagement on the SDGs and how it coordinates the considerable efforts (i.e., activities, projects, tools, and datasets) existing amongst its Member Agencies and internally within CEOS bodies (i.e., within its Working Groups, Virtual Constellations, SEO).

The *full scale option* (creation of a working group) requires more engagement and commitment from CEOS Agencies whereas the *federated option* (transfer of SDG activities to existing bodies) requires more responsibility to be levied on CEOS Entities. Rather than mapping SDG activities to existing CEOS groups (with the risk that some activities might fall outside the scope of all existing groups), the *federated option* could be implemented following a co-development approach where a compendium of CEOS support on SDGs is developed by the

SDG coordination team in close coordination with GEO EO4SDG and CEOS bodies. The *on-demand option* (responsive model) will require additional resources to respond to external requests, in particular if there is a significant volume of requests. This response role would fall under the responsibility of the CEO, SEO, and CEOS leadership (Chair, SIT Chair, Sec) - per the existing process document.

The key question that should firstly be addressed is whether CEOS wants to be proactive on SDGs and be recognised as a trusted and engaged partner by GEO and the UN system, which would rule out the “on demand” option from the most favourable scenarios.

At the end of the SDH AHT future workshop, all participants were requested to express their preferences from the available 3 options, with a maximum of 2 votes. A total of 17 individuals from different agencies, including ESA, SIT Chair, GA, EC-JRC, JAXA, CEOS, CSIRO, CNES, NASA, GEO Secretariat, expressed their opinion on preferred future scenarios. The survey provided the following results in terms of favourable votes, which shows a clear preference for the most pro-active options:

- Federated option: 76.5%
- Full-scale option: 70.6%
- On-demand option: 23.5 %

9. SDG AHT Recommendations

The two most favourable future scenarios (federated option and full-scale option) are proposed to be further developed through extended discussions with all stakeholders within CEOS (i.e., CEOS agencies and CEOS entities) and outside of CEOS (i.e., GEO secretariat, GEO EO4SDG and SDG-related work programme activities), in order to come with a substantiated proposal to be reviewed and finalised with all stakeholders during the CEOS Technical Workshop in September, before its formal submission for approval to CEOS Principals at the 35th CEOS Plenary.