

Chapter 11

The New 10-Year GEOSS Strategy for 2016 and Beyond

Barbara Ryan and Osamu Ochiai

11.1 Introduction to GEO and GEOSS

Global environmental change, and its impact on all aspects of society, is one of the primary challenges facing humanity, even more so today than in 2003 when governments and international organizations committed to a vision of a future wherein decisions and actions for the benefit of humankind are informed by coordinated, comprehensive, and sustained Earth observations. In 2005, the first concrete step toward achieving that vision was taken with the establishment of the Group on Earth Observations (GEO), whose primary goal is to create the Global Earth Observation System of Systems (GEOSS) (Fig. 11.1, 11.2).

GEO is a partnership comprising governments and international bodies with a mandate in, and/or use of Earth observations. GEO now consists of 104 Members, 106 Participating Organizations, and 12 Observers.

11.2 GEO Strategic Plan 2016–2025: Implementing GEOSS

Recognizing the need for further collective effort to foster the use of Earth observation resources to their fullest extent, GEO Ministers extended the mandate of GEO for a second decade at the Geneva Summit in January 2014.

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Fig. 11.1 GEOSS

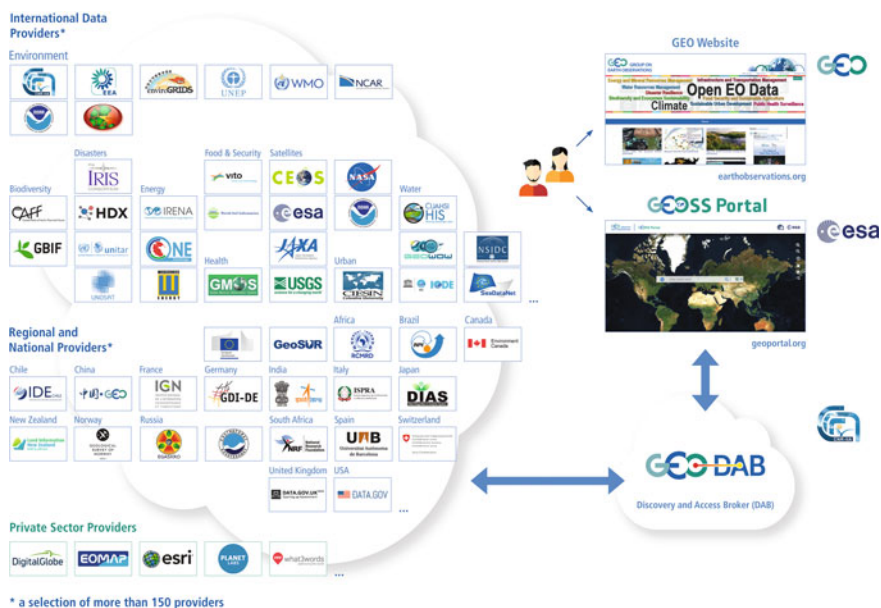


Fig. 11.2 GEOSS promotes broad open data policies and enables interoperable systems

The *GEO Strategic Plan 2016–2025: Implementing GEOSS* was prepared in response to this renewal and builds upon the strong foundation of GEO and its proven successes. The Plan identifies improvements in areas highlighted in the *Geneva Declaration*, including strengthening the Societal Benefit Areas (SBAs); engaging more broadly with stakeholders, the United Nations (UN), and the private sector; establishing a robust, steady resourcing mechanism within the voluntary framework of GEO; and identifying new opportunities.

11.2.1 Societal Challenges and Opportunities

When integrated, Earth observations from diverse sources—including satellite, airborne, in situ platforms, and citizen observatories—provide powerful tools for understanding the past and present conditions of Earth systems, as well as the interplay among them.

GEO is facilitating the development of solutions to societal challenges within the following SBAs by mobilizing resources—including observations, science, modeling and applications—to enable end-to-end systems and deliver services for users.

- Biodiversity and Ecosystem Sustainability
- Disaster Resilience
- Energy and Mineral Resources Management
- Food Security and Sustainable Agriculture
- Infrastructure and Transportation Management
- Public Health Surveillance
- Sustainable Urban Development
- Water Resources Management

Climate change and its impacts cut across all SBAs. GEO will supply the requisite Earth observations in support of effective policy responses for climate change adaptation, mitigation, and other impacts across the SBAs.

11.2.2 Stakeholder Engagement

The value of Earth observation data is fully realized when it is transformed into useable knowledge and information to address societal needs. GEO will therefore convene key stakeholders across the provider–user spectrum to co-design a process to systematically identify and document Earth observation needs to address specific problems within the scope of the SBAs.

GEO will build stronger relationships with complementary global Earth observation organizations, including UN Agencies that are already Participating Organizations, as well as other national, regional, and global entities, particularly in regard to the important role Earth observations play in support of measuring, monitoring, and achieving the United Nations Sustainable Development Goals (SDGs) (Fig. 11.3).

GEO also offers unique information and engagement opportunities for the private sector and international development banks to serve their needs in areas such as agriculture, transportation, resource extraction, and insurance. In turn, GEO benefits from the participation of the private sector through access to new types of data, diverse capabilities and new technologies, and broader community networks.



Fig. 11.3 Earth observations and geospatial information contribute to UN SDG indicators and targets both directly and indirectly

Further, development banks can offer a unique opportunity for GEO to engage directly with developing countries. Given these mutual benefits, the private sector and development banks have the capacity to be key contributors to making substantive progress towards achieving GEO’s Strategic Objectives.

11.2.3 Core Functions

GEO will implement a set of Core Functions essential for the realization of its Strategic Objectives. These Core Functions are accompanied by specific, measurable, and achievable targets designed to enable effective implementation, including the monitoring of progress and evaluation of achievements.

The Core Functions for GEO are:

- Identifying user needs and addressing gaps in the information chain;
- Sustaining foundational observations and data;
- Fostering partnerships and mobilizing resources;
- Advancing GEOSS and best practices in data management and sharing;
- Implementing sustained global and regional services; and
- Cultivating awareness, building capacity, and promoting innovation.

11.2.4 Implementation Mechanisms

Because of its broad intergovernmental membership and variety of contributing organizations, GEO is able to assemble and coordinate expertise from across numerous disciplines and communities. GEO uses this convening power to bring together the unique combinations of partners required to address societal challenges faced by communities across the globe at every scale, from individuals to countries and continents, drawing on comprehensive, coordinated, and sustained Earth observations. This mechanism (Fig. 11.4) will not only allow the establishment of a robust, steady resource within the framework of GEO, but also identify new

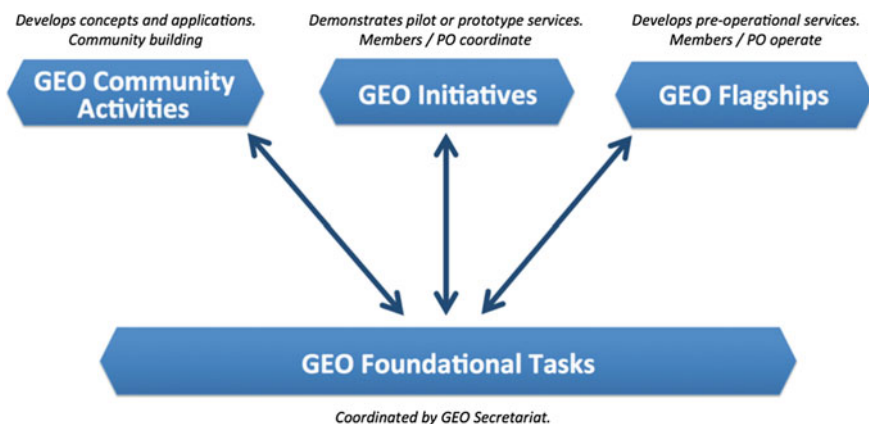


Fig. 11.4 GEOSS implementation mechanism

opportunities for GEO. The following types of activities contribute to GEO's Strategic Objectives in various ways:

GEO Community Activities allow stakeholders to cooperate flexibly in a bottom-up fashion and with a low initiation cost;

GEO Initiatives allow Members and Participating Organizations to coordinate their actions and contributions towards a common objective within an agreed, yet flexible framework;

GEO Flagships allow Members and Participating Organizations with a policy-relevant mandate to spin-up a dedicated operational service serving common needs and/or well-defined user groups; and

GEO Foundational Tasks allow GEO to implement selected, often enabling, tasks to achieve GEO Strategic Objectives. These include coordination actions, gap analyses, the implementation of technical elements for accessing GEOSS, and other routine operations of the GEO Secretariat. Thus, they provide important support functions to Flagships, Initiatives, and Community Activities.

11.2.5 Governance Structure

In order to successfully achieve its Vision and Strategic Objectives and to develop all related functions, GEO will rely on governance arrangements as set out in the GEO Rules of Procedure. Ministers of the GEO Members, meeting periodically, will provide the political mandate and overall strategic direction for GEO.

Plenary: The highest decision-making body of GEO is composed of Principals at the senior-official level, or their designated Alternates, representing GEO Members and Participating Organizations.

Executive Committee: An Executive Committee, composed of representatives of GEO Members, provides the strategic leadership for GEO activities when the Plenary is not in session.

Programme Board: A Programme Board, composed of persons nominated by GEO Members and Participating Organizations, will support the development and implementation of GEO activities. It also examines proposed Implementation Plans for GEO Initiatives and Flagships.

Secretariat: A Secretariat, led by a Director and accountable to Plenary and the Executive Committee, will facilitate and support GEO activities.

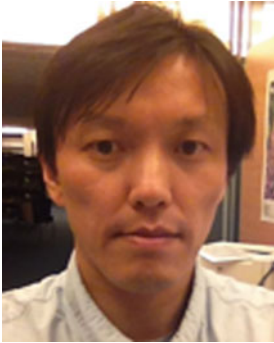
11.3 Moving Forward

As GEO enters the next decade, it will focus on addressing societal challenges facing humankind by advocating the value of Earth observations; engaging with key stakeholders, including the private sector and development banks; and delivering data, information, and knowledge that is critical to informed decision-making.

Author Biographies



Barbara J. Ryan is secretariat director of the intergovernmental Group on Earth Observations (GEO) located in Geneva, Switzerland. In this capacity, she leads the Secretariat in coordinating the activities of 103 Member States and the European Commission and the 106 Participating Organizations that are integrating Earth observations so that informed decisions can be made across eight societal benefit areas (SBAs), namely, Biodiversity and Ecosystem Sustainability; Disaster Resilience; Energy and Mineral Resources Management; Food Security and Sustainable Agriculture; Infrastructure and Transport Management; Public Health Surveillance; Sustainable Urban Development; and Water Resources Management. Before becoming GEO Director in July 2012, Ryan served as director of the World Meteorological Organization (WMO) Space Programme with responsibility for coordinating space-based observations to meet the needs of WMO members in the topical areas of weather, water, climate, and related natural disasters. Before joining WMO in October 2008, she was the associate director for geography at the U.S. Geological Survey (USGS) in Reston, Virginia, where she had responsibility for the Landsat, remote-sensing, geography and civilian mapping programs of the agency. It was under her leadership that implementation of the Landsat data policy was reformed to release all data over the Internet at no additional cost to the user—an action that has resulted in the global release of more than 40 million Landsat scenes to date and generated significant economic returns globally.



Osamu Ochiai is a scientific and technical officer at the Group on Earth Observations (GEO) Secretariat in Geneva, Switzerland. He was seconded as an expert in the area of the Global Earth Observation System of Systems (GEOSS) Architecture and Data Management from the Japanese Aerospace Exploration Agency (JAXA). He has spent more than 15 years working in the field of satellite-based Earth observation data and information systems, as well as various data utilization and application programs at JAXA. He has also been involved with the Committee on Earth Observation Satellites (CEOS) since 1998. He holds a degree in geophysics and a M.Sc. from the University of Hokkaido, Japan.

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