

GGOS 2019 External Relations Report



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IUGG



Global Geodetic
Observing System

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Global Geodetic
Reference Frame



United Nations



The Committee on Earth Observation Satellites

OVERVIEW

Participation and Representation in External Stakeholder Organizations

- United Nations Global Geospatial Information Management (GGIM) Subcommittee on Geodesy (SCoG)
- Group on Earth Observations (GEO)
- Committee on Earth Observation Satellites (CEOS)
- International Council for Science (ICSU) World Data System (WDS)

Current External Relations Projects

- Connecting United Nations Initiatives with the GGOS Geohazards Focus Area through the GAR19 Report
- Connecting the GEO Work Program (Sendai) and CEOS (SDGs) United Nations Initiatives with GGOS

GGOS Participation and Representation in External Stakeholder Organizations

- United Nations Global Geospatial Information Management (GGIM) Subcommittee on Geodesy (SCoG)

Gary Johnston

Allison Craddock

United Nations Global Geospatial Information Management (GGIM) Subcommittee on Geodesy (SCoG)



United Nations



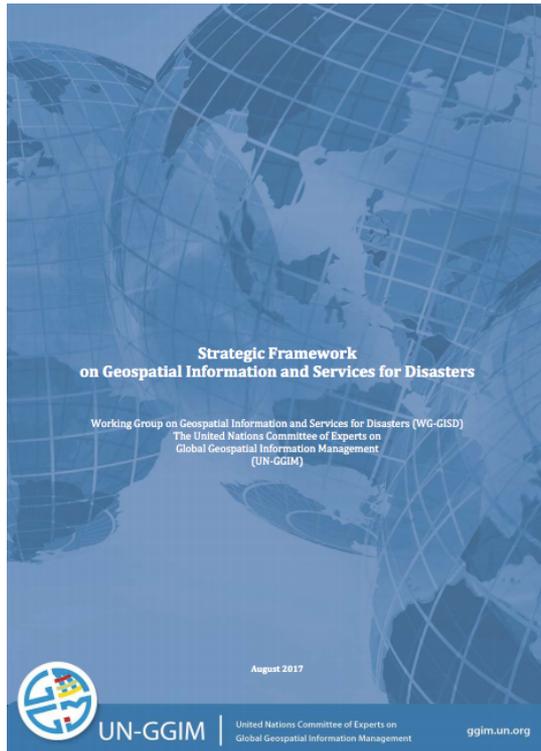
Global Geodetic
Reference Frame

SCoG Major Activities

- To provide an intergovernmental forum, with equitable international representation, for communication and cooperation on issues relating to **the maintenance and enhancement of a Global Geospatial Reference Frame (GGRF)**;
- To develop a roadmap for a **collaborative global geodetic observation network and the associated infrastructure**, with sustainable funding and investment, as well as strategic partnerships between mapping, space and other interested agencies;
- To encourage **open sharing of geodetic data and information** that contribute to regional and global reference frames;
- To advocate for guidelines and standards to **advance the interchangeability and interoperability** of geodetic systems and data;
- To **address various technical, institutional and policy issues** related to the implementation of a GGRF

UN-GGIM

Strategic Framework on Geospatial Information and Services for Disasters



Geospatial Information and services are important for Disaster Risk Reduction.

The United Nations Committee of Experts on Global Geospatial Information Management has approved an overarching strategic framework to ensure that geospatial information can be available to those who need it, at the time they need it.



United Nations



UN-GGIM Subcommittee on Geodesy (SCoG)

Within the past year, the **work of the Subcommittee has started transitioning from ideological to implementation-based**

GGOS participation in SCoG focus groups, on behalf of the IAG, has ensured initial takeoff and continued momentum of progress toward a GGRF:

- GGOS Consortium members H. Schuh and D. Angermann participate in Subcommittee Focus Groups on behalf of the IAG; M. Pearlman also serves as alternate IAG representative
- Consortium members Gross, Craddock, and G. Johnston participating on behalf of their member states (countries).

2018 Accomplishments (tabled at UN CoE GGIM 8)

- ✓ **GGRF Road Map Implementation Plan**
 - ✓ Sections on each Focus Group (except Governance)
- ✓ **Position Paper on Appropriate Governance Arrangements**
 - ✓ Recommends Subcommittee investigate the establishment of a UN Convention on Geodesy
- ✓ **Revised Terms of Reference adopted**
 - ✓ To enable increased working capacity of Subcommittee

UNITED NATIONS
E/C.20/2016/4/Add.1
8 July 2016
Economic and Social Council

Committee of Experts on Global Geospatial Information Management
Sixth session
New York, 3-5 August 2016
Item 4 of the provisional agenda
Global geodetic reference frame

Global geodetic reference frame
Note by the Secretariat

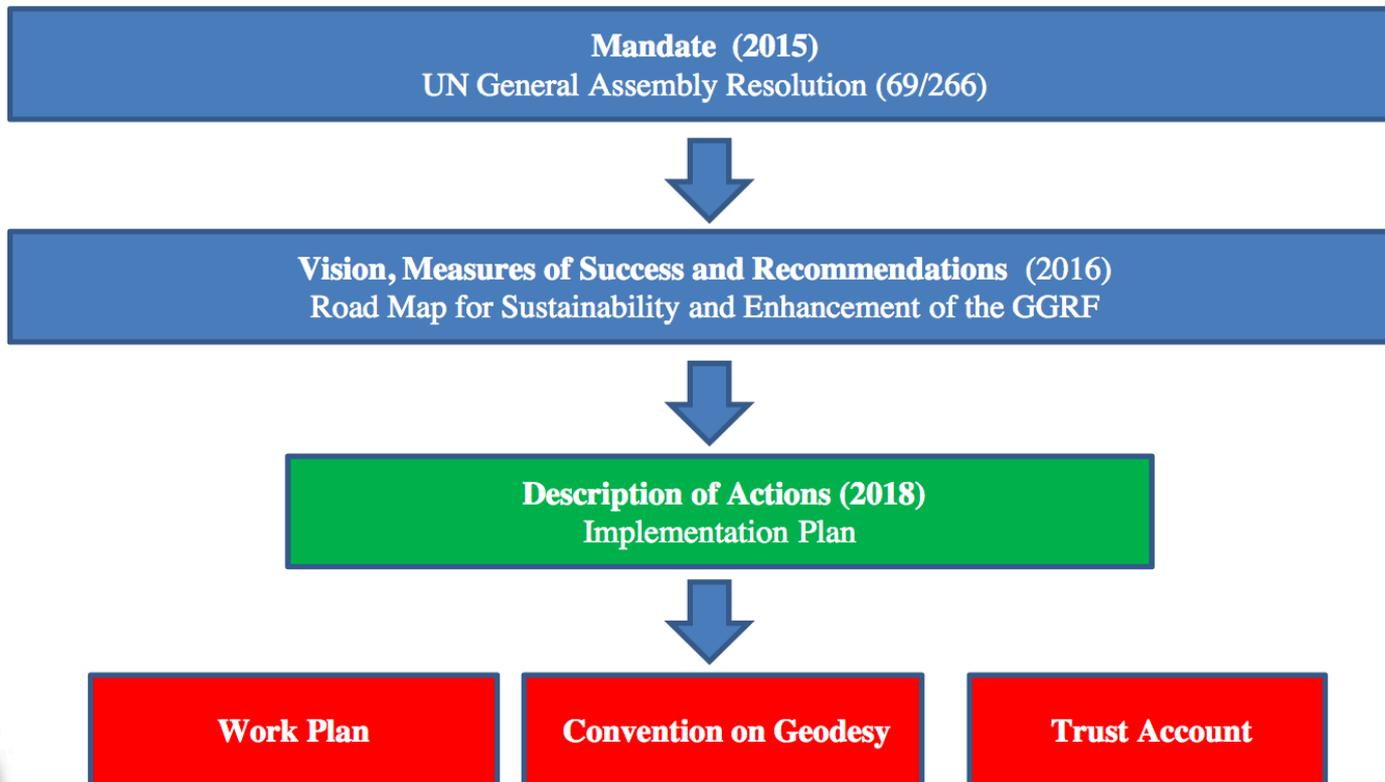
Summary

The present paper contains the report of the Working Group on the Global Geodetic Reference Frame for consideration by the Committee of Experts on Global Geospatial Information Management.

At its fifth session, held in New York from 5 to 7 August 2015, the Committee of Experts adopted decision 5/102, in which it commended the considerable efforts of the Working Group on the Global Geodetic Reference Frame and expressed its appreciation to Fiji for its leadership in the preparatory process and in the final formulation and successful tabling of the resolution on the global geodetic reference frame for sustainable development to the General Assembly with the support of 52 co-sponsoring countries. Acknowledging the importance of the resolution and of the road map as critical enablers for sustainable development, the Committee of Experts encouraged Member States and the Working Group to gather inputs on the key elements of the development and sustainability of the global geodetic reference frame globally, in particular between the North and the South, and to commit to undertaking outreach programmes to ensure that experiences and best practices were communicated effectively, particularly in developing countries. In its report, the Working Group presents progress on the road map, which includes issues related to infrastructure, policy, standards and conventions, education, training and capacity-building, communication and outreach and governance.

Sub-Committee Progress

- Recognising its importance the UN General Assembly adopted resolution 69/266 in February 2015, entitled 'A Global Geodetic Reference Frame for Sustainable Development'
- At the 6th session of UN GGIM, the Road Map for the development and sustainability of the Global Geodetic Reference Frame was endorsed by the CoE, who then requested the development of an implementation plan, and a Position paper on Governance



SCoG Recent Activities

- Second annual meeting of the SCoG occurred in the margins of the first UN World Geospatial Information Congress in Deqing, China
- Focus Areas formally converted to Working Groups
- The Subcommittee established a Bureau, which is responsible for much of the routine work and administration, and acts at the direction of the entire Subcommittee.

GGIM-World Bank

Integrated Geospatial Information Framework

- UN and World Bank collaborative roadmap to help governments develop, access, and use geospatial information to make effective policies and more accurately direct aid and development resources.
- Makes concrete recommendations on establishing national geospatial information management and putting that information to use.
- Calls for partnerships with civil society, businesses, and academic institutions who have access to relevant data and technology.
- Full document on GGIM website:
 - <http://ggim.un.org/meetings/GGIM-committee/8th-Session/documents/Part%201-IGIF-Overarching-Strategic-Framework-24July2018.pdf>
 - <http://bit.ly/GGIMWBigif>

GGIM-World Bank

Integrated Geospatial Information Framework

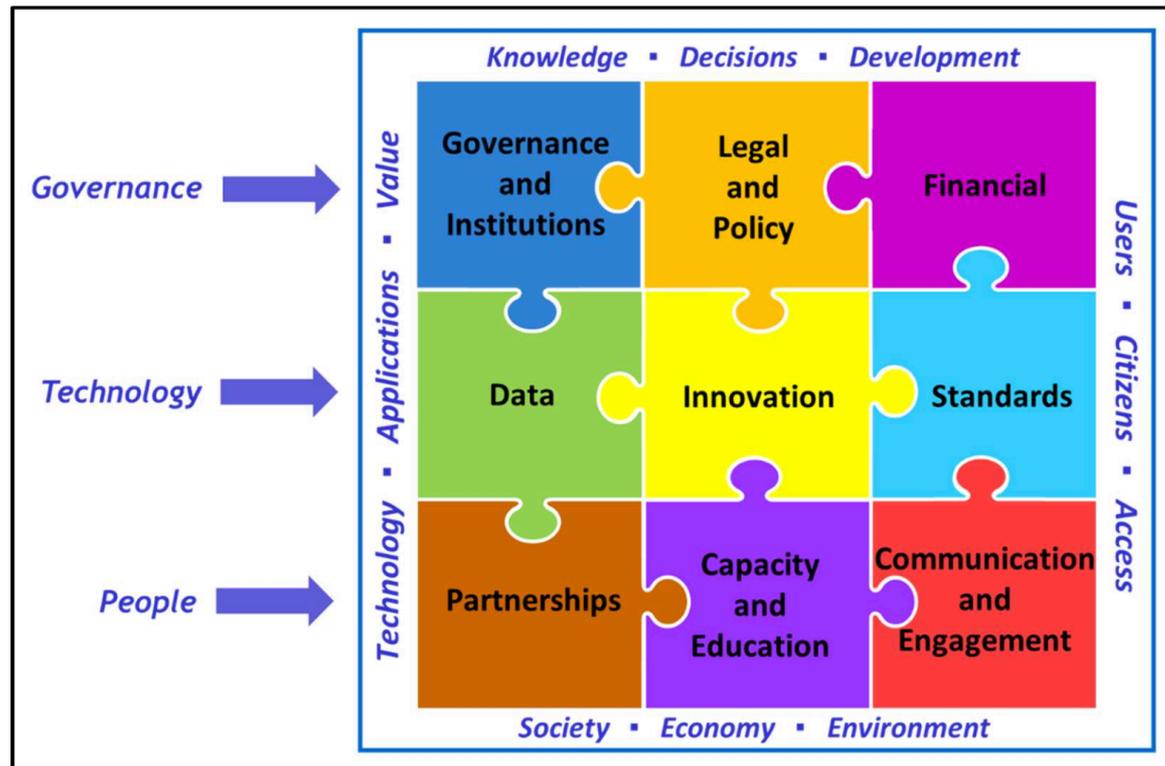
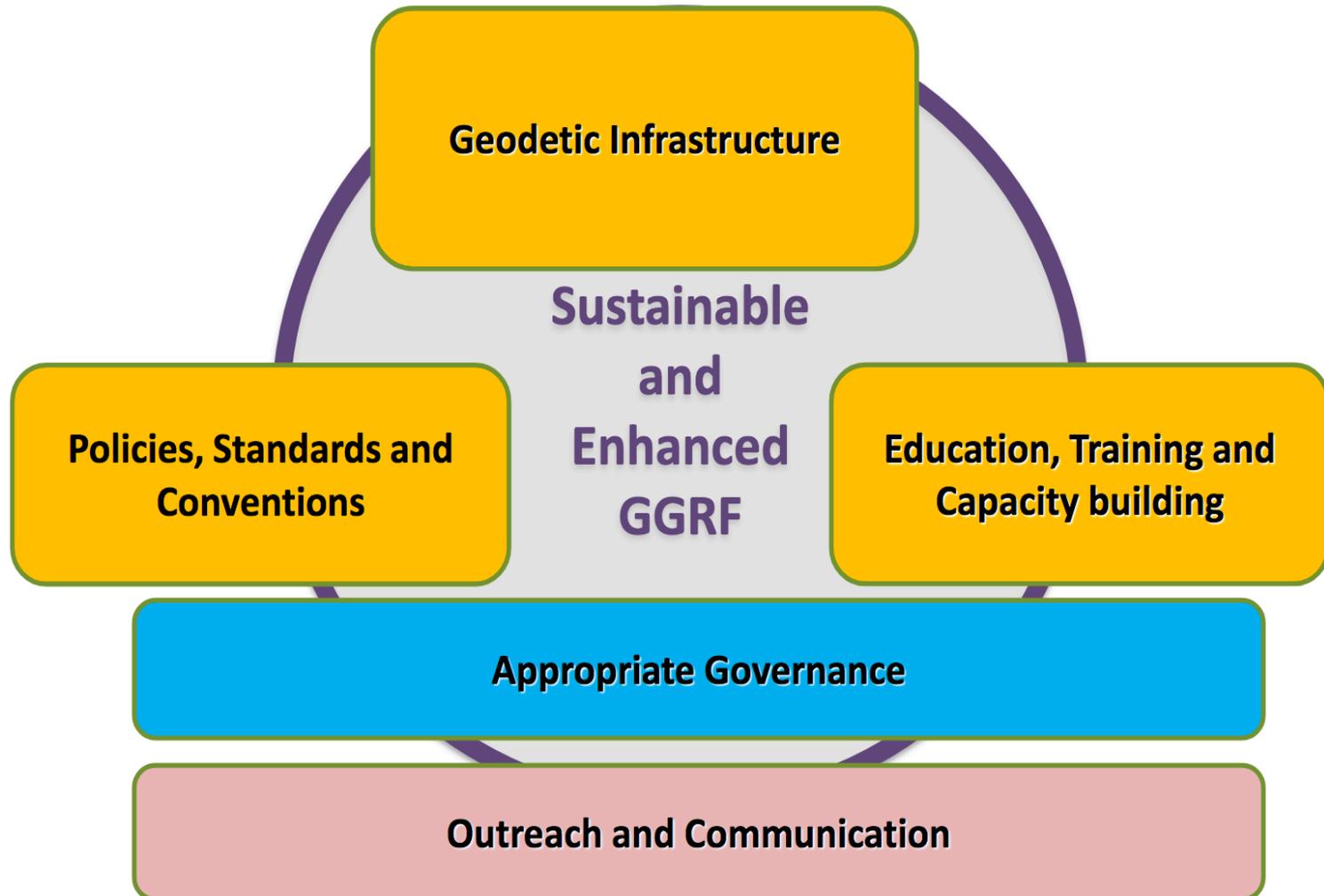


Figure 3: The Framework is anchored by nine strategic pathways and three main areas of influence. Once implemented, the strategic pathways realize many benefits.

Road Map VISION

An accurate, sustainable and accessible Global Geodetic Reference Frame to support science and society



Implementation Plan

- Implementation plan reports on work of the focus groups on Geodetic Infrastructure; Policies, Standards and Conventions; Education, Training and Capacity Building; and Outreach and Communication
- Reviews the Measures of Success and Recommendations which were included in the Road Map (which was endorsed at the 6th session (2016))
- Develops action for each of the recommendations detailed in the Road Map
- Provides additional background and reference material in the annexes

Highlights

- Compilation of geodetic standards
- Case Studies of data sharing policies
- Questionnaire on Reference Frame Competency as input to planning for education, Training and Capacity Building
- Plan to create of a Geospatial Communication network

Next Steps

- Develop a work plan to start real action
- Engage more strongly with Nations on their needs

Position Paper on Governance

- The Road Map (which was endorsed at the 6th session (2016)) recognised the need for enhanced governance of global geodesy
- At the 6th Session the CoE asked the Sub-Committee on Geodesy to develop a Position Paper on Governance, and bring it back at the 8th session
- The Position Paper suggests possible future initiatives that could fill the current gaps in governance arrangements and their respective attributes
- Position Paper is a discussion document which is intended to commence a broader consultation process which will explore the viability of future governance mechanisms, including those identified in the paper

Key Points

- Possible creation of a UN convention on geodesy in the medium to long term as a way of engaging commitment from the willing member states
- Creation of a UN Trust Account, as a mechanism for managing financial contributions from appropriate donors
- Modification / enhancement of the Sub-Committee Terms of Reference to provide clearer description of the modalities and procedures

Next Steps

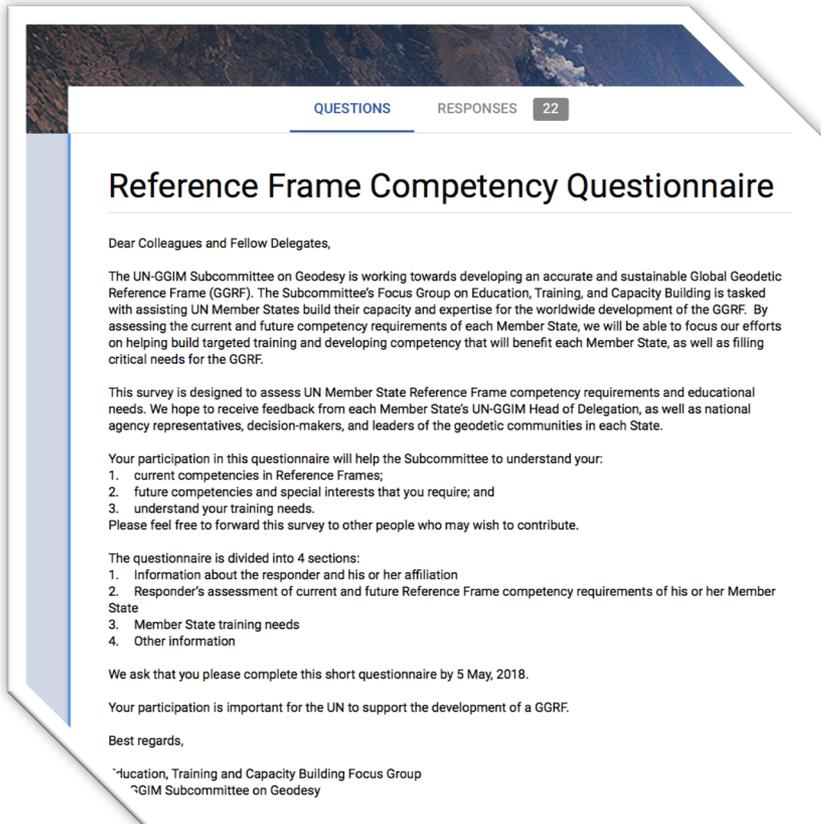
- Encourage broader participation in SCoG activities through new TOR's
- SCoG to work with the CoE and secretariat to explore governance mechanisms including broad consultation when appropriate

Education, Training, and Capacity Building (ETCB)

Recent Initiatives and Next Steps

- **Provide a framework for Member States to identify their 'Level' of competency requirements**
- **Maintain a register of Member States self-reported 'Level' of competency, and professional and technical requirements**
- **Identify training and educational gaps for Member States, working on a regional basis where appropriate**
- Provide training modules and assist with running specialized training courses to fill gaps
- Encourage other agencies to run specialized training where gaps have been identified
- Maintain a register of courses and training opportunities
- Maintain a register of trainers and training institutions
- **Identify SDG and Sendai Framework indicators that benefit from or require geodetic data**
 - Cross referencing with GGIM-World Bank IGIF

ETCB Self-evaluation questionnaire sent out

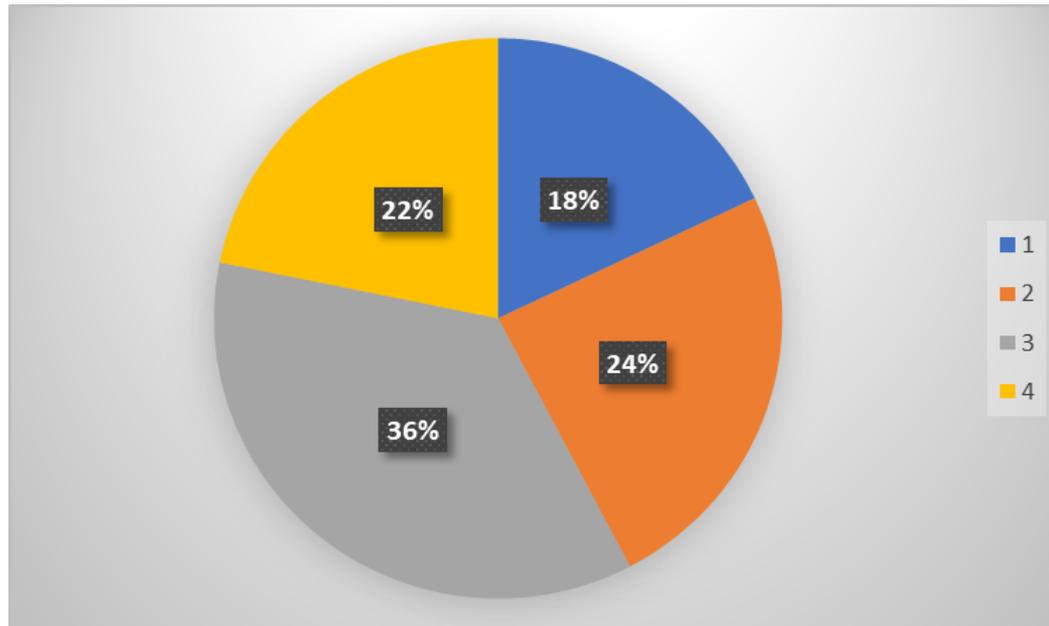


- First version has been available for participation since April 2018; responses are still welcome.
- 80+ Responses as of November 2018
- Using the results from the questionnaire, we hope to present an implementation plan for the subcommittee to consider at its next meeting.

**Survey available here:
<http://bit.ly/ggimscgq>**

Some preliminary results...

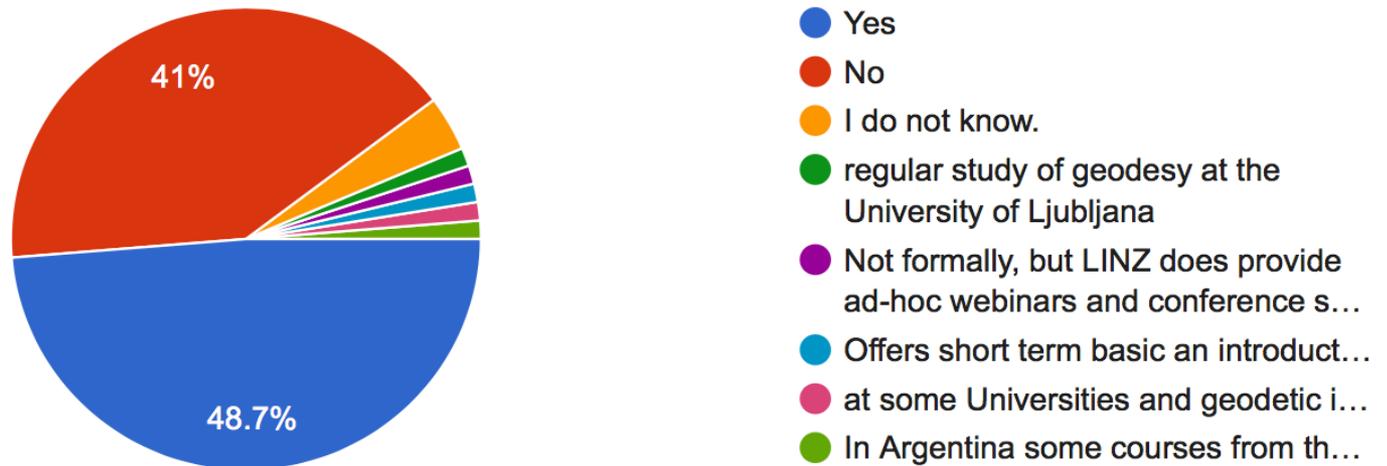
Based upon the table, what is your Member States current competency level?



Does your Member State or Organization offer Geodesy-related training or education?



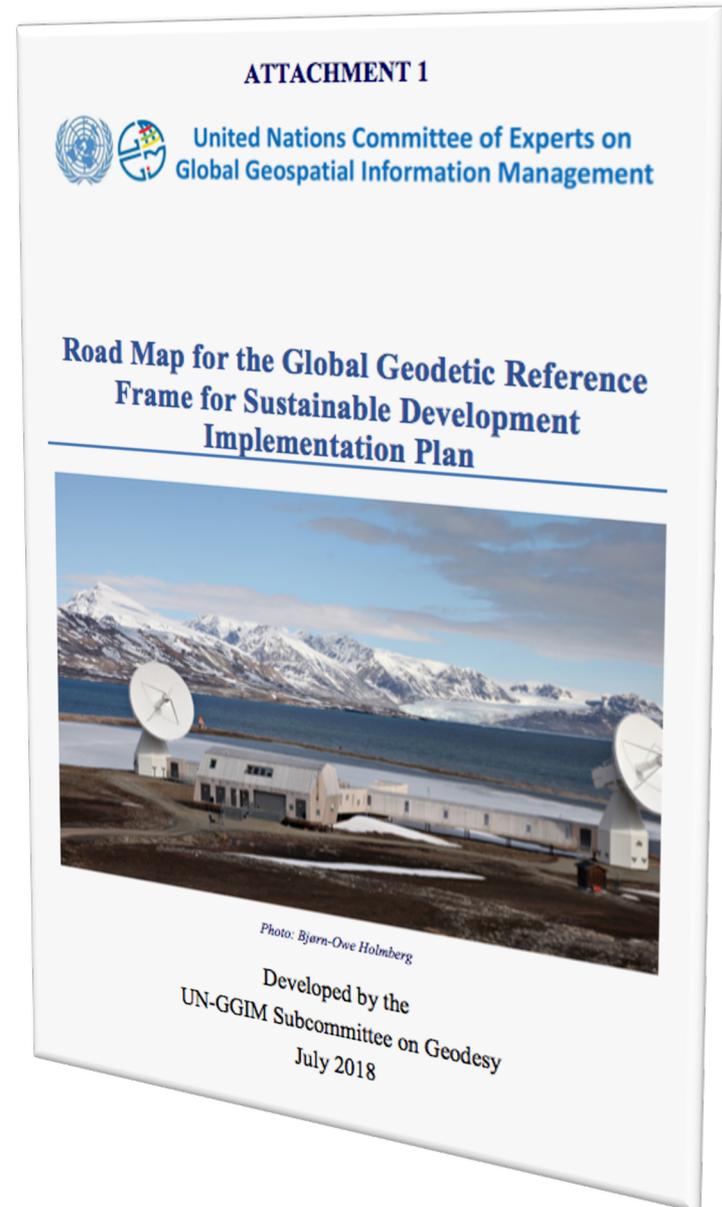
78 responses



UN-GGIM Subcommittee on Geodesy (SCoG)

Future Work

- Action on the Implementation Plan
- Further develop the Communications Expert Network (leveraging GEO)
- Second generation of geodetic capacity building survey
 - Using GGRF-wide and approved metrics, assess the geodesy training needs (and abundances) of each member state or region, particularly focused on providing resources to developing countries
 - Establish a priority list of short- and long-term training needs, their objectives, and required resources for achievement
- Comprehensive results of first capacity building survey to be presented at SCoG Workshop in November
- Investigate establishing a **UN Convention on Geodesy**



Pilot Capacity Building Regional Workshop:

Workshop on Implementing the GGRF in Latin America



- Partially sponsored by IUGG
- Partnering with IAG/GGOS
- Potential for **collaboration with UN International Committee on GNSS (UNOOSA) Working Group C** for GNSS capacity building and training
- Inviting contributions from Earth Observations stakeholder organizations, including:
 - Group on Earth Observations (GEO)
 - International GNSS Service (IGS)

Pilot Initiative:

Identification of Existing Capacity Building Resources and Enabling Discoverability

- Identify and leverage existing ETCB resources
- Develop a system of tagging for discoverability and categorization:
 - Questionnaire Level 1/2/3/4
 - Standardized Keywords
- Establish a central point of information on UN GGIM SCoG website
 - A “referral service” linking to external resources maintained by universities, societies, NGOs, and others
 - Lower the barrier to entry by identifying and explaining first steps to geodetic capacity



Pilot Initiative:

Drafting Standardized Capacity Building and Development Frameworks



- How to empower organizations to take ownership of relevant capacity building efforts/initiatives by providing a clear, easy to understand framework with standards and references?
 - Addressing different aspects of the GGRF Implementation Plan
 - Tailor to individual member state or region needs and circumstances
 - Increasing capacity capability
 - Organized facilitation of knowledge transfer
- Identify existing standards, frameworks, checklists, and other “how to” resources
- Work in conjunction with ISO?

UN RESOLUTION

In February 2015 the UN General Assembly adopted the resolution "A Global Geodetic Reference Frame for Sustainable Development" – the first resolution recognizing the importance of a globally-coordinated approach to geodesy.

The UN-GGIM Subcommittee on Geodesy was inaugurated in Mexico City in November 2017. The subcommittee is now presenting the position paper defining appropriate governance arrangements for the GGRF, and has finalised the roadmap implementation plan.

unggrf.org

The Global Geodetic Reference Frame – towards sustainability

2015: Mandate	2016: Plan	2018: Action	Next step: Commitment
The UN General Assembly adopted the resolution 'A global geodetic reference frame for sustainable development'.	The UN-GGIM Committee of Experts endorsed the Road Map for the Global Geodetic Reference Frame (GGRF) and noted the need for an appropriate governance structure in order to effectively implement the Road Map.	The UN-GGIM Subcommittee on Geodesy presents the GGRF Road Map Implementation plan and the Governance Position Paper to the UN-GGIM Committee of Experts.	UN-GGIM facilitates Member State commitment to the GGRF in accordance with the UN General Assembly Resolution (A/RES/69/266) and the GGRF Road Map recommendations.

"In a formal program evaluation in 2018 the Government of Canada noted significant program integrity concerns about global and (thereby) our national geodetic reference systems, echoing concerns raised at the UN-GGIM level. Canada views the establishment of stronger governance in Geodesy as an important means to ensure integrity of the fundamental systems that support the Global Geodetic Reference Frame (GGRF) and client access to this frame."

Calvin Klatt, Canada

"In order to ensure long-term policies related to the development of the GGRF in developing countries like Argentina, the GGRF UN-convention is an essential governance mechanism that will encourage legislators and stakeholders to invest in a more homogeneously-distributed geodetic infrastructure."

Diego Piñon, Argentina



ARGENTINA: Recent relative-gravity campaign to strengthen the GGRF.

PHOTO: INSTITUTO GEOGRÁFICO NACIONAL ARGENTINA

The GGRF Governance Position Paper

Recommends to:

1. Start an investigation regarding the establishment of a GGRF UN-convention to enable Member States to commit to the development and sustainability of the GGRF
2. Investigate the future need for a professional operations organisation for the GGRF
3. Strengthen the subcommittee on Geodesy as a governance arrangement for the GGRF by revising the subcommittee Terms of Reference.
4. Initiate the establishment of a UN GGRF trust fund to support and promote Member State activities

"The establishment of a GGRF UN-convention will most likely have positive impact outside of the GGRF. Successful establishment of such a convention will clearly demonstrate the importance of UN-GGIM and the UN-GGIM decisiveness and ability to act. It will likely raise the awareness and profile of geospatial data in general."

Laila Løvholden, Norway, lead of the GGRF Governance Focus Group.



MALAWI: Towards an accurate, sustainable and accessible global geodetic reference frame.

"A global reference frame is key if you want to be able to compare data from all continents; and to empower scientists from all parts of the world – to really give precise information, to make the planet a better place."

Erik Solheim, Executive Director, United Nations Environment Programme

From a UN mandate to commitment for global geodesy

Without commitment by Member States, the Global Geodetic Reference Frame (GGRF) will be in danger of degradation over time and consequently gradually lose its required accuracy and fundamental role in societal and scientific applications. As demonstrated by the GGRF Governance Position Paper a UN GGRF convention could be the long-term solution to this problem.



PHOTO: BIRGIN-GÖWE HOLMBERG

NY-ÅLESUND: Dr. Zuheir Altamimi, France, is responsible for the international terrestrial reference frame. He encourages nations to follow Norway's and Australia's examples.

"The UN General Assembly resolution on the GGRF for sustainable development calls for commitments by Member States to improving national geodetic infrastructure as an essential means to enhance the global geodetic reference frame. Without commitment by Member States, the GGRF will be in danger of degradation over time and consequently will gradually lose its required accuracy and fundamental role in societal and scientific applications. The current developments and investments to enhance the geodetic infrastructure in Australia, and more recently the inauguration of the new geodetic Earth observatory in Ny-Ålesund by Norway are concrete

examples to follow by other nations", says Zuheir Altamimi, France.

No one country can do this alone
"For the global geodetic reference frame to be sustainable all countries need to play a role, with many of the developed countries providing assistance to the less developed countries where possible, while also continuing



PHOTO: ANDRICK LAL

PACIFIC ISLANDS: GPS for defining territorial sea baseline on the Gilbert Islands of Kiribati.

to upgrade their own contribution to GGRF to enhance its quality," says Gary Johnston, co-chair of the UN-GGIM Subcommittee on Geodesy, representing Australia.

While many countries have a willingness to cooperate in this way, currently no clear mechanism exists to facilitate cooperation, especially where the sharing of resources is required.

Facilitate commitment

"It is our belief that a UN convention on geodesy will create such a mechanism. Coupled with the possible creation of a UN trust account, which would provide a financial mechanism for donor contribution to this effort, we believe many of the current barriers to success will become far more manageable, therefore improving the outcome for all UN Member States, and the eventual successful and sustainable enhancement of the Global Geodetic Reference Frame", says Johnston.

"The legal framework allowable by a UN convention should provide a basis for the coordination of joint work of Member States in the field of global geodesy. It will also provide governmental support and attention to the development of the GGRF both at the national and the global level", says Alexey Trifonov, co-chair of the UN-GGIM Subcommittee on Geodesy, representing the Russian Federation.



Participation and Representation in External Stakeholder Organizations

➤ Group on Earth Observations (GEO)

GROUP ON EARTH OBSERVATIONS

Connecting the GEO Work Program United Nations Initiatives with GGOS

- GEO's global priorities include supporting the **UN SDGs** and **Sendai Framework**, as well as the Paris Agreement on Climate Change.



EARTH OBSERVATIONS FOR THE SUSTAINABLE DEVELOPMENT GOALS

Earth Observations for the Sustainable Development Goals (EO4SDG), an initiative led by **GEO** that seeks to organize and realize the potential of Earth observations and geospatial information to advance the UN 2030 agenda, and enable societal benefits (and where possible, quantification of these benefits) across SDGs.





2018 Activity

- Programme Board: IAG/GGOS represented by Richard Gross (Principal) and Allison Craddock (Alternate) starting January 2018.
 - Programme Board oversees **establishment of Work Programmes at a critical transition time within GEO**
 - Works to align proposed activities with GEO priorities and committed resources – this is especially relevant in light of new Secretariat Director Gilberto Camara’s **vision of a GEO whose work has real purpose, outcome, and effects; an organization that not only facilitates open data sharing, but also knowledge and applications.**
- Programme Board Subgroup on Sendai
 - Identify how GEO can support Sendai Framework for Disaster Risk Reduction
 - IAG/GGOS joined Subgroup in order to **promote importance of geodetic observations for disaster risk reduction**
- Programme Board Subgroup on Sustainable Earth Observations
 - Assess tasks on GEOSS satellite and in situ Earth observation resources
 - Recommend ways of integrating satellite and in situ Earth observations
 - IAG/GGOS joined Subgroup in order to **promote importance of geodetic observations to satellite and in situ Earth observation communities**



What does GEO do?

Disaster Risk Reduction in the GEO Work Programme



Earth observations contribute to disaster mapping, better mitigation and response, working with the Sendai Framework on Disaster Risk Reduction

GEO Societal Benefit Areas

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

Initiatives

- Climate Change Impact Observation on Africa's Coastal Zones (GEO-CCIOoACZ)
- Data Access for Risk Management (GEO-DARMA)
- GEO Cold Regions Initiative (GEOCRI)
- GEO Geohazards Supersites and Natural Laboratories (GSNL)
- GEO Global Network for Observation and Information in Mountain Environments (GEO-GNOME)
- GEO Global Water Sustainability (GEOGLOWS)
- GEO Human Planet Initiative: Spatial Modeling of Impact, Exposure and Access to Resources
- Global Urban Observation and Information
- Global Wildfire Information System (GWIS)

Community Activities

- African Geochemical Baselines
- Chinese Tsunami Mitigation System
- Earth Observations for Disaster Risk Management
- Earth Observations for Geohazards, Land Degradation and Environmental Monitoring
- Global Ecosystem and Environmental Observation Analysis Report Cooperation (GEOARC)
- Global Flood Awareness System (GloFAS)
- Global Flood Risk Monitoring
- Land Cover and Land Cover Change
- TIGGE (Thorpex Interactive Grand Global Ensemble) evolution into a Global Interactive Forecast System (GIFS)



Supporting Sendai

Coordinating EO for Disasters

GEO supports implementation of Sendai Framework targets E,F and G through engagement with UNISDR.

E: Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020;

F: Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present framework by 2030;

G: Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030.

Value of EO for DRR

Earth Observations for Disaster Risk

EO data and information can provide a broad overview of large disaster-affected areas quickly. Using EO data and technology, disaster risks can be identified and assessed, and risks can be prevented or mitigated.



Disaster Risk Reduction

A GEO Priority Engagement Area

GEO supports Disaster Risk Reduction by improving coordination of Earth observations to increase ability to disaster forecasting, preparation, mitigation, management and recovery.



Future Work

- Continue representing geodetic community through active participation on the Programme Board and its Subgroups on Sendai and Sustainable Earth Observations
 - **Participation in Sendai Subgroup facilitates tightly-coupled overlap with GGOS Geohazards Focus Area and IUGG GeoHazards Commission, creating threefold opportunities for leverage in developing both policy and infrastructure in support of the geodetic contribution to UNISDR's Sendai Framework on Disaster Risk Reduction.**
 - Within the GEO Communicators Network, which provides a boost to public relations and valuable access to a very small and specialized subset of the communications and geodesy community.
 - **Better articulate, through collaboration with the programme board, the value of geodetic Earth observations to disaster risk reduction, and how these observations can take a role in prevention, preparedness, reponse, or recovery from disaster**
 - Participation in geodetic contributions to GEO's Earth Observations for the Sustainable Development Goals (EO4SDG).
- Leverage representation and participation within GEO to "ride the wave" of new Secretariat Director's vision of a GEO whose work has real purpose, outcome, and effects.

Current External Relations Projects

- Connecting United Nations Initiatives with the GGOS Geohazards Focus Area through the GAR19 Report
- Connecting the GEO Work Program's United Nations Initiatives with GGOS

GGOS External Relations Near-Term Goals

Two Paths to Connect GGOS with the United Nations



UNISDR

United Nations Office for Disaster Risk Reduction



UN World Conference on
Disaster Risk Reduction

2015 Sendai Japan

➤ Earth observations also play a major role in monitoring progress toward, and achieving, the SDGs.

➤ Geodetic observations have a clear role in helping to reduce the risk of disasters, as well as contribute to disaster preparedness with better mitigation and response.

Connecting the GEO Work Program's United Nations Initiatives with GGOS

There is tremendous potential to increase the exposure and impact of GGOS by identifying potential contributions and connecting existing relevant work to efforts in support of both **UN SDGs** and the **Sendai Framework**.

GGOS has the potential to help by:

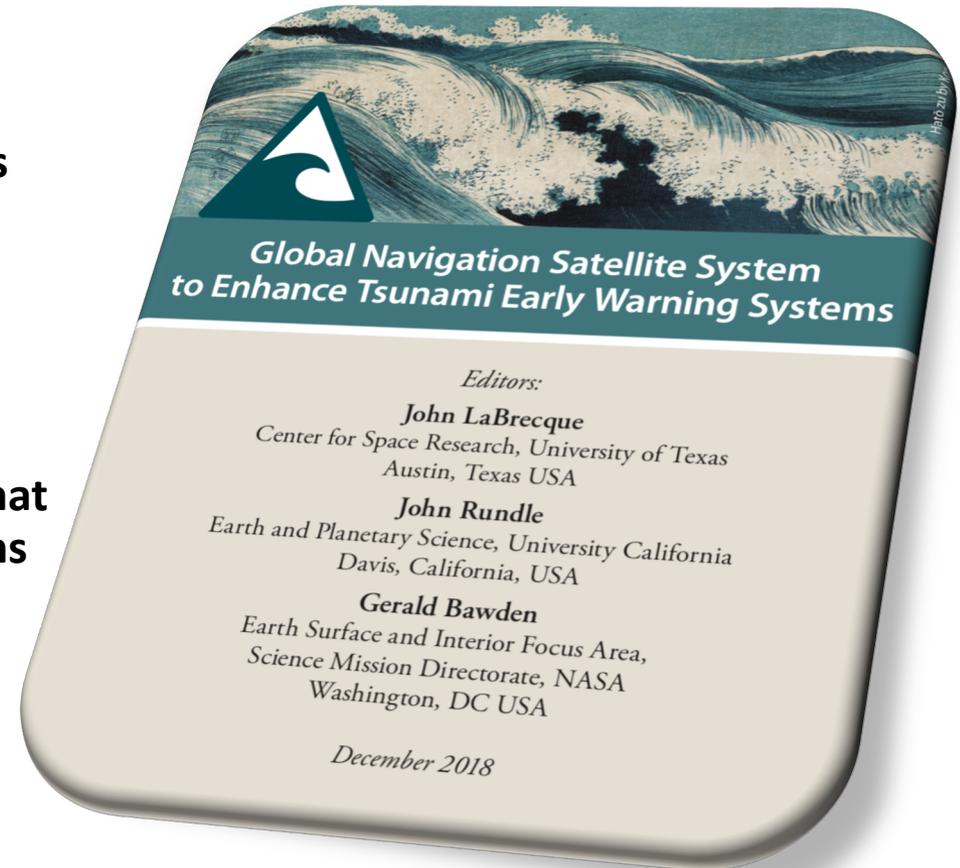
- Facilitating linkages** to agencies and other providers of geodetic data
- Making existing geodetic data **discoverable** and easily **accessible**
- Working toward **standardization**
- Advocating** for geodetic data and infrastructure in relation to Earth observations and the Sendai Framework via the GEO Programme Board Subgroup on Sendai

Participation at the GEO Programme Board level ensures that IAG/GGOS efforts in alignment with GEO's global priorities (supporting the UN SDGs, Sendai Framework, as well as the Paris Agreement on Climate Change) are well supported and complimentary to other related work – as well as preventing unnecessary redundancy of work.

Connecting United Nations Initiatives with GGOS: GNSS Enhanced Tsunami Early Warning Systems

Geodetic observations have a clear role in helping to reduce the risk of disasters, as well as contribute to disaster preparedness with better mitigation and response.

GTEWS has successfully submitted a chapter/paper for the 2019 UN Global Assessment Report on Disaster Risk Reduction (GAR19), which is **a major UN report addressing disaster risk reduction that contributes to regional and global platforms for disaster risk reduction, as well as the high-level political forum on sustainable development**



GAR
Global Assessment Report
on Disaster Risk Reduction



UNISDR
United Nations Office for Disaster Risk Reduction

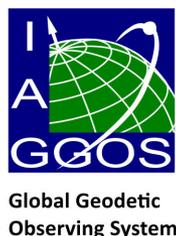
Download report: <http://bit.ly/gtews2018>

Participation and Representation in External Stakeholder Organizations

➤ Committee on Earth Observation Satellites (CEOS)

Committee on Earth Observation Satellites (CEOS)

- Gross gave a presentation at the CEOS Plenary late 2018, discussing what GGOS might need from participation in CEOS as an Agency/Partner Update. This is an opportunity for GGOS to speak about its plans and strategies in relation to CEOS, as well as the benefits and expectations of CEOS from the GGOS perspective.
- Initial contact established with the CEOS **Ad Hoc Team on the Sustainable Development Goals (AHT SDG)**, which highlights the potential role for Earth observations in supporting the global indicator framework of the United Nations Sustainable Development Goals
- **Earth Observations for the Sustainable Development Goals: AHT SDG** works closely with GEO (through the collaborative [EO4SDG campaign](#)) to highlight the numerous applications of Earth observations that provide data critical to monitoring progress toward the SDGs, and thereby further illustrate the immediate and secondary values of Earth observation data.
- Future collaborations between CEOS/GEO and GGOS in regard to its contributions toward the UN SDGs are in progress. These collaborations include a possible one-day workshop/training on key relevant SDG indicator monitoring tools, and closer collaboration with not only GEO and CEOS, but also any overlaps with the UN GGIM Subcommittee on Geodesy.



The Committee on Earth Observation Satellites

Future External Relations Projects

As GGOS connections with the SDGs and Sendai Framework mature, more opportunities to support these initiatives will become available. GGOS External Relations will pursue the most relevant and impactful avenues to ensure that IAG/GGOS enables the greatest use of geodetic data in support of these United Nations initiatives and beyond.

- IAG/GGOS Geodetic Academic Network
- External Essential Variables Identification

THANK YOU!

✓ Follow GGOS on Twitter @IAG_GGOS



Jet Propulsion Laboratory
California Institute of Technology

jpl.nasa.gov

DRR & the SDGs

Informing DRR Indicators for SDGs 1, 11 and 13

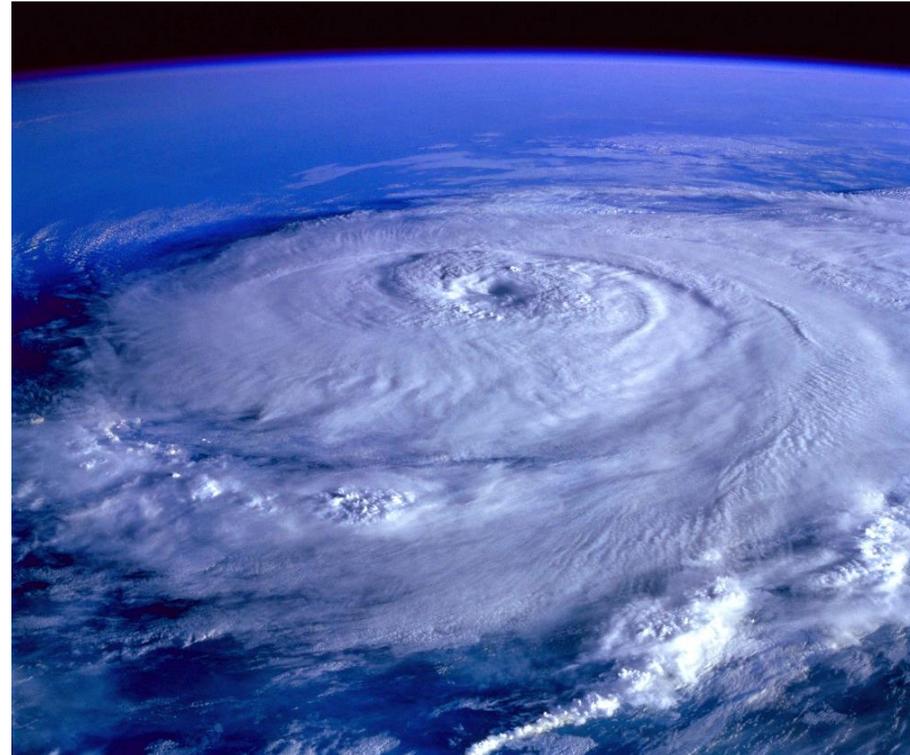


Aligning disaster-related SDGs with the Sendai Framework for Disaster Risk Reduction.



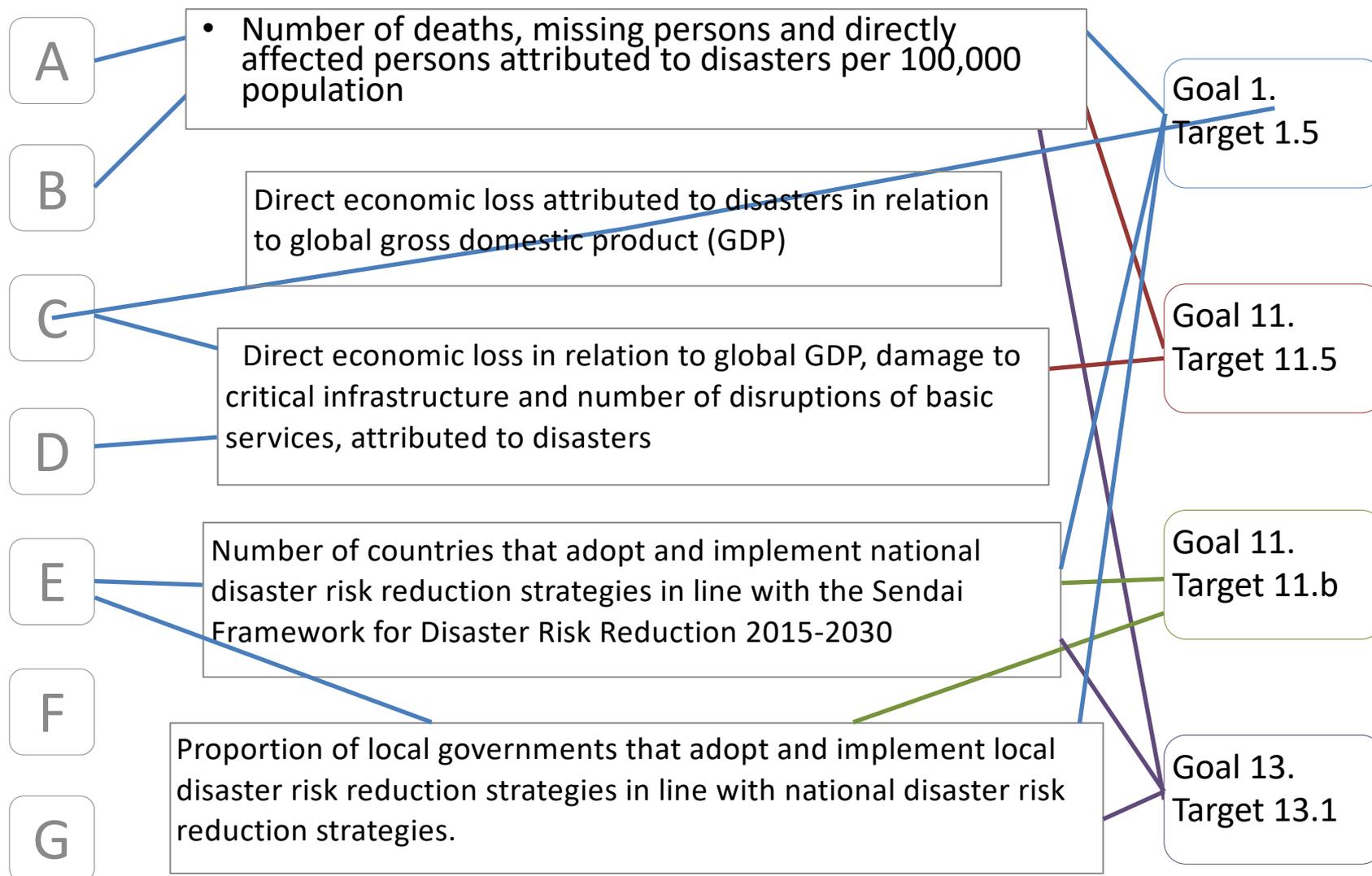
GEO is working to support the Sendai Framework and to address disaster-related goals, targets and indicators of the 2030 Agenda:

- 3 SDGs
 - 1: End poverty in all its forms everywhere
 - 11: Make cities and human settlements inclusive, safe, resilient and sustainable.
 - 13: Take urgent action to combat climate change and its impacts
- 4 SDGs Targets
- 11 SDGs indicators



Sendai Target

SDG / Target



Note: the indicators above are proposed by the IAEG-SDGs to the UN Statistical Commission, 48th Session, and as such are not yet considered final.