
WP23_25: Earth Observations for the Sustainable Development Goals

1232,167

Basic Information

Full title of the Initiative

Earth Observations for Sustainable Development Goals

Short Title or Acronym

EO4SDG

Current category in the 2020-2022 GWP

GEO Initiative

Proposed category in the 2023-2025 GWP

GEO Initiative

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Purpose

Objective

Extend and apply Earth observations, geospatial information and derived knowledge to advance the 2030 Agenda and enable societal benefits through achievement of the Sustainable Development Goals.

Please provide a short description of the Initiative

The Earth Observations for Sustainable Development Goals (EO4SDG) initiative organizes and realizes the potential of Earth observations and geospatial information to advance the 2030 Agenda and enable societal benefits through achievement of the SDGs. EO4SDG involves technical, organizational and programmatic components. Collectively, these items meld in the projects, data, outreach and engagement, and capacity development related to how Earth science information sources can support the 2030 Agenda.

Why is this Initiative needed?

EO4SDG serves a fundamental role to advance global knowledge about effective ways that Earth observations

and geospatial information can support the SDGs. The Initiative seeks to advance the benefits of the SDGs through sustained, effective use of Earth observations. And, these uses can lead to greater awareness of, and interest in, Earth observations to enable even greater societal benefits.

What evidence is there to support this need?

The 2030 Agenda specifically calls for new data acquisition and exploitation of a wide range of data sources to support comprehensive review and implementation processes at global, national, and sub-national levels. Article 76 states, “We will promote transparent and accountable scaling-up of appropriate public private cooperation to exploit the contribution to be made by a wide range of data, including Earth observation and geospatial information, while ensuring national ownership in supporting and tracking progress.” This has presented a unique opportunity for Earth observations and geospatial information, combined with demographic and statistical data, to enable countries and stakeholders to inform SDG indicators; monitor change over time in a consistent and standardized manner; evaluate impacts across sectors and regions; enhance visualization capabilities leveraging common platforms; and support planning and informed policy decisions to drive progress on sustainable development.

Thanks to the efforts of EO4SDG, in partnership with many activities from the GEO Work Programme — GEO Human Planet, GEO Blue Planet, GEO LDN, GUOI, AmeriGEO to name a few— the Committee on Earth Observation Satellites (CEOS), the United Nations Committee of Experts on Global Geospatial Information Management and the Working Group on Geospatial Information (WGGI) of the Inter-Agency Expert Group on the Sustainable Development Goals Indicators (IAEG-SDGs), Earth observations are now widely recognized as critical resources that bring significant value to measuring and driving progress towards many SDGs. A continuous need exists to coordinate how countries learn about the importance and role of Earth observations and how to use it for the SDGs, including management of their SDG targets using EO-based methods and decision support tools, and to highlight how these data can be applied to the generation of national statistics and for their spatial disaggregation.

When countries and stakeholders use Earth observations on a sustained basis for their SDG activities, the EO4SDG initiative will be successful. And, if their SDG-related use of Earth observations leads to broader uses or stimulates new and improved collections of Earth observations, this initiative will have truly helped GEO fulfill its overall purpose and vision.

Is this Initiative open to participation by representatives of any GEO Member, Participating Organization, and GEO Associate?

Yes

Are you aware of other projects or initiatives at a global or regional scale (both in GEO and externally) that provide similar products or services?

No

Please identify the most important actual and/or intended outputs (products, services, etc.) produced by the Initiative, along with their intended and/or actual users. This list does not need to be comprehensive but should identify the outputs which are most used and are expected to have the greatest potential impact.

Output	Status	Users	Additional info
GEO SDG Awards	Regularly updated	Global reach (see website for eligibility and award (sectoral and special) categories)	https://eo4sdg.org/sdg-awards-program/
Earth Observations Toolkit for Sustainable Cities and Human Settlements	Regularly updated	List of users is available: https://eotoolkit.unhabitat.org/	https://eotoolkit.unhabitat.org/
Projects	Regularly updated	Countries (national statistics offices, ministries), municipalities, NGOs, civil society organizations, United Nations Agencies.	https://eo4sdg.org/
Trainings	Regularly updated	Local government and municipality authorities, national governments, networks, fora, United Nations agencies, non-public sector agencies	https://eo4sdg.org/
Country Use Cases	Occasionally updated	Countries and other relevant stakeholders	https://eo4sdg.org/get-more-information/country-use-cases/
EO4SDG Website & Social Media	Regularly updated	https://eo4sdg.org/our-users/	https://eo4sdg.org/ and @EO4SDG
Special Issues, Journal Publications and Articles	Occasionally updated	Global SDG and statistical community, countries, Earth science community, UN agencies, non-public sector, civil society	https://eo4sdg.org/ [Under Get More Information]
Events at UN, GEO, scientific conferences, and user-centric events	Regularly updated	Global SDG community, statistical community, countries, Earth science community, UN agencies, non-public sector, civil society	https://eo4sdg.org/ [See Calendar of Events]
Additional SDG Toolkits	Planned	Countries and other relevant stakeholders	TBD
SDG Workshop	Planned	TBD	TBD
MOOC on Earth Observations for SDGs.	Planned	Countries (national statistics offices, ministries), local governments, UN custodian agencies, non-public sector, civil society	TBD
SDG Indicator methodologies	Occasionally updated	UN entities, countries and relevant stakeholders	EO4SDG collaborates with SDG custodian

			agencies to develop or refine methods, contributing to the advancement of SDG indicators to a higher tier. In this way, EO4SDG seeks to ensure methods are endorsed, meet the statistical community's standards, and help countries apply EO to SDG.
Annual Reports	Regularly updated	National Statistical Offices, line ministries, international statistical agencies, UN entities, as well as GEO Community Activities, Initiatives and Flagships.	https://eo4sdg.org/get-more-information/progress-reports/
AGU Book Publication: Earth Observations Application for Global Policy Frameworks	In development	Countries (national statistics offices, ministries), municipalities, NGOs, civil society organizations, United Nations Agencies, non-public sector	Expected publication: July/September 2022

If needed, please provide additional comments or explanation to accompany the outputs table

- no answer given -

What kinds of decisions are the outputs of this Initiative primarily intended to support?

The initiative works to ensure that the global community is aware of effective ways to use Earth observations and geospatial information relative to the SDGs; countries and stakeholders have the skills and capabilities necessary to apply the data and information; the global community employs smart practices and solutions on uses of Earth observations in planning, tracking, and reporting; Earth observations provide real, value-added benefits and are recognized for their contributions to support positive social, economic, and environmental impacts; and there is demonstrated progress on the Goals and broad desire for more.

Achieving this vision also implies that countries and stakeholders have timely access to needed data and information, and they can seamlessly integrate them where applicable – that data and derived knowledge is freely and openly available, especially where achieving SDGs requires multi-national or regional approaches and coordination. There are on-going collaborations among Earth observation providers, stakeholders, and countries, especially with national statistical offices and line ministries. Additionally, there are open lines of dialogue to consider and appropriately support needs for data, training, method testing, product validation and capacity development. Countries and stakeholders recognize the value of the data and information for the SDGs, and they want additional data and enhanced information for the SDGs and for broader activities, planning, and decisions. Overall, they envision and are motivated to pursue new opportunities to enable societal benefits.

How will these decisions benefit from the outputs of this Initiative?

EO4SDG aims (Goal I) to demonstrate how Earth observations, geospatial information, and socio-economic and other data contribute in novel and practical ways to support sustainable development efforts and the SDG. This goal focuses strongly on the development and uptake of quality methods using Earth observations for use with the SDG, associated Targets, and the global Indicator framework. Applied research, feasibility testing, development, and operationalization of innovative and practical methods are part of this goal,

including assessments across users and regions as well as of data availability and suitability. User engagement and co-development of methods and testing are important and integral to successful development and broader uptake.

The prime users of EO4SDG are National Statistical Offices (NSOs), National Mapping Agencies, line ministries, international statistical agencies, and UN entities. EO4SDG promotes the emergence and scaling-up of joint efforts between these users and the Earth observation/ Geospatial Information (EO/GI) community to demonstrate the effective uses of EO/GI data in complementing traditional data, such as census data, administrative data, household survey data, and vital statistics, to achieve the SDGs. In addition to addressing timely access to needed data and information, the goal includes efforts to integrate Earth observations and geospatial information into internationally approved guidelines, national development plans and national monitoring systems for the SDGs. Partnerships with organizations and communities to support broad use of effective methods and solutions is implicit, and this goal entails significant work to enable the adoption of these methods.

EO4SDG has established priority areas for the development of methods applying Earth observations to the SDGs. These include Goals 6 (clean water and sanitation), 11 (sustainable cities and human settlements), 14 (life below water) and 15 (life on land). In addition, the UN IAEG-SDGs WGGI has developed a shortlist of 24 indicators where geospatial information and Earth observations, together with statistical data, can contribute directly (or indirectly) to the production of these indicators (Appendix A). These are considered priority indicators for GEO, particularly those that are categorized as Tier II — i.e., indicators with an established methodology but where data are not regularly produced by countries. As of February 2022, the global indicator framework includes 136 Tier I indicators, 91 Tier II indicators and 4 indicators that have multiple tiers.

Goal II of the EO 4SDG initiative aims to increase skills and capabilities in uses of Earth observations for SDG activities and their broader benefits. This goal improves underlying capabilities with Earth observations, focusing especially on support to countries and stakeholders in the implementation of methods using Earth observations to address the 2030 Agenda. The goal includes activities to coordinate and foster capacity development to effectively employ methods, enable data awareness and access, and sustain use of Earth observations in the context of the SDGs. The goal spans human, scientific, technological, organizational, institutional, and resource-based capacities.

Efforts to develop capabilities to substantiate and quantify the social, environmental, and economic benefits from Earth observations in serving the SDG are included, especially as this articulation may contribute to greater uptake. Activities to develop capabilities within GEO and the Earth observations community about SDG statistical principles and practices are included, as are new capabilities to use data visualization methods to support alternatives analysis and planning regarding the SDGs; increase use cases and interdisciplinary collaboration. This initiative also “federates” GEO’s community Activities, Initiatives and Flagships that include an SDG element so as to increase SDG-related knowledge sharing across the GEO Work Programme.

EO4SDG also broadens interest, awareness, and understanding of Earth observations support to the SDGs and contributions to social, environmental, and economic benefits (Goal III). This goal addresses outreach, engagement, and communications to showcase effective uses of Earth observations to achieve benefits and positive impacts, thereby encouraging nations and stakeholders to pursue uses themselves. Traditional and innovative approaches are included to convey achievements and quality stories about roles of Earth observations and GEO to serve development goals. In communicating examples and successes, the Initiative emphasizes where nations and stakeholders clearly gain from their use of Earth observations for the SDGs. The materials showcase the nations and stakeholders and the benefits they achieved. Communication efforts on the progress of the Initiative overall are included. Outreach and engagement activities include efforts to support user-generated method ideas, refinement of the ideas, and brokering connections between users and technical experts. The goal involves innovative work to visualize and convey status and trends in progress toward the SDGs. A foundational element of this Goal is to increase awareness of the need for open data and information, especially in underserved communities and emerging economies, to enable decision makers at all levels to make better use of Earth observations.

What kinds of impacts (for example, reduced loss of life, monetary savings,

conservation of biodiversity, etc.) are anticipated as a result of the use of the outputs of this Initiative?

Examples of impacts include:

- A) Accelerate achievement of the water-related goals and targets to ensure availability and sustainable management of water and sanitation for all.
- B) Make cities and human settlements inclusive, safe, resilient and sustainable, by improving health, affordable housing, basic services, sustainable mobility and connectivity.
- C) Conserve and sustainably use the oceans, seas and marine resources.
- D) Sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.
- E) Improve understanding of the impacts of climate variability and change on species and ecosystems.

Additional benefits include:

- A platform for knowledge sharing across all GEO Work Programme activities that include an SDG element, and the broader Earth observations, geospatial and statistical communities.
- Increased awareness of the need for open data and information, especially in underserved communities and emerging economies, to enable decision makers at all levels to make better use of Earth observations.
- Demonstrable progress in the development of methods and their sustained, widespread utilization by countries for SDG monitoring and reporting, while encouraging new data and information collection.
- Stakeholder engagement and skills building to raise awareness and enable easier, broader country adoption of EO for SDGs, including engagement of countries in the development and delivery of trainings.
- Good practice examples of EO uses with SDG developed under other GEO Work Programme Activities independent of (or with guidance from) EO4SDG.
- Specific examples on how countries have applied EO in assessing, and reporting on, SDG targets and indicators.

Has this Initiative been asked to provide specific information (for example, reports, data, services) on an ongoing basis to an international convention, organization, or other multilateral body?

Yes

Please identify the requesting organization.

- a) Agenda 2030 (attached)
- b) UN Interagency Expert Group on SDGs (IAEG-SDGs)
- c) Working Group on Geospatial Information (WGGI) (via contributions to the SDGs Geospatial Roadmap)
- d) UN Human Settlements Program (UN Habitat)
- e) UN Environment

Describe the nature of the request.

The 2030 Agenda specifically calls for new data acquisition and exploitation of a wide range of data sources to support comprehensive review and implementation processes at global, national, and sub-national levels. Article 76 states, "We will promote transparent and accountable scaling-up of appropriate public private cooperation to exploit the contribution to be made by a wide range of data, including Earth observation and geospatial information, while ensuring national ownership in supporting and tracking progress." This has presented a unique opportunity for Earth observations and geospatial information, combined with demographic and statistical data, to enable countries and stakeholders to inform SDG indicators; monitor change over time in a consistent and standardized manner; evaluate impacts across sectors and regions; enhance visualization capabilities leveraging common platforms; and support planning and informed policy decisions to drive progress on sustainable development.

The UN IAEG-SDGs Working Group on Geospatial Information (WGGI) (EO4SDG is a member; <https://ggim.un.org/UNGGIM-wg6/>) requested input from the EO4SDG Initiative in support of the development of the SDGs Geospatial Roadmap (a story map describing the Roadmap is available: <https://storymaps.arcgis.com/stories/226e3f606f7940e1b5738e5bcab0cef3>). This Roadmap has been collaboratively developed as a strategic information and communications mechanism to 'build the bridge' and understanding between the statistical and geospatial actors working within the global indicator

framework. The SDGs Geospatial Roadmap provides simple and actionable guidance to the IAEG-SDGs, Custodian Agencies and National Statistical Offices, National Geospatial Information Agencies and others working within the national SDG ecosystem. The Roadmap (attached) is available in English, French and Spanish and was adopted at the 53rd Session of the UN Statistical Commission in March 2022.

On 5 June 2019, Mr Robert Ndugwa (Chief, Global Urban Observatory, UN-Habitat) requested some support from GEO on four specific SDG indicators, via a letter sent to the GEO Secretariat Director. In response to this request and follow-up meetings, EO4SDG in partnership with UN Habitat and the GEO Secretariat as well as the GEO Human Planet and GUOI initiatives, led the development of the Earth Observations Toolkit for Sustainable Cities and Human Settlements. To do this, EO4SDG and UN Habitat released a call for expressions of interest to develop a customizable and continually updated toolkit on the integration of Earth observation and geospatial information into the urban monitoring and reporting processes on SDG targets and indicators based on inputs from UN Member States and cities (see https://earthobservations.org/geo_blog_obs.php?id=422). The Toolkit is hosted by UN Habitat (eotoolkit.unhabitat.org) and has actively contributed to the global urban monitoring framework designed by UN Habitat as a flexible framework for monitoring SDGs and other city objectives such as inclusiveness, resilience, and safety. During the 53rd session of the UN Statistical Commission held March 1-4, 2022, UN Habitat endorsed this monitoring framework and its implementation as part of a global urban UN strategy (see attached).

Beginning in 2017, UN Environment requested support from GEO to demonstrate the applicability of EO data sets for national monitoring and reporting on SDG Indicator 6.6.1 (change in the extent of freshwater related ecosystems). Representatives from EO4SDG and CEOS collaborated with UN Environment to develop of a refined methodology (UN Environment, 2020) and a free and open data platform (the Freshwater Ecosystems Explorer, sdg661.app) that provides access to foundational (level 1) EO data on permanent and seasonal surface waters, reservoirs, and wetlands, and water quality at the national, subnational, and basin scale. EO4SDG has helped advance national capacity and bring necessary EO data and tools to users in need of better information on surface water dynamics and ambient fresh water quality (indicators 6.6.1, 6.3.2). NASA, for example, has been leading an effort to produce moderate resolution (~30 m) map products to monitor SDG indicator 6.3.2/6.6.1-relevant parameters for small water bodies in Uruguay and Peru. Furthermore, ESA and the WorldWater project initiated a round robin exercise to intercompare EO algorithms for surface-water detection, using the latest generation of free and open satellite data from Sentinel-1, Sentinel-2, and Landsat 8. Pilot countries participating in this effort include Gabon, Zambia, Mexico, Colombia, and Greenland.

Please provide supporting documentation of the request.

- 2022_11_humansettlements_e.pdf ([link](#))
- agenda_2030.pdf ([link](#))
- bg_3a_sdgs_geospatial_roadmap_e.pdf ([link](#))
- email_geospatial_roadmap.pdf ([link](#))
- sdg_indicator_661_methodology_english.pdf ([link](#))

Technical Synopsis

Please provide a brief description of the methods used by the Initiative to produce its (actual or planned) outputs.

The EO4SDG Initiative maintains four elements as lines of business: Projects, Capacity Building, Data and Information Products, and Outreach and Engagement. Each line serves each of the goals and contributes to the objectives. Some lines may have desirable overlaps and synergies with other lines, and they collectively address technical, organizational and programmatic aspects of the Initiative.

The EO4SDG team of GEO Member Countries, Participating Organizations, and additional contributors pursues these implementation elements in partnership with suitable, apposite organizations. The seventeen Goals of the Agenda 2030 include 169 Targets and 232 Indicators in the Global Indicator Framework. Some Goals, Targets, and Indicators are well-suited for Earth observations support. In some cases, Earth observations can directly serve an Indicator. In others, Earth observations may provide ancillary information toward indirectly serving an

Indicator. Still, in others, Earth observations may not meet the stated Indicator, yet they can contribute to progress on the associated Target (and the results will show up in the Indicator). An analysis carried out by GEO (Table 1), identified 72 (42%) targets and 35 (15%) indicators where Earth observations can contribute to as a direct measure or as indirect support. A more recent analysis by Kavvada et al. (2020) shared an updated assessment of existing EO systems available to generate data for SDG indicators, including main resolution characteristics, identifying 33 indicators for which EO data plays a significant role. Based on this analysis, SDGs 6: Clean water and sanitation, 14: Life below water, 15: Life on land and 11: Sustainable cities and communities offer the greatest opportunities for the application of EO data. In addition, table 2 describes alignments of the seventeen Goals with specific types of Earth observations and geospatial information.

A recent analysis by the UN IAEG-SDGs WGGI produced a shortlist of 15 indicators where GI/EO, together with statistical data, can contribute directly to the production of these indicators (table 3); and, a shortlist of six indicators where GI and EO significantly support the measurement of these indicators (table 4). Tables 3, 4 also share information about which of those indicators include UN adopted, EO integrated methods and documented country examples, as of April 2022. The EO4SDG Team uses these assessments to guide its foci during implementation.

Projects

The EO4SDG Initiative directly supports and pursues projects for method development, distribution, and adoption. The Initiative also provides technical and other guidance for projects developed under other GEO activities, serving a coordination role in a federated approach to GEO's overall service to the SDGs. Collectively, this portfolio of projects develops and deploys uses of Earth observations to support the tracking of, and reporting on, the SDGs, including integration with national statistical accounts for the indicators. The projects conceive, develop, test, and validate relevant methods, building on proven, existing methods and applications when appropriate. Projects and methods may range from traditional and practical approaches to novel and innovative ones.

Projects encompass simple feasibility studies, pilot projects, and in-depth endeavors. As projects mature, their activities address suitability assessments, sensitivity analyses, frequency testing, and other factors to characterize uses of Earth observations and their appropriateness across users³ and regions. Their activities may involve innovative uses of visualizations, dashboards, infographics, and graphic design approaches to communicate status and trends in SDG indicators.

Some project activities may focus on one country and address several SDG indicators; others may focus on a particular SDG indicator and apply it to several countries. Overall, the Initiative pays particular attention to the ability to scale a method to multiple nations or stakeholders on a regional or global scale. In addition, the Initiative emphasizes the strong collaborations that projects must have with the statistical community at national and global levels.

The range of activities in the GEO Work Programme provide multiple ways for GEO and Earth observations to support to the SDGs. As part of a federated approach, the EO4SDG Initiative serves a communication function to share smart practices and provide guidance, encouraging consistent approaches and quality standards. Collectively, the projects contribute to enhance the global knowledge and capacity on how to use Earth observations in the implementation and monitoring of the SDGs.

Building on these projects, the EO4SDG initiative documents and broadcasts examples, case studies, lessons learned, and smart practices using Earth observations with the SDG indicators. The initiative identifies and conveys feedback from user organizations on their experiences with and recommendations for Earth observations data and derived information, such as formats and access. The projects include efforts to support qualitative and quantitative evaluation on the broader benefits of Earth observations to enable societal benefits. The projects also aim to illustrate how Earth observations can be employed in the development and implementation of policies and programs that extend beyond the SDGs.

Capacity Building

A portfolio of capacity building activities provides support to institutions and individuals in the ideation, development, and implementation of methods. The activities build capabilities directly with the SDG methods and more broadly with accessing and applying Earth observations. Activities here draw on and contribute to GEO's established capacity building activities and expertise, and they may examine inventive approaches, such as social media, to support the testing and refinement of methods by users.

This element supports the use of Earth observations for the SDGs in all aspects, such as planning, tracking, and reporting. The portfolio includes virtual and physical activities, such as trainings, webinars, joint projects, applied research, and workshops, among many other successful capacity building practices. The element uses and supports GEO's efforts to characterize user needs, especially in fostering effective ways to enable sustained uptake of the methods and related data access.

Given the basis of the SDGs in statistical data, this element includes engagement with the SDG statistical and geospatial communities about Earth observations, as well as capacity building within GEO and the Earth observations community about SDG statistical principles and practices.

Data and Information Products

The element encompasses a portfolio of activities advancing the provision, access, discoverability, and applicability of Earth observations and geospatial information for use with the SDG. The element draws on GEO's efforts to characterize user needs, especially in the collection of information from SDG user organizations about data characteristics, usability, preferred formats, etc. to help GEO refine approaches to enable greater use of Earth observations for the SDG. This element especially includes efforts to provide feedback from user communities in less-developed areas about data and information products, as well as EO-enabling tools and platforms. It also helps develop recommendations about how global datasets of information products provide a source of information for countries, in the absence of, or to complement, national data sources. This is very relevant for countries that face major difficulties in collecting national data.

The activities in this element support GEO's efforts to promote and encourage open data policies. In particular, this element focuses on open availability of data and information products where achievement of SDG needs multi-national or regional approaches and coordination. The element includes data visualization methods to support alternative analysis and planning regarding the SDG. The element assesses data and information needed to be available, working with GEO data activities and others to improve discovery, access, and usability. This element also supports activities to identify and enable new observing systems, data acquisition, and exploitation of a wide range of data types and sources— including global datasets of information products in the absence of, or to complement, national data sources – supporting data systems enabling this. EO4SDG is working with other GEO Work Programme activities (e.g., GEOGLAM) to set up a framework for assessing the availability and applicability of fit-for-purpose datasets, including their accuracy, latency and other specifications, to SDG indicators and inform relevant decisions. In addition, this element supports development of guidance to enable end-users to mainstream “analysis ready” EO datasets into national statistical processes and systems, in close collaboration with CEOS.

Outreach and Engagement

This element focuses on outreach and engagement to encourage nations and stakeholders to use Earth observations as part of their SDG activities. Working closely with the other elements, this element includes the creation and maintenance of a portfolio of materials that showcases effective methods, available capacity building support, and accessible data and information products to promote the consideration and adoption of Earth observations for the SDGs by nations and stakeholders. The Initiative facilitates the accessibility and dissemination of SDG-relevant information, lessons learned, products and other material through the development of SDG Toolkits. SDG Toolkits (see Appendix B) help people use EO to advance the SDGs. Toolkits provide rich, coordinated guidance about integrated EO data and tools, methodologies, use-case examples and capacity development resources to strengthen SDG monitoring, reporting, and implementation efforts. Key user audiences are municipalities, national statistical offices, national mapping agencies, ministries, SDG custodian agencies, and other major stakeholders. The SDG Toolkits are also connected with the GEO Knowledge Hub, an open-source digital repository of freely accessible, authoritative and reproducible knowledge created by the GEO community. This element also encourages collaboration between GEO and stakeholders in developing new methods and approaches.

The materials include a range of traditional to innovative approaches for outreach and engagement. For instance, a series of thematic examples can articulate how Earth observations relate to specific SDGs and can be integrated with traditional statistical approaches; these examples also support efforts by GEO member countries to engage with their own national statistical offices. Additional outreach and engagement activities envisioned include events, such as workshops and sessions at key conferences; trainings, including webinars and hands-on sessions; awards for innovative uses of Earth observations to advance the SDGs; and publications, such as a handbook or library of guidance handbooks on uses of Earth observations with SDG indicators. The element also pursues social media and crowdsourcing to solicit ideas and support the testing and

refinement of methods by users.

If you would like to provide further details on the technical methods, you may upload one or more documents here.

- table_1.png ([link](#))
- table_2.jpg ([link](#))
- table_3.png ([link](#))
- table_4.png ([link](#))

Are there any significant scientific or technical challenges that need to be resolved by the Initiative during the 2023-2025 period?

Yes

Please describe these challenges and the steps being taken to solve them.

Technical and Scientific Challenges include:

- 1) Post-MODIS continuity given the Terra satellite is reaching the end of its life. [this is a broader than EO4SDG]
- 2) LiDAR is a proven technology for directly and accurately measuring forest attributes such as height and cover; attributes that are critical for estimating forest biomass. The GEDI mission is scheduled to end in 2023, which will lead to a significant gap in forest biomass estimation capabilities. Although current missions, such as ICESat-2, and future missions, such as NISAR, can provide some data for biomass estimation, they do not perform well in dense forests with high biomass, which are critical for regulating the global carbon cycle. [this is a broader than EO4SDG]
- 3) Need to make EO data and tools more findable and easily accessible, while putting them into context for different geographies, sectors, and end users [EO4SDG is planning to create additional toolkits in collaboration with GEO thematic activities and relevant UN agencies, and is also working with the GEO Knowledge Hub to register and share toolkit and other EO4SDG resources]
- 4) Combine satellite remote sensing products and other Earth observations and models to conduct scenario analysis to inform decision making about sustainable development. [Addressed at the project level; with CEOS]
- 5) Integration of EO and socioeconomic data in support of indicator disaggregation to fulfill the ambition of the Agenda 2030 [addressed through toolkits, methods, projects, capacity development]
- 6) Comparisons of data sources and methodologies to determine their usability with the SDGs to enable indicator production
- 7) Quality of data, compatibility, resolution, seasonality and uncertainty assessment [at project level, with CEOS]
- 8) Lack knowledge/education/skills necessary to use data effectively [EO4SDG is organizing trainings and knowledge sharing (e.g., toolkit).

Does the Initiative expect to complete any key new outputs, improvements to existing outputs, or improvements to the methods of producing outputs, in the 2023-2025 period?

Yes

Please describe these new outputs or improvements.

- no answer given -

Please identify the key tasks that must be implemented to ensure delivery of these changes, with target dates for completion.

Task	Task description	Expected completion (month/year)
Develop 30 good practice examples with GEO members and the wider international community to drive impact.	Over 30 countries have specific examples on how they have applied EO in assessing, and reporting on, SDG indicators.	12.2025
Collaborate with SDG custodian agencies to develop or refine ten (or more) methods that the IAEG-SDGs adopts by 2025, contributing to the advancement of 10 indicators to a higher tier (Tier I).	The Initiative seeks to ensure methods are endorsed, meet the statistical community's standards, and help countries apply EO to SDG.	12.2025
Develop examples of fifteen (or more) indicators using Earth observations.	The Initiative seeks a spread across environmental, social, and economic themes.	12.2025
Produce five (or more) examples on uses of Earth Observations for SDG Targets.	The Initiative strives to broaden application of EO to inform the Goals and Targets, in hopes of encouraging other GEO Work Programme activities to follow suit.	12.2025
Advance 25% of country pilot projects by one Method Useability Level (MuL) - see Appendix C; deliver one project per year to MuL 7 in 2023-2025, and show three new EO products in planning by 2024.	The Initiative promotes demonstrable progress in the development of methods and their sustained, widespread utilization by countries for SDG monitoring and reporting, while encouraging new data and information collection.	12.2025
Advance the development of fifteen SDG examples completed under other GEO Work Programme Activities.	The Initiative promotes good practice examples of EO uses with SDG developed under other GEO Work Programme Activities independent of (or with guidance from) EO4SDG.	12.2025
Develop a SDG EO/GI interactive knowledge resource, leveraging the GEO Knowledge Hub.	The Initiative seeks to share information on data sources, platforms, metadata guidelines, good practices, and country experiences per SDG target and indicator that is supported by Earth observations.	12.2025
Involve twenty (or more) countries in the development and delivery of trainings.	The Initiative ensures continuous geographic breadth (including representation per continent).	12.2025
Produce and share valuations and impact assessments of fifteen methods with GEO members, partners and the wider international community.	The Initiative strives to ensure the methods are valuable in addition to being sound.	12.2025

Roll-out three (or more) SDG Toolkits by 2025, linking them with the GEO Knowledge Hub and GEOSS.	The Initiative supports capacity development through functional tools, which will also be integrated into other vehicles (e.g., the Federated System of UN SDG Data Hubs, the UN Sustainable Development Solutions Network).	12.2025
Document national experiences and good practices including case studies, and maintain a handbook on SDGs and Earth observations.	The Initiative provides a platform for knowledge sharing across all GEO Work Programme activities that include an SDG element, and the broader EO/GI and statistical communities.	12.2025
Develop a Massive Open Online Training Course on Earth Observations for SDGs.	The Initiative promotes stakeholder engagement and skills building to raise awareness and enable easier, broader country adoption.	12.2025
Starting in 2019, issue annual awards on uses of Earth observations for SDG.	The Initiative recognizes excellence and innovation, generating examples that users can consider and pursue.	12.2025
Produce videos, handouts, and podcasts on three SDG by 2024 and seven by 2025.	The Initiative seeks a spread across social, environmental, and economic themes.	12.2025
Organize special issues, and publish one or more articles per year, in popular and scientific/trade literature on Earth observations and SDGs.	The Initiative shares examples about effective ways to apply Earth observations to the SDGs.	12.2025
Continue conducting one or more events at UN, GEO, scientific conferences, and trade shows in 2019-2024.	The Initiative demonstrates benefits of Earth observations for the SDG at places where users gather.	12.2025
Arrange partnerships with two major entities at the nexus of science, decision support, and sustainability.	The Initiative supports institutions and leverages assets to achieve mutual benefits.	12.2025
Produce annual reports and a mid-way to 2030 Summary Report.	The Initiative documents activities and conveys smart practices.	12.2025

Resources

Have all resources required to implement the Initiative's planned work in the 2023-2025 period been secured?

- Other gaps

Please describe the other resources required by the Initiative?

The EO4SDG leadership team would welcome a discussion on resources (existing and future) for the

EO4SDG initiative.

The EO4SDG Initiative operates through in-kind contributions of financial and other resources to conduct its activities. Resources can take multiple forms, including:

? Engagement by staff and officials from EO4SDG participating organizations in planning, oversight, and management of EO4SDG activities;

? Provision of data resources and other technical capabilities to pilot countries;

? In-kind services related to capacity development training sessions and materials; and,

? Publications and other communication material related to EO4SDG activities.

The Initiative leverages existing capacities and focuses on streamlining existing programmes and funding schemes for SDG-relevant EO products, tools, and platforms.

What actions is the Initiative taking to obtain the required resources?

- no answer given -

Please list all financial and non-financial contributions to the Initiative (other than in-kind, voluntary participation by individual contributors) having a value of more than USD 50,000.

- no answer given -

Lessons from the 2020-2022 Period

Were all planned activities for the 2020-2022 period implemented as expected?

No

Please describe which activities were delayed or not implemented and how has this affected plans for 2023-2025.

Our GEO SDG Awards program allowed us to recognize excellent and innovative use of EO to monitor and drive progress on SDGs. In 2021, EO4SDG recognized eight organizations and countries for their exemplary work through this awards program (see <https://eo4sdg.org/announcing-the-2021-geo-sdg-awards-winners/>). We experienced, however, some challenges in broadening awareness about the program and increasing the total number of nominations compared to previous years. At year's end, we concluded that the program requires a strong communication and amplification plan to broaden the range and types of outreach platforms employed in 2022 and beyond — both prior to and during the open call for nominations.

Were there any key challenges faced by the Initiative in the 2020-2022 period?

Yes

Please describe.

In 2020-2022, we identified opportunities to expand the community of EO users that support SDGs to include private sector and commercial (for-profit) entities. We also observed a gap between GEO engagement with the commercial sector — such as via the Cloud Credits and License Programmes — and EO4SDG efforts to advance sustainable development in alignment with the UN 2030 Agenda on Sustainable Development. In the future, we will develop and pursue approaches to further engage with the private and commercial sectors and create use cases that illustrate specific applications and document the added value of public-private partnerships.

Were there any impacts or changes to operations due to COVID-19?

Yes

Please describe.

The global pandemic impacted the timeline and activities of projects and in-country activities, such as field campaigns or in-country technical workshops. Field sites became inaccessible due to country lockdowns and restrictions in travel, and other efforts experienced delays due to reduced work hours of the project teams and the in-country partners and collaborators, as a result of the pandemic. This situation also provided an opportunity, however, for unique questions where EO can provide insights, particularly related to observed changes in the environment – air quality, water quality, agriculture, climate change – as communities around the world have changed their behavior in response to the spread of COVID-19. A project team leveraged this opportunity, for instance, to study the impact of decreased terrestrial activities (especially tourism and agriculture) during the pandemic on water quality in the Belize Lagoon.

The extreme telework environment prompted greater exploration and use of online, digital, collaboration tools. For example, we made greater use internally of digital collaboration mechanisms (e.g., Google Jamboard), and other tools in 2020-2022 than ever before. These practices contributed to our increased engagement and virtual collaboration with partners and the end-user community, having added over 19 new, regionally representative end user and partner organizations (see eotoolkit.unhabitat.org) since 2020. In addition, in 2020, we developed a challenge on the “SDG Impact of Covid-19” as part of the NASA Space Apps Covid-19 Challenge, which included over 15,000 participants in 150 countries who solved COVID19 related challenges using NASA, ESA, JAXA, CSA, and CNES space agency data. We also organized a first ever virtual GEO SDG Awards ceremony (November 2020), followed by a second successful virtual ceremony (November 2021) to highlight innovative uses of EO for the SDGs.

Please describe the key changes proposed for the 2023-2025 period, for example, new projects, new areas of focus, or adjustments to the activity governance.

Looking ahead, EO4SDG will strengthen its connection with regional GEOs by assessing the existing and potential impact of regional-specific activities. Regional GEOs can play a key role in promoting exchange on best practices across GEO and upscaling or downscaling successful products, while also exploring funding opportunities at the regional level. This effort aligns with the findings of the GEO Midterm Evaluation, released in November 2021.

Building on the momentum from the GEO Week 2021 around the importance of the thematic integration of the GEO Work Programme, EO4SDG will collaborate with select GEO thematic initiatives to explore opportunities to apply each initiative’s data, tools, and existing methods to one or more SDG targets or indicators that cut across multiple reporting frameworks. Examples of such frameworks include the Paris Climate Agreement, the Convention on Biological Diversity, the G20 Action Plan on Food Price Volatility and Markets, and the System of Environmental Economic Accounting (SEEA). We will document such synergies in a cohesive collection of short papers and policy briefs and share it with the GEO community.

EO4SDG will expand its engagement with the UN, multilateral organizations, as well as statistical agencies to support GEO’s role of coordinating availability, access and use of Earth observations to support SDGs and other global policy agendas. Furthermore, EO4SDG will develop and share best practices with GEO members, partners, and the wider international community to illustrate the value of partnerships between public and non-private entities.

We will assess and document the impact and reach of the Earth Observations Toolkit for Sustainable Cities and Human Settlements, and share our findings with the GEO community to increase awareness and inform ongoing and future SDG toolkit development. We will also adopt substantive approaches to extend the toolkit to more cities and countries and related themes or indicators. As described in the ‘Toolkits for SDGs’ pitch session from the GEO Symposium 2021, EO4SDG will collaborate with the Committee on Earth Observation Satellites (CEOS) and other organizations in the GEO community to explore implementation of the next SDG toolkit, as well as development of technical bridges between toolkits for integrated use (e.g., it may be useful to use the flood monitoring and urban toolkits together to address flooding in cities and disaster risk reduction (DRR) activities). The initiative will also support GEO in assessing the role of the Global Earth Observation System of Systems (GEOSS) and clarifying its connection to the GEO Knowledge Hub, the SDG toolkits, and other efforts related to data infrastructures and the sharing of data products, tools, user services and use cases.

With our partners, we will host and participate in multiple events in 2022 to provide the community with opportunities to learn about EO for SDGs. Planned events include sessions at the World Urban Forum, the

Living Planet Symposium, the UN World Data Forum, the American Geophysical Union's Fall Meeting and the Pecora conference, among others. Most importantly, EO4SDG will seek to increase diversity, equity, and inclusion in its membership and expand participation and leadership opportunities for EO4SDG members and contributors. To accomplish this objective, EO4SDG has established a Board to provide initiative-level oversight and serve interests of the initiative. In line with the GEO Statement on Equality, Diversity and Inclusion, EO4SDG will integrate geographic, gender balance and other diversity factors into its recruitment and selection processes.

Does the Initiative have outputs (products, services, etc.) available to users now, even if only on a pilot or testing basis?

Yes

Please provide any available information describing this usage (for example, user statistics, results of user testing) and/or feedback from users (for example, user comments, evaluations).

- 2022 Training Results: Over 1204, Organizations: over 600, Countries: Over 102 [based on NASA ARSET Statistics]
- Earth Observations Toolkit for Sustainable Cities and Human Settlements and EO4SDG website portals: In 2021, the two portals brought in over 40,000 visitors. The total number of pages viewed for the EO4SDG portal exceeded 85,000.
- EO4SDG added 19 new user organizations that have contributed to the design, development, launch, and continuing evolution of the Earth Observations Toolkit for Sustainable Cities and Human Settlements [see eotoolkit.unhabitat.org].
- EO4SDG has documented a total of 36 use cases of EO for SDGs, shared via the EO4SDG and EO Toolkit portals.
- Our Twitter (@EO4SDG) and Facebook accounts reached over 3,700 followers.

Please provide supporting documentation if available.

- no supporting documents provided -

Do you have evidence of any impacts that have occurred in part as a result of using the outputs of the Initiative (for example, policy decisions taken, behaviour changes by users, risks mitigated)?

Yes

Please provide examples, with evidence where available.

- As a result of EO4SDG efforts, in partnership with the UN IAEG-SDGs WGGI, the 53rd session of the Statistical Commission adopted the SDGs Geospatial roadmap, recognizing that geospatial information, including Earth observations, serves as official data to aid countries in activities related to the SDGs.
- During its 53rd session, the UN Statistical Commission endorsed the global urban monitoring framework and its implementation as part of a global urban UN strategy. This framework is designed by UN Habitat (see attached) as a flexible framework for monitoring SDGs and other city objectives such as inclusiveness, resilience, and safety, and incorporates the Earth Observations toolkit for Sustainable Cities and Human Settlements. UN Habitat has also incorporated the Toolkit resources into the trainings with countries on SDG 11 monitoring (UN Habitat POC, Dennis Mwaniki, dennis.mwaniki@un.org).
- Additional examples of impact include integration of Earth observations into SDG indicator methods (e.g., 11.3.1, 6.6.1, 11.7.1, 15.4.2), available here: <https://unstats.un.org/sdgs/metadata/>
- Integration of Earth observations and SDG metrics into trusted portals. For example, SDG metrics to address forest quality and integrity as part of the UN Development Program (UNDP)'s Biodiversity Lab 2.0 (<https://unbiodiversitylab.org/>). See related <https://storymaps.arcgis.com/collections/2119332218aa43dea03edb30b0cfbccc?item=4>.
- EO4SDG has directly supported and pursued projects to develop, distribute, and adopt methods to meet the Global Goals. Project outputs have informed national SDG activities and NDC reports, as well as additional management and policy actions. Select examples include: Guinea's 2021 NDC report (<https://unfccc.int/NDCREG>); Belize's Integrated Coastal Management Plan; Panama's reforestation project

'Alliance for 1 Million"; USGS Aquatic Invasive Species database.

- As a result of EO4SDG efforts, Earth observations have been integrated into SDG national voluntary reports (VNRs) such as South Africa's 2019 SDG VNR (Statistics South Africa, 2019), Colombia's National Geostatistical Framework (<https://geoportal.dane.gov.co/servicios/descarga-y-metadatos/descarga-mgn-marco-geoestadistico-nacional/>), Colombia's presentation on EO for SDGs to the IAEG SDGs (<https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-08/11.2%20Colombia.pdf>), among others.

Please provide supporting documentation if available.

- 2022_11_humansettlements_e.pdf ([link](#))
- bg_3a_sdgs_geospatial_roadmap_e.pdf ([link](#))

Have there been any internal or external reviews or evaluations of the Initiative since 2019?

Yes

Please provide a copy of the report, if available.

- no supporting documents provided -

Please indicate any GEO Work Programme activities with which you have ongoing collaboration.

- AMERIGEO - Americas Group on Earth Observations
- AQUAWATCH - AquaWatch
- AOGEO - Asia-Oceania Group on Earth Observations
- EO4EA - Earth Observations for Ecosystem Accounting
- EO4HEALTH - Earth Observations for Health
- GEO-CITSCI - GEO Citizen Science
- GEOGLAM - GEO Global Agricultural Monitoring
- HUMAN-PLANET - GEO Human Planet
- GEO-LDN - GEO Land Degradation Neutrality
- GEO Secretariat Operations - GEO Secretariat Operations
- GEO-WETLANDS - GEO Wetlands
- GEO Work Programme Support - GEO Work Programme Support
- GEOSS Data, Information and Knowledge Resources - GEOSS Data, Information and Knowledge Resources
- GFOI - Global Forest Observation Initiative
- GUOI - Global Urban Observation and Information
- NEXT-EOS - Next Generation Earth Observation Services
- BLUE-PLANET - Oceans and Society: Blue Planet

Please indicate any additional GEO Work Programme activities with which you would like to establish new collaborations.

- AFRIGEO - African Group on Earth Observations
- AMERIGEO - Americas Group on Earth Observations
- AOGEO - Asia-Oceania Group on Earth Observations
- DE-AFRICA - Digital Earth Africa
- EO4EA - Earth Observations for Ecosystem Accounting
- EO4HEALTH - Earth Observations for Health
- EUROGEO - European Group on Earth Observations
- GEO-CITSCI - GEO Citizen Science
- GEO Engagement Priorities Coordination - GEO Engagement Priorities Coordination
- GEO-VENER - GEO Vision for Energy
- GEO-WETLANDS - GEO Wetlands
- GEO Work Programme Support - GEO Work Programme Support
- GEOSS Data, Information and Knowledge Resources - GEOSS Data, Information and Knowledge Resources

- BLUE-PLANET - Oceans and Society: Blue Planet

Stakeholder Engagement and Capacity Building

Are there specific countries or organizations that your Initiative would like to engage?

Yes

Please list these countries, regions or organizations.

Based on the initiative's history, EO4SDG would like to increase participation from Africa and Asia-Oceania as well as strengthen its connection with regional GEOs. In addition, EO4SDG would like to engage more with the private sector — including small and medium size entrepreneurial firms that as well as larger size non-public entities to develop quality methods and tools to increase the use of Earth observations, models and derived information to monitor and advance the SDGs.

What are your plans to engage them?

- Receive assistance from the GEO Secretariat & GEO SDG Coordinator
- Conduct a follow-on survey on GEO members' uses of EO for SDGs
- Plan a SDG workshop in 2022-2023 timeframe
- The newly formed EO4SDG Board will serve as ambassador to a GWP activity to increase SDG-related knowledge sharing and create opportunities for for integration across GEO, with support from the GEO Secretariat SDG Coordinator. The Board will also raise visibility and connections to relevant activities of each member's community, with a focus on providing ties to Earth observation user communities.

Does your Initiative engage users in the work of the Initiative (for example, consultation, testing, co-design)?

Yes

Please briefly describe the Initiative's approach to engaging users.

The prime users of EO4SDG are National Statistical Offices (NSOs), National Mapping Agencies, line ministries, international statistical agencies, and UN entities. EO4SDG promotes the emergence and scaling-up of joint efforts between these users and the Earth observation/ Geospatial Information (EO/GI) community to demonstrate the effective uses of EO/GI data in complementing traditional data, such as census data, administrative data, household survey data, and vital statistics, to achieve the SDGs. In addition to addressing timely access to needed data and information, EO4SDG supports efforts to integrate Earth observations and geospatial information into internationally approved guidelines, national development plans and monitoring frameworks for the SDGs. Partnerships with organizations and communities to support broad use of effective methods and solutions is implicit, and this goal entails significant work to enable the adoption of these methods.

Does the Initiative have a user engagement strategy or similar kind of document?

No

Are there categories of users that are not represented at this time, but you would like to engage?

Yes

Please list these user categories or regions.

EO4SDG has identified opportunities to expand the community of EO users that support SDGs to include private sector and commercial (for-profit) entities. We have also observed a gap between GEO engagement with the commercial sector —such as via the Cloud Credits and License Programmes — and EO4SDG efforts to advance sustainable development in alignment with the UN 2030 Agenda on Sustainable Development. In

the future, we will develop and pursue approaches to further engage with the private and commercial sectors and create use cases that illustrate specific applications and document the added value of public-private partnerships.

What are the plans for further engagement of users in the Initiative?

- The newly formed EO4SDG Board (<https://eo4sdg.org/announcing-the-eo4sdg-board/>) will raise visibility and connections to relevant activities of each member's community, with a focus on providing ties to Earth observation user communities.
- Development of additional GEO SDG toolkits in partnership with specific GEO Work Programme activities and UN Custodian Agencies as well as countries and other stakeholders
- Plan for an SDG Workshop.
- Continued outreach and engagement as outlined in the initiative's strategic implementation plan (Goal III)

Does the Initiative have a documented capacity development strategy?

No

Please describe the approach to capacity development that is being implemented by the Initiative?

One of EO4SDG's overarching goals is to improve underlying capabilities with Earth observations, focusing especially on support to countries and stakeholders in the implementation of methods using Earth observations to address the 2030 Agenda. The goal includes activities to coordinate and foster capacity development to effectively employ methods, enable data awareness and access, and sustain use of Earth observations in the context of the SDGs. The goal spans human, scientific, technological, organizational, institutional, and resource-based capacities.

Efforts to develop capabilities to substantiate and quantify the social, environmental, and economic benefits from Earth observations in serving the SDG are included, especially as this articulation may contribute to greater uptake. Activities to develop capabilities within GEO and the Earth observations community about SDG statistical principles and practices are included, as are new capabilities to use data visualization methods to support alternatives analysis and planning regarding the SDGs; increase use cases and interdisciplinary collaboration. This initiative also "federates" GEO's community Activities, Initiatives and Flagships that include an SDG element so as to increase SDG-related knowledge sharing across the GEO Work Programme.

The following are objectives under this goal:

- 1) By 2025, involve twenty (or more) countries in the development and delivery of trainings. [The Initiative ensures continuous geographic breadth (including representation per continent)].
- 2) Produce and share valuations and impact assessments of fifteen methods with GEO members, partners and the wider international community. [The Initiative strives to ensure the methods are valuable in addition to being sound.]
- 3) Roll-out three (or more) SDG Toolkits by 2025, linking them with the GEO Knowledge Hub and GEOSS. [The Initiative supports capacity development through functional tools, which will also be integrated into other vehicles (e.g., the Federated System of UN SDG Data Hubs, the UN Sustainable Development Solutions Network)].
- 4) Document national experiences and good practices including case studies, and maintain a handbook on SDGs and Earth observations. [The Initiative provides a platform for knowledge sharing across all GEO Work Programme activities that include an SDG element, and the broader EO/GI and statistical communities.]
- 5) Develop a Massive Open Online Training Course on Earth Observations for SDGs. [The Initiative promotes stakeholder engagement and skills building to raise awareness and enable easier, broader country adoption.]

Are there any commercial sector organizations participating in this Initiative?

Yes

Please list the commercial sector organizations.

Organization name	GEO Member/PO/...	Country in which the organization is based	City in which the organization is based
Esri		United States	
Google		United States	

Are there opportunities for commercial sector uptake of the outputs of the Initiative?

Yes

Please describe these opportunities.

GIS tools make it possible for users to combine EO and statistical data and demographics to calculate and spatially disaggregate SDG indicators, visualize trends and changes over time and across geography and other categories of disaggregation. Opportunities exist for further collaboration to integrate country use cases and UN adopted, integrated methods into GIS collaborative frameworks that can help engage users from statistics offices, UN agencies, local governments, ministries, research networks and academia, as well as the general public.

In addition, commercial entities can benefit from EO4SDG outputs in:

- a) understanding the SDGs
- b) defining priorities and identifying business opportunities
- c) enhancing the value of corporate sustainability
- d) fusing their data with public EO data to manage their targets and assess progress
- e) Strengthening stakeholder relations and keeping the pace with policy developments
- f) Reporting and communicating their commitment to, and progress on, sustainability

Is there already commercial uptake occurring?

Yes

Please describe the nature of this uptake and the relevant commercial sector organizations.

Example: The Earth Observations Toolkit for Sustainable Development Goals is hosted by UN Habitat on the Esri ArcGIS Hub platform. This has enabled enhanced collaboration with Esri to develop learn paths to help users better understand how they can use the Toolkit resources —data, tools, guidance— for urban monitoring needs and to calculate their SDG 11 indicators.

Are there opportunities for further commercial sector participation in the Initiative?

Yes

Please describe these opportunities.

- Opportunities exist for the commercial sector to join EO4SDG and explore modes of engagement to advance the SDGs, including through working together to address challenges of fusing public and commercial data on e.g., deforestation, monitoring greenhouse gas emissions, mapping access to sustainable infrastructure, managing supply chains with statistics to help countries and stakeholders better manage their SDG targets, monitor development indicators and achieve the SDGs.
- Additional opportunities for the commercial sector to engage with EO4SDG and GEO on SDGs include:
 - a) improving understanding of the value of EO for the SDGs
 - b) working together to define business priorities and opportunities
 - c) engaging with EO4SDG and government or civil society partners to integrate sustainability into the core business and governance, and embed sustainable development targets across functions within a given company.
 - d) strengthening stakeholder relations and keeping the pace with policy developments.
 - e) reporting information on sustainable development performance using a shared set of metrics (indicators).

Does the Initiative have a plan for commercial sector engagement?

No

Governance

Please describe the roles of each of the key leadership positions, as well as any team structures involved in day-to-day management.

Overall, there are four levels of involvement in EO4SDG: Community, Initiative Membership, Board and Leadership. The Community includes the broad universe of people who are interested in GEO's activities with the SDGs, but are not necessarily involved in any specific activity. The Initiative Membership includes people who are directly involved with EO4SDG activities. The EO4SDG Board provides initiative-level support and serves interests of the Initiative, spanning strategic direction-setting to tactical aspects. The Board catalyzes and motivates activities and progress, including promoting dynamic communication with EO4SDG Team members to increase participation in the initiative.

The EO4SDG Co-Chairs provide a facilitation role, guide agenda-setting, set priorities and make decisions, as necessary. The EO4SDG Executive Director coordinates the initiative, manages implementation, and communicates continually with the Co-Chairs, Board and Initiative members, as well as with the GEO SDG Coordinator, to assess and expedite the initiative's workings, progress, and results.

By monthly calls, outreach meetings, and projects, EO4SDG interacts proactively with GEO Members, Participating Organizations, other GEO Work Programme activities, as well as custodian agencies responsible for SDG indicators of relevance to their thematic expertise or mandate. The Initiative forms standing bodies to address on-going functions as well as ad hoc groups for special activities, topics, and events that arise. Standing bodies address strategic planning, membership, projects, capacity building, data and information, outreach, partnerships, evaluation, and reporting. Interaction among standing bodies is encouraged and expected. Board members actively support one or more major initiative activities per year and serve on at least one EO4SDG standing body or ad hoc group.

The Board selects one or two of its members to serve as lead(s) of the EO4SDG Board. At an annual meeting every two years, Board members can nominate themselves to be lead(s). Subsequently, the Board reviews nominations and selects the new, incoming lead(s), who assume the role after a brief transition period with the outgoing lead(s). In line with the GEO Statement on Equality, Diversity and Inclusion, geographic, gender balance and other diversity factors are considered in recruitment and selection. The Terms of Reference for the EO4SDG Board are available on the EO4SDG website: <https://eo4sdg.org/wp-content/uploads/2022/03/ToR-EO4SDG-Board-vf.pdf>.

Is there a steering committee or other governance bodies that advise the Initiative but are not involved in day-to-day management?

Yes

Please describe the roles of each body. If there are multiple governance bodies, please describe the relationships among them (such as through a governance structure diagram).

Please see attached for the EO4SDG governance diagram as well as a diagram on how we work (collaborative environment).

- [eo4sdg_governance.png](#) ([link](#))
- [eo4sdg_how_we_work.png](#) ([link](#))

What methods does the Initiative use to communicate with its participants?

- Email / e-newsletters

- Regular conference calls
- Website
- Regular events
- Other

Please describe.

In addition to outreach focused on encouraging nations and stakeholders to use Earth observations for the SDGs, the EO4SDG Initiative conducts broad activities to communicate progress of the Initiative overall. The Initiative communicates achievements and quality stories as ways to inform the global community about GEO, Earth observations, and GEO’s activities to serve development goals. The Initiative regularly informs the EO4SDG team and community of its progress, potentially encouraging community members to become more involved in activities. And, the Initiative communicates with the GEO community, partners, and stakeholders to demonstrate GEO activities and achievements in the use of Earth observations to provide societal benefits.

The Initiative works with the GEO communications team and others to prepare stories, infographics, and messages; coordinate with partners; and support communications across appropriate channels. These efforts include the creation and maintenance of a portfolio of materials, such as examples, stories, articles, and web features. These materials are ones the EO4SDG team and community can use to broadcast EO4SDG activities, progress, and successes broadly. EO4SDG maintains a dedicated website and social media accounts (Twitter, Facebook) to convey achievements and stories about how Earth observations and the Group on Earth Observation (GEO) serve SDGs. In 2021, the website brought in over 25,000 visitors, and the total number of pages viewed exceeded 85,000. Our Twitter account reached over 3,550 followers.

Please describe the key risks that could delay or obstruct the completion of the planned activities and outputs of the Initiative, along with any actions taken to mitigate these risks.

- no answer given -

What methods are used by the Initiative to monitor its effectiveness?

- Informal discussions with users / beneficiaries
- User or beneficiary surveys
- Website statistics
- Consultations or events
- Evaluations
- Other

Please describe.

A key measure of the Initiative’s performance is the achievement of the objectives for the three EO4SDG goals. The team strives to achieve all of them, and recognizes that the complete set serves as an ambitious target. At the half-way mark of this implementation plan, the team will assess the Initiative’s performance and make adjustments to activities and expectations.

Largely, the EO4SDG initiative promotes the uptake of Earth observations and geospatial information by nations and stakeholders in SDG planning, tracking, and reporting. Such use is through sound, accepted SDG methods. A primary focus of the Initiatives performance is the enablement of these methods in their development and use, which inherently includes the capacity development, data and information products, and outreach activities of EO4SDG.

The EO4SDG team leverages a seven-stage metric to track the maturation of SDG methods using Earth observations and geospatial information. This Method Useability Level (MUL) index provides a scale for the expected advancement along a continuum – from initial idea, through development and field testing, to adoption and sustained utilization. The MUL index allows the EO4SDG team to convey expectations for project and method development, assess progress and diagnose problems, and report on EO4SDG performance both for individual projects and the overall portfolio. Appendix C provides additional information on the MUL index and the definitions for each level.

Would the Initiative be interested in assistance from the GEO Secretariat for developing an impact plan?

Yes

How are the results of the monitoring and evaluation activities shared with participants and the wider GEO community?

The Initiative Leadership holds routine teleconferences to review status and progress reports of EO4SDG activities. Standing bodies provide routine status reports, and Team members identify new topics and opportunities. The Executive Director and Co-Chairs develop the teleconference agendas with input from Team members, and the Executive Director provides a summary. There is an annual, in-person team meeting for the EO4SDG Initiative. The annual meeting reviews the Initiative in depth and provides a key time to evaluate the Initiative. The annual meetings provide dedicated time for attendees to address and resolve major issues requiring longer discussions than the status teleconferences provide. The annual meetings involve the partners, and the meetings are open to the broad EO4SDG Team and Community.

As needed, the EO4SDG Team and its standing bodies arrange in-person meetings in conjunction with major GEO events, such as the GEO Plenary and the GEO Symposium. As possible, these meetings allow teleconference capabilities for Team members not present at the event. The Initiative may arrange special meetings to address GEO requirements and requests, such as input to GEO Plenary documents or Work Programme revisions. The annual meeting (and preparations for it) serves as the primary event for the Leadership, Board, Team, and Community to reflect on the Initiative – its progress, its challenges, and its direction. The attendees review projects and activities, discussing successes as well as items that did not go as planned. Attendees assess progress and performance with respect to expectations, review resource needs, and evaluate the Initiative’s ability to execute plans with acceptable risk.

This event provides an opportunity to evaluate whether the functional and performance requirements for the Initiative are properly formulated, responsive to GEO objectives, and represent achievable capabilities; assess the credibility of the Initiative’s targets and schedule; and set or revise targets and the schedule for the upcoming year. A key decision for each annual meeting is the status of the Initiative and whether to recommend changes to the GEO Programme Board. Standing bodies also conduct evaluations of their respective functions. They report at periodic teleconferences as well as the annual meeting.

Are any monitoring or evaluation activities required by funders/contributors?

No

Participants

Please list the active individual participants in the Initiative

First name	Last name	Email address	Member	Org
Sara	Minelli	sminelli@unccd.int	UNCCD - Secretariat of the United Nations Convention to Combat Desertification	UNCCD - Secretariat of the United Nations Convention to Combat Desertification
Alex	Held	alex.held@csiro.au	Australia	CSIRO - Commonwealth Scientific and Industrial Research Organisation
Flora	Kerblat	flora.kerblat@csiro.au	Australia	CSIRO - Commonwealth Scientific and Industrial Research Organisation
Andy	Steven	andy.steven@csiro.au		
Trevor	Dhu	trevordhu@microsoft.com		
Arnold	Dekker	arnoldgdekker@gmail.com	Australia	SAT-DEK - Satellite Based Discovery of Environmental Information
Xinming	Tang	tangxinming99@qq.com	China	LASAC - Land Satellite Remote Sensing Application Center
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Other information

Please provide any other comments or information that was not included in the previous sections, but you would like to appear in the Implementation Plan.

Please find attached the EO4SDG Strategic Implementation Plan 2023-2025 (pdf version that we have prepared separate from/ in addition to this survey).

We would like to have this version as the public version of the EO4SDG Strategic Implementation Plan 2023-2025, if feasible.

- eo4sdg_strategic_impl_plan_2023_2025.pdf ([link](#))

Co-Editor Management

List of co-editors for this initiative

- no answer given -