



# **GEO and the 2030 Agenda**

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*Meeting of the IAEG-SDGs Working Group  
On Geospatial Information  
12-14 December 2016  
Mexico City*



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## **GEO Vision and Partnership**



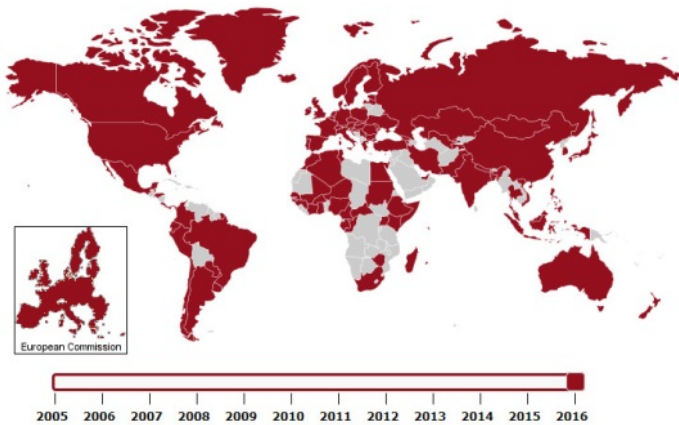
## **GEO Vision**





# 103 Members

GEO Member Map for the year 2016

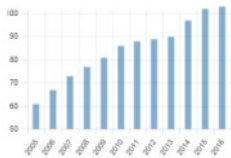


Number of Members (2016)

Africa:	27
Americas:	16
Asia/Oceania:	19
C.I.S.:	7
Europe:	34

**Total: 103**

Number of Members by year



# 106 Participating Organizations




## Mexico City Ministerial Declaration (2015)

- **Endorses** the new “GEO Strategic Plan 2016-2025: Implementing GEOSS”
- **Resolves** to
  - strengthen & facilitate active participation of developing countries, including through Regional Initiatives
  - pursue implementation of Data Sharing Principles (DSPs) & Data Management Principles (DMPs)
- **Calls on GEO** to :
  - strengthen engagement with Users & Stakeholders, with a focus on UN Institutions, Multilateral Environmental Agreements (MEAs), Development Banks, Private Sector
  - to launch an Initiative to leverage EO in support of 2030 Agenda



**GEO supports the implementation  
of the 2030 Agenda**  
measuring, monitoring and achievement of the  
SDGs





## How GEO will support


- **Contribute to progress on the Targets, which will show up in the Indicators.**
- **Propose new indicators (mainly EO-based) to improve monitoring of Targets' achievement, consistent with the planned revision process of the Indicators' framework,**
- **Work with the UN Statistical Division to support global statistical practice with assurances about value, accuracy and science basis for Earth observations and GIS derived information and statistics**



## GEO supports the implementation of the 2030 Agenda

### Overall Deliverables

1. **Enabling elements:** GEOSS (Access to Data, Information, Knowledge), User needs and observational gaps, Capacity Building
2. **Demonstrating EO key role:** from R&D activities to developing and demonstrating prototype, end-to-end services
3. **Creating and keeping awareness:** policy relevance, "buy-in" from decision-makers, user engagement, communication & outreach, strengthening the GEO Community
4. **Ensure functioning** of the GEO collaboration framework

- Access to Data, information, Knowledge 
- User needs, observational gaps and associated knowledge
- Capacity Building Strategy based on the three I's: Individual, Infrastructural, Institutional
- Regional coordination to improve data infrastructure (observation, archiving, processing, dissemination) in developing countries
- Advocacy for continuity & sustainability of Earth Observations

- 57 activities (from R&D to prototype, end-to-end products & services) addressing the role of EO in policy- and decision-making in 8 Societal Benefit Areas (SBAs)
- One dedicated Initiative to support SDGs achievement: EARTH OBSERVATIONS IN SERVICE OF THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

- GEO as a platform for cooperation
- Linking providers, users, scientific and technical actors
- National coordination as the essential building block for a more effective international cooperation



## **GEOSS Global Earth Observation System of Systems** Ensuring access to Data, information, Knowledge



- **GEOSS Data Sharing Principles (DSPs)**
- **Providers coordination**
- **GEOSS Information System**  
or **GEOSS Common Infrastructure (GCI)**
- **GEO Data Management Principles (DMPs)**



## **8 Societal Benefit Areas**



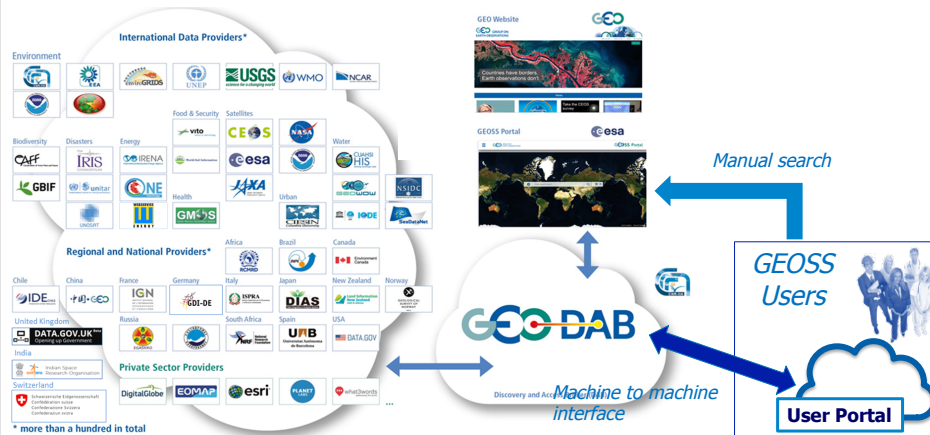


## GEOSS Data Sharing Principles (2016-2025)

- **Open Data by default**
  - data, metadata and products will be shared as Open Data by default, by making them available as part of the GEOSS Data Collection of Open Resources for Everyone (Data-CORE) without charge or restrictions on reuse, subject to the conditions of registration and attribution when the data are reused;
  - where international instruments, national policies or legislation preclude the sharing of data as Open Data, data should be made available with minimal restrictions on use and at no more than the cost of reproduction and distribution; and
- **Minimum time delay**
  - all shared data, products and metadata will be made available with minimum time delay.

## GEOSS Information System

High degree of interoperability: supports several service interfaces













**Some figures on GEOSS Assets: 152 brokered catalogs, approx 200 ml resources discoverable and accessible**





## Life-cycle Data Management

### Data Management Principles (DMP)    DMP Implementation Guidelines

	Discoverable	1	D
	Accessible	2	A
	Standard encoding using	3	Usability
	Well documented metadata	4	
	Traceable	5	
	Quality documented	6	
	Preserved	7	Preservation
	Periodically verified	8	
	Reviewed and refreshed	9	Curation
	Tagged with permanent ID	10	

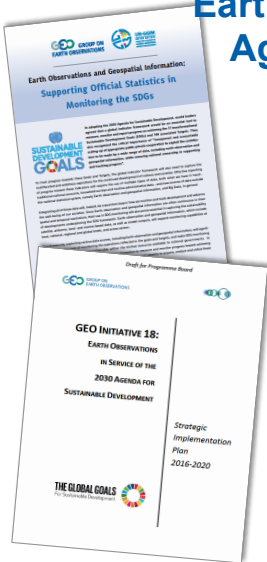
- Description / explanation of each principle and implementation
- Guidance on implementation with examples
- Resources for implementing each principle
- Metrics measuring adherence to implement each principle



**A SDG-dedicated GEO Initiative  
PLUS  
SDGs cut across almost all GEO activities**



## Earth Observations in Service of the 2030 Agenda for Sustainable Development



### Goals

- Goal I:** Demonstrate how Earth observations, geospatial information and socio-economic and other data contribute in novel and practical ways to support achievement of the SDGs.
- Goal II:** Increase skills and capabilities in uses of Earth observations for SDG activities and their broader benefits.
- Goal III:** Broaden interest and awareness of Earth observations support to the SDGs and social, environmental, and economic benefits.



## Implementation Elements

done in conjunction with Other GEO activities, serving a coordination role in a federated approach to GEO's overall service to the SDGs

**Projects:**

A Portal, portfolio of projects conceive, develop, test, validate and deploy uses of Earth observations to support the implementation of, tracking of and reporting on the SDGs, including integration with national statistical accounts for the indicators. Federated approach within GEO.

**Capacity Building:**

A portfolio of capacity building activities provide support to institutions and individuals in the ideation, development, and implementation of methods, building capabilities directly with the SDG methods and more broadly with accessing and applying Earth observations.

**Data and Information Products:**

A portfolio of activities advancing the provision, access, discoverability, and applicability of Earth observations and geospatial information for use with the SDGs.

**Outreach and Engagement:**

A portfolio of activities and events to promote the consideration and adoption of Earth observations for the SDGs by nations and stakeholders.



## Partnerships

The Initiative pursues partnerships as a key element of the strategic implementation, leveraging knowledge, resources, and skills of partner organizations in collective support of the SDGs.

Engagement and partnership with other entities helps build processes, mechanisms, and human capacity to include Earth observations in national development plans and to integrate them with national statistical accounts to improve the measuring, monitoring and achievement of the SDGs.

Key organizations that the GI-18 Initiative will pursue partnerships with include the following, adding others over the course of the initiative, starting from a progressive engagement with the Indicators “custodian agencies”.



**Sustainable Development  
Solutions Network**



**Global Partnership for  
Sustainable Development Data**



**UN Committee of Experts  
on Global Geospatial  
Information Management**



**International Institute for  
Sustainable Development**



## Initial results

- Preliminary analysis of Earth Observations linkages to SDG Goals, Targets and indicators
- Consolidation of a number of national/regional pilot projects
- Collection of examples of EO use for SDG Indicators calculation and development of new ones
- Outreach and advocacy actions
- Contribution to the GPSDD-developed Toolbox data for action.
- An assessment on to what extent GEO activities are addressing and will support Agenda 2030 implementation.





## Pilot Projects

**PROJECTS:**

A portfolio of projects conceive, develop, test, validate and deploy uses of Earth observations to support the tracking of and reporting on the SDGs, including integration with national statistical accounts for the indicators. Federated approach within GEO.

**Notable Progress**

- » Albania & Balkans
- » Japan
- » Rwanda
- » UAE
- » United States

**Additional Efforts**

- » Uganda (via ESA)
- » Fiji (via WHO)
- » Philippines (via WHO)



## GEO activities and SDGs

An assessment on to what extent GEO activities are addressing and will support Agenda 2030 implementation.

A Two-stage process initiated

(i) a rapid assessment (completed in 2016) of the capacity of the proposed GEO Work Programme 2017-2019 to respond to the SDG Targets and Indicators (“bottom-up”).

(ii) a longer-term exercise (2017+) to look at a comprehensive capability of earth observations and geospatial information to support the SDGs through ongoing and new actions in GEO (“top-down”), and define those needed.

This process, focused on Sustainable Development Goals would also constitute an exemplar of a GEO policy-driven procedure to identify priorities for action.

## 2016 Rapid Assessment results (i)

- 26 out of 31 **Community Activities** contribute to SDGs (8 identify specific targets), for example:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<b>COMMUNITY ACTIVITIES</b>																	
ACCESS TO CLIMATE DATA IN GEOSS																	
AFRICAN GEOCHEMICAL BASELINES																	
AIRNOW INTERNATIONAL: EXPANDING NETWORKS AND INTEGRATING METHODS FOR AIR																	
AQUAWATCH						6.3, 6.6, 6.b								14.1, 14.2, 14.3	15.1		
CHINESE TSUNAMI MITIGATION SYSTEM																	
COPERNICUS ATMOSPHERIC MONITORING SERVICE (CAMS)			3.9.1				7.2				11.6.2		13.2.1				
COPERNICUS CLIMATE CHANGE SERVICE (C3S)						6.4	7.a, 7.b				11.1, 11.2		13.1-3				
DATA ANALYSIS AND INTEGRATION SYSTEM (DIAS)																	
DIGITAL GEOMUSEUM																	

## 2016 Rapid Assessment results (ii)

- All 22 **Initiatives** contribute to SDGs (specific targets), for example

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<b>INITIATIVES</b>																	
AFRIGEOS: REINFORCING REGIONAL AFRICAN ENGAGEMENT																	
AMERIGEOS																	
ASIA-OCEANIA GEOSS (AOGEOSS)																	
CLIMATE CHANGE IMPACT OBSERVATION ON AFRICA'S COASTAL ZONES (GEO-CCIO-ACZ)																	
DATA ACCESS FOR RISK MANAGEMENT (GEO-DARMA)																	
EARTH OBSERVATIONS FOR ECOSYSTEM ACCOUNTING (EOEA)		2.4	3.9			6.5, 6.6				11.b	12.2		14.2	15.1-5, 15.9	16.6, 16.10		
EARTH OBSERVATIONS IN SERVICE OF THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT																	
GEO CARBON AND GREENHOUSE GAS INITIATIVE																	
GEO COLD REGIONS INITIATIVE (GEO-CRI)	1.5	2.1-4	3.2, 3.3, 3.9	4.a		6.1-6	7.1-3, 7.a, 7.b		9.5, 9.a	11.1-7, 11.a-c	12.2, 12.4	13.1, 13.2, 13.3	14.1-5, 7	15.1-5, 15.9		17, 18, 17-19	
GEOHAZARD SUPERSITES AND NATURAL LABORATORIES (GSNL)	1.5.1, 1.5.2									11.5.1, 11.5.2							
GEO GLOBAL ECOSYSTEM INITIATIVE (GEO-ECO)																	
GEO GLOBAL NETWORK FOR OBSERVATION AND INFORMATION IN MOUNTAIN ENVIRONMENTS (GEO-MOUNTAIN)																	
GEO GLOBAL WATER SECURITY (GEOGLOWS)																	

## 2016 Rapid Assessment results (iii)

- 4 out of 4 Flagships contribute to SDGs

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<b>FLAGSHIPS</b>																	
GEO BIODIVERSITY OBSERVATION NETWORK (GEO BON)		2.4, 2.5	3.d			6.3, 6.6				11.3				14.4, 14.5	15.1-5, 7, 8, c		
GEO GLOBAL AGRICULTURAL MONITORING (GEOGLAM)		2.1, 2.3, 2.4, 2.a, 2.c															
GLOBAL FOREST OBSERVATION INITIATIVE (GFOI)													13.2, 13.3		15.1, 15.2, 15.b		17.14
GLOBAL OBSERVATION SYSTEM FOR MERCURY (GOS4M)								9.4, 9.5, 9.a				12.2, 12.4, 12.8, 12.a		14.1, 14.2			17.6-7, 17.9, 17.14, 17.17

## Outreach and advocacy actions

- GEO and its members played a clear role in explicitly mentioning Earth observation and geospatial information in the art 76 of the **Transforming our World: The 2030 Plan for Global Action**
- GEO supported several events at UN Hq in 2015 and 2016 to raise awareness about roles of Earth Observation and geospatial to support the SDGs,
- There are solid plans to continue to raise visibility of the value of EOs and GIs at key events in 2017 such as the **UN World Data Forum, Cape Town, South Africa, January 15 - 18, 2017** and the **The High-level Political Forum on Sustainable Development on July 10-19 2017**.
- GEO is preparing a report on added value of EO to SDGs, to be presented at the side event being planned in conjunction with the **UNSC meeting in March 2016**.



## GEO involvement in the SDG Process

### At global level

- Progressive engagement with the UN Statistical Division
- Membership to the Geospatial Information Working Group of the IAEG
- Linkage with the Indicators custodian agencies (on the way)

### At country level

- Engagement of GEO Principals, representing Members, to establish national coordination mechanisms, involving entities and institutions with a role in the Agenda 2030 Implementation



## Future plans

1. **Identify candidate countries for field testing of EO-based methods**
2. **Initiate activities on cross-cutting themes across the SDGs and the suitability of using relevant Earth Observation & Geospatial Information products (e.g., population, ecosystems, climate, food security)**
3. **Link existing/ upcoming SDG projects with UN custodian agencies, NSOs, 'line ministries', and development agencies**
4. **Connect international efforts in a more coordinated manner to regional and country-level efforts to facilitate knowledge sharing and avoid overlap**
5. **Help harmonize and share the work completed by different country institutions to enable coordination and support existing, and emerging, national SDG monitoring and reporting platforms, and foster national ownership of the SDGs**



## Conclusions



- 1. GEO is supporting and will support the the implementation of the 2030 Agenda**
- 2. GEO is committed to support the work of the Working Group on Geospatial Information**
- 3. GEO appreciates the collaboration with other entities and institutions, particularly with the UN Statistical Division, and looks forward to provide its contribution.**

# Thank you !

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[sramage@geosec.org](mailto:sramage@geosec.org)

GEOSS Portal

<https://www.geoportal.org/>

GEO Website

<http://www.earthobservations.org/index.php>





## **BACK-UP SLIDES**

slide 35



## **The GEO Strategic Plan 2016-2025: Implementing GEOSS**



## The GEO Strategic Plan 2016-2025

### GEO Vision

"The vision for GEO is to realize a future wherein decisions and actions for the benefit of humankind are informed via coordinated, comprehensive and sustained Earth Observations and information".



### High level Strategic Objectives

**Advocate** the importance of Earth observations as key resources that must be protected and rendered fully & openly accessible .

**Engage** with stakeholders to increase the understanding and use of Earth observations and address global and regional challenges.

**Deliver** data, information and knowledge enabling stakeholders to improve policy- and decision-making processes



### Core Functions to scope GEO activities

1. Identifying user needs and addressing gaps in the information chain
2. Sustaining foundational observations and data
3. Fostering partnerships and mobilize resources
4. Advancing the Global Earth Observation System of Systems (GEOSS) and best practices in data management and sharing
5. Implementing sustained global and regional services
6. Cultivating awareness, building capacity and promoting innovation



## The GEO Work Programme

the actual implementation tool

### GEO Vision



### High level Strategic Objectives



### Core Functions to scope GEO activities



### Work Programme

#### Overall Deliverables

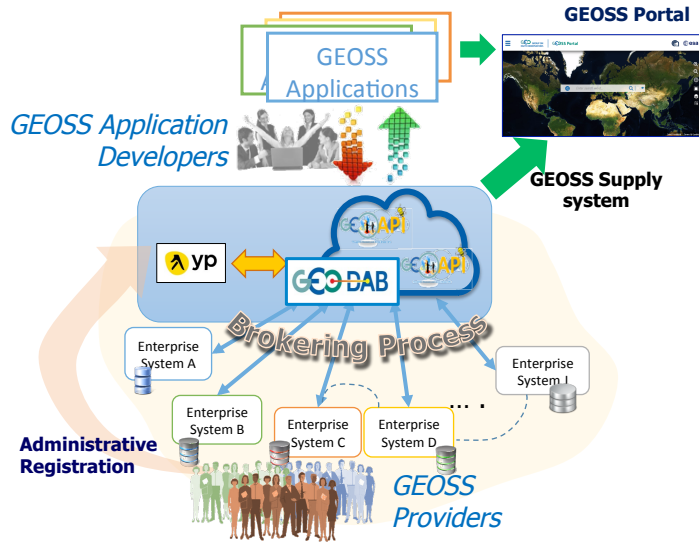
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4. **Ensure functioning** of the GEO collaboration framework

Work Programme 2017-2019 approved by GEO-XIII in November 2016  
[https://www.earthobservations.org/geoss\\_wp.php](https://www.earthobservations.org/geoss_wp.php)



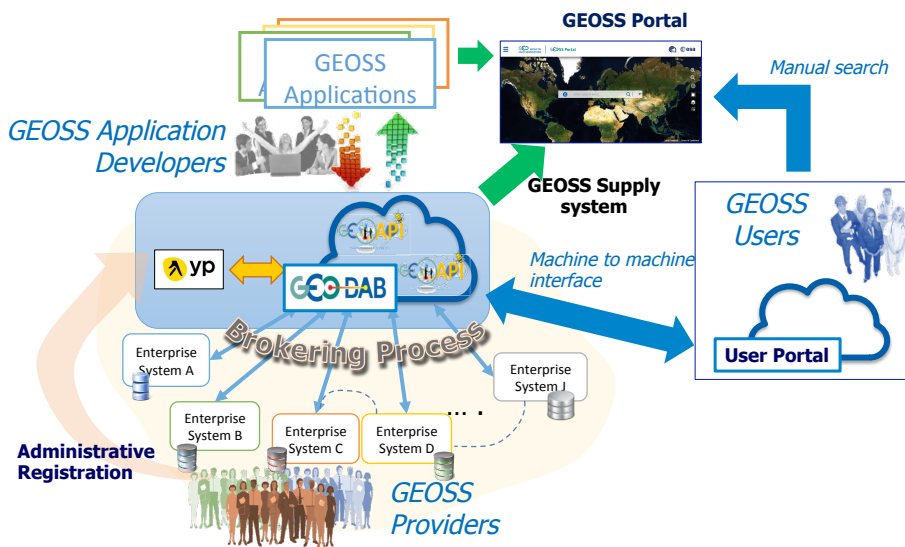
## GEOSS Information System

A little bit of complexity .....



## GEOSS Information System

Including the users in the picture...





## GEOSS View(s)

- Allow the machine to machine interface
- Are enabled by the APIs (Application Programming Interface)
- Are defined as a **Subset of the whole GEOSS resources defined by applying, via the DAB, a set of clauses**
  - *Discovery clauses* (e.g. spatial envelope, keywords, sources, etc.)
  - *Access clauses* (e.g. data format, access protocol, CRS, etc.)



**Provider-defined View** – i.e. Server-side APIs

2



**Consumer-defined View** – i.e. Client-side APIs

3

## High-level Political Forum

### HLPF 2017

The High-level Political Forum on Sustainable Development will take place from 10-19 July 2017.

This includes a three-day ministerial meeting on 17-19 July.

The following countries present their national voluntary reports for review:

Argentina	Ethiopia	Kenya	Peru
Belarus	Guatemala	Luxembourg	Portugal
Belgium	Honduras	Malaysia	Qatar
Chile	Iran	Maldives	Slovenia
Costa Rica	Italy	Monaco	Sweden
Cyprus	Japan	Netherlands	Thailand
Czech Rep.	Jordan	Panama	Togo
Denmark			Uruguay

**The following SDG goals will be reviewed:**

- 1. NO POVERTY
- 2. ZERO HUNGER
- 3. GOOD HEALTH & WELL-BEING
- 5. GENDER EQUALITY
- 9. INDUSTRY, INNOVATION & INFRASTRUCTURE
- 14. LIFE BELOW WATER
- 17. PARTNERSHIPS FOR THE GOALS