

Subcommittee on Geodesy

Version: 22 July 2020

Position Paper on Sustaining the Global Geodetic Reference Frame

A plan to help achieve the long-term accuracy and accessibility of the Global Geodetic Reference Frame

1. Introduction

1.1 Background

The Global Geodetic Reference Frame (GGRF) is the foundation for evidence-based policies, decisions and program delivery. The GGRF underpins the collection and management of nationally integrated geospatial information and is used to monitor our dynamic Earth. It is relied upon for social, environmental and economic initiatives, Earth science, the measuring and monitoring of progress of the 2030 Agenda for Sustainable Development, the Sendai Framework for Disaster Risk Reduction, the Small Island Developing States Accelerated Modalities of Action (SAMOA) Pathway, and other global, regional and national development agenda and initiatives.

The GGRF underpins all aspects related to location. In addition to the traditional survey, mapping and navigation fields, location-based positioning applications are increasingly critical for civil engineering, industrial automation, agriculture, construction, mining, recreation, financial transactions, intelligent transport systems, disaster response and emergency management, environmental studies and scientific research. The GGRF enables accurate and robust alignment of spatial datasets – a key requirement for sustainable development in fields such as land use planning and administration, construction and hazard assessment.

Recognising the importance of the GGRF to an ever-increasing location-based society, the Committee of Experts on Global Geospatial Information Management (UN-GGIM) established a process aimed at improving the awareness by Member States of the need for increased sustainability and enhanced accuracy of the GGRF, through the tabling of a resolution to the United Nations General Assembly (General Assembly), and the subsequent development of a road map for sustaining the GGRF.

The General Assembly adopted resolution 69/266¹ in February 2015, entitled ‘A Global Geodetic Reference Frame for Sustainable Development’. In doing so, the General Assembly ‘noted with appreciation the establishment of a Working Group by UN-GGIM to develop a global geodetic road map that addresses key elements relating to the development and sustainability of the global geodetic reference frame.’

At its seventh session in 2017, UN-GGIM adopted decision 7/103, in which it endorsed the formal establishment and composition of the Subcommittee on Geodesy (The Subcommittee), agreed with proposed terms of reference, and also expressed support for the development of appropriate governance arrangements for the GGRF. At its eighth session in 2018, UN-GGIM adopted decision 8/103, in which it endorsed the revised terms of reference for the Subcommittee, and noted the initial work and progress made on the position paper on governance towards improving the sustainability and enhancing the quality of the GGRF.

At the ninth session of UN-GGIM in 2019, the Subcommittee tabled a draft position paper on governance arrangements for sustaining the GGRF². In adopting decision 9/104³ UN-GGIM requested that the Subcommittee ‘explore a number of modalities to balance the longer-term vision, stability and operational requirements of the GGRF, including the establishment of a global geodetic centre of excellence in cooperation with UN-GGIM.’ Member States requested the Subcommittee ‘to continue to ensure broad consultation on the progression and modalities of the position paper on governance, to establish global cooperation and to acquire a better understanding of how the practical and operational requirements of the GGRF could be implemented.’

Also in the ninth session, the Subcommittee was further encouraged ‘to consult further on the practical implementation of the global geodetic centre of excellence, including modalities, function, financial arrangements and programme of work, in direct coordination with UN-GGIM and in coordination with other relevant geodetic stakeholders to avoid duplication of effort.’

¹ https://ggim.un.org/documents/A_RES_69_266_E.pdf

² http://ggim.un.org/meetings/GGIM-committee/9th-Session/documents/GGRF_Position_Paper2019_24July_web.pdf

³ <http://ggim.un.org/meetings/GGIM-committee/9th-Session/documents/GGIM9-report-e.pdf>

1.2 Sustainability and quality of the GGRF

In a world increasing reliant on high accuracy measurements and location based services, the sustainability of the GGRF is more important than ever before. However, its quality, accuracy and accessibility are at risk of failure due a multitude of complex issues. These include a lack of geodetic infrastructure, poor accessibility in some regions, a reliance on in-kind contribution and insufficient collaboration and coordination.

This paper builds on the ninth session position paper on governance arrangements for sustaining the GGRF and, as requested by the Committee of Experts, provides a plan to help achieve the long-term sustainability and quality of the GGRF by delivering improvement in five focus areas:

- Governance
- Geodetic Infrastructure
- Policies, Standards and Conventions
- Education, Training and Capacity Building
- Communication and Outreach

Section 2 of this paper describes the current state and future requirements of the GGRF, while Section 3 discusses a range of work packages developed by the Subcommittee which aim to address the critical gaps in the GGRF. Section 4 introduces and discusses the potential and role of a Global Geodetic Centre of Excellence (the Centre) to support in sustaining the GGRF.

As this document is circulated more widely (see Section 1.3), the Subcommittee will consult with Member States to ensure the work plan is aligned with their practical and operational requirements. The Subcommittee is also committed to working closely with the International Association of Geodesy (IAG), and the International Federation of Surveyors (FIG) and other geodetic organisations to avoid duplication of existing work programs and to enhance existing governance arrangements within the global geodetic community.

2. Global Geodetic Reference Frame

Sustaining the GGRF will require effort across all five focus areas:

2.1 Focus Areas

2.1.1 Governance

There are many players involved in sustaining the GGRF including: Member States, UN-GGIM Regional Committees, the Private Sector and Academic Networks; IAG, FIG and many more (see Figure 1). Despite the important contributions made by these groups, there is a lack of global cooperation and coordination. This is largely due to the fact that geodetic products traditionally served only a small specialist user group. Geodesy and the GGRF now serve a far greater user base; however, investment in the governance, technology and people sustaining the GGRF have not kept up with demand. Given the user demand and reliance on the GGRF is anticipated to continue to grow, there is a need for improved governance to maximise the benefit of ongoing geodetic efforts, ensure coherence, and avoid duplication of effort.

2.1.2 Geodetic Infrastructure

The GGRF Resolution invites Member States to engage in multilateral cooperation that addresses infrastructure gaps and duplications towards the development of a more sustainable global geodetic reference frame. The term Geodetic Infrastructure refers to the instruments, technology, data, data repositories, analysis, human resources, products and services required to observe and model the dynamic Earth. All these components are owned, operated and funded by a mix of Member States and organizations. To improve the accuracy of, and access to, the GGRF, there is a need for higher quality instruments, more instruments to improve access, and sustainable funding for analysis and product generation.

2.1.3 Policies, Standards and Conventions

The GGRF Resolution urges Member States to implement open sharing of geodetic data, standards and conventions to contribute to the global reference frame. Appropriate policies, standards and conventions are fundamental to ensuring the robustness and sustainability of the GGRF. Furthermore, geodetic data currently rates poorly on the Findability, Accessibility, Interoperability and Reusability (FAIR) scale, being inconsistent across fields of geodesy and Member States. This is inhibiting the use of the GGRF for myriad economic, environmental and societal applications.

2.1.4 Education, Training and Capacity Building

The GGRF Resolution encourages Member States and organizations to enhance global cooperation in providing technical assistance, especially for capacity development in geodesy for developing countries, with the aim of ensuring the development, sustainability and advancement of a global geodetic reference frame. A lack of geodetic capability hinders a country’s development and sustainability. In all GGRF activities, thought needs to be given to education, training and capacity building to ensure Member States have sovereign competency and that they can realize the benefits of working in the GGRF.

2.1.5 Communications and Outreach

The GGRF Resolution invites Member States to develop outreach programmes that make the global geodetic reference frame more visible and understandable to society. Geodesy often suffers from being a science which is difficult to describe. If decision makers and donors do not understand the value of an investment in the GGRF, then they are unlikely to prioritize GGRF investments above other initiatives. There is a strong need to raise the general awareness around the value proposition of geodesy and the Global Geodetic Reference Frame (GGRF).

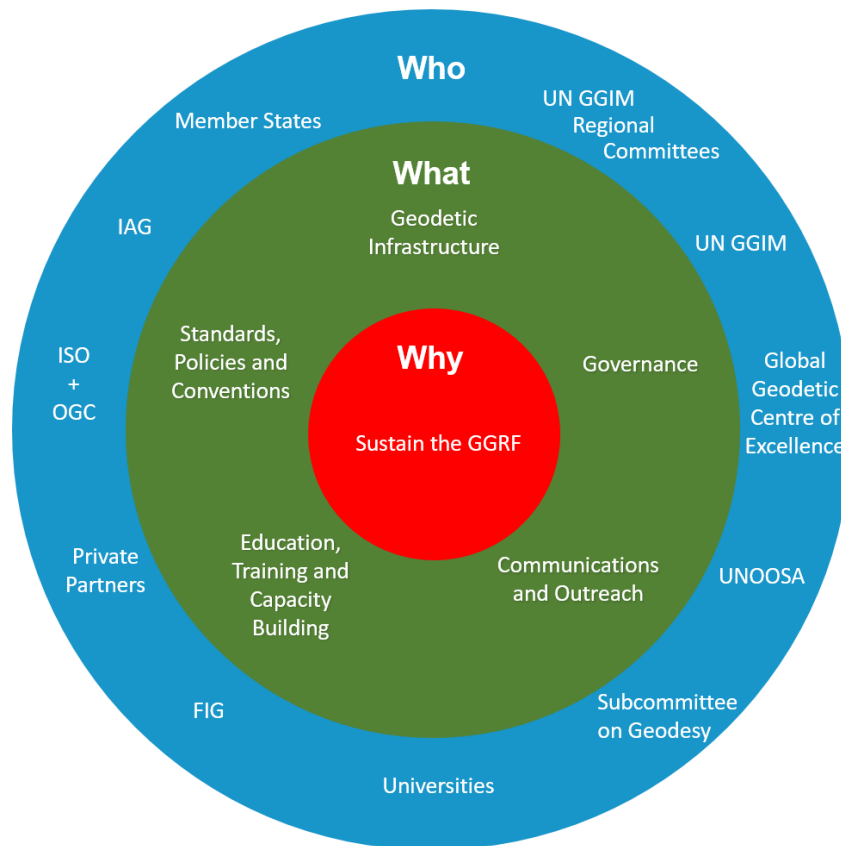


Figure 1: Why we need to work together to sustain the GGRF, what needs to be done and who can help.

These five focus areas are mirrored in the three pillars of the Integrated Geospatial Information Framework (IGIF; Figure 2). Ultimately each of the three pillars of the IGIF with its nine strategic pathways, namely –

- Strategic Pathway 1: Governance and Institutions
- Strategic Pathway 2: Policy and Legal
- Strategic Pathway 3: Financial
- Strategic Pathway 4: Data
- Strategic Pathway 5: Innovation
- Strategic Pathway 6: Standards
- Strategic Pathway 7: Partnerships
- Strategic Pathway 8: Capacity and Education
- Strategic Pathway 9: Communication and Engagement

will provide the mechanism across the five focus areas (as identified above) towards effective leadership, mobilization of resources, advocacy and actions to ensure the long-term sustainability and quality of the GGRF.

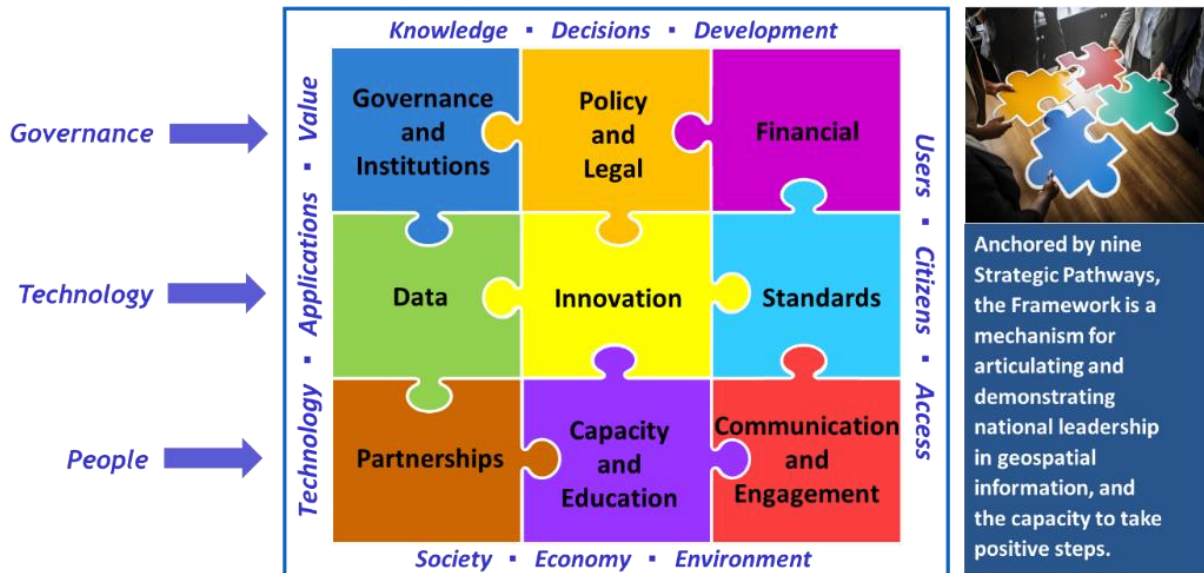


Figure 2: United Nations Integrated Geospatial Information Framework.

2.2 What does the GGRF support?

The GGRF underpins, to name a few:

- Earth and climate science
- Economic development and sustainability
- Public safety and disaster management
- Land and water administration
- Environmental management

The most common way people access the GGRF is via Global Navigation Satellite Systems (GNSS) and its receivers, which are now embedded in cellphones and mobile devices around the world. In just ten sectors of the United States economy that utilize its Global Positioning System (GPS) in their day-to-day business activities (precision agriculture, financial services, location-based services, mining, surveying, telecommunications, telematics, electricity, maritime navigation, and use in oil and gas industries), \$1.4 trillion of economic benefit has been realized in its private sector alone⁴ since GPS was made available to the private sector in the 1980s.

2.3 Challenges

The sustainability and quality of the GGRF, and its continual accessibility, have significant and cascading economic, environmental and societal implications. Some of the challenges currently faced are described below.

2.3.1 Lack of redundancy

The development and sustainability of the GGRF is dependent on the contributions from Member States and organisations; many of which are provided in-kind, and on a best-effort basis. The geodetic infrastructure which supports a myriad of societal, economic and environmental applications is therefore fragile and not sustainable. If, for some reason, some key agencies or organisations cease their GGRF contributions and activities, it not only degrades the GGRF but also jeopardizes the activities of industry, science and society that are dependent on the availability of the GGRF.

⁴ https://www.rti.org/sites/default/files/gps_finalreport.pdf

2.3.2 Need for global coordination

Member States, organisations and industries play a role in providing access to, and accuracy of, the GGRF through the development and maintenance of infrastructure, undertaking geodetic data collection, processing, and product analysis, and the provision of education, training and capacity development. As the GGRF has grown from being a scientific endeavour to an important foundation for good policy and decision making, the geodetic community requires improved global coordination to maximize the benefits of the work being done, and to limit duplication of efforts. To address this, coordinated efforts must be initiated to enhance operational capacity, capability and research related to the GGRF.

2.3.3 Low benefits realisation of education, training and capacity development

The education, training and capacity building (ETCB) efforts by Member States, institutions and organisations have been substantial over the years. However, recent surveys and assessments of responses by Member States indicate that most countries still require additional capacity development to make the best use of the GGRF, and to also play a role in its ongoing sustainability. This is largely due to lack of geodetic knowledge and/or capacity in some regions and countries.

2.4 What needs to be done to sustain the GGRF?

To some extent, funding, capability, capacity, or a combination of the three, is required to sustain the GGRF for all Member States across five focus areas listed in section 1.2.

What needs to be achieved will be different in each region or country. For example:

- Scenario 1: Some Member States are unable to access the GGRF due to a lack of GNSS infrastructure and the use of national reference frames which are not aligned to the GGRF. These Member States need assistance across all five focus areas.
- Scenario 2: Some Member States have difficulty influencing their respective governments to sustain funding to operate and maintain geodetic infrastructure. This may mean they require assistance with outreach and communications that will have to include value propositions and benefits realisation.
- Scenario 3: Many Member States would like to have an improved observational and monitoring capability to better understand the impacts of climate change. An accurate and stable GGRF is required if measurements at sub-mm accuracy made today are to be meaningfully compared with measurements made a decade from now. For example, to accurately quantify long-term sea level change, the global geodetic community have set themselves a task to make the International Terrestrial Reference Frame (ITRF) both accurate and accessible at the 1 mm level, with a stability of 0.1 mm per year. This

requires state-of-the-art geodetic infrastructure operated and maintained in regions which cannot afford to install and maintain it.

2.5 Who needs to sustain the GGRF?

The range of Member States and organisations currently working to sustain the GGRF are presented in Figure 1. For example:

- IAG Services are responsible for operational product delivery (e.g. GNSS products which provide access to the ITRF) and provide leadership on geodetic standards.
- FIG play a key role in education, training and capacity development in developing countries.
- Member States provide geodetic infrastructure and assist with their operation in other countries around the globe.
- The UN-GGIM IGIF provides a mechanism for Member States to understand their current capacity and capability, and address future requirements.
- The United Nations (through the UN-GGIM Secretariat) works with Member States to implement nationally integrated geospatial information management leveraging the nine strategic pathways of the IGIF as a mechanism for national leadership that will also strengthen and sustain national geodetic infrastructure, capacity and capabilities.

Despite the excellent work and good will of Member States and organisations currently working to sustain the GGRF, there are critical gaps across the five focus areas. This inherently implies there is insufficient funding, capacity and capability to ensure the long-term sustainability and quality of the GGRF.

2.6 A path to a sustainable GGRF

To address challenges and the deficiencies across the five focus areas, the Subcommittee has developed a range of work packages (Section 3) which aim to address the critical gaps in the GGRF. The work packages are designed to balance the longer-term vision for the GGRF, while ensuring its short and medium-term accuracy and stability, and hence, its quality.

3. Subcommittee work packages to sustain the GGRF

The Subcommittee has developed a range of work packages aimed to sustain the GGRF, and address the lack of funding, capacity and capability across the five focus areas in the GGRF. The work packages are designed to balance the longer-term vision for the GGRF, while ensuring its short and medium-term requirements for accuracy and stability. Importantly, work packages to sustain the GGRF is a collaboration between Member States, organisations such as the IAG and FIG, industry and relevant geodetic stakeholders. The Centre (Section 4) is expected to support a number of these tasks within the work packages. However, in many cases it is to improve the collaboration and governance of the work package, including tracking progress and evaluating success. By playing this role, the Centre will help maximize the success of the work package, ensure value for money, and avoid duplication of effort.

3.1 Governance

| ID | Goal |
|-------|--|
| GOV.1 | Develop a Concept Paper on the establishment of a Centre and consult with Member States on the rationale, justification and operational modalities. |
| GOV 2 | Ensure that short, medium and long-term goals exist for the five focus areas in order to: <ul style="list-style-type: none">i. enhance global cooperation across Member States and relevant geodetic stakeholders, including IAG and FIGii. ensure coherence and avoid duplication of effortiii. develop policy guidance, adoption and implementation of standardsiv. ensure robust data analysis and product services, and infrastructurev. assist with education, training and capacity buildingvi. improve communications and outreach |
| GOV.3 | Assist Member States in identifying their geodetic needs, and pathways to meet these needs in line with the Integrated Geospatial Information Framework. |

3.2 Geodetic Infrastructure

| ID | Goal |
|-------|---|
| INF.1 | <p>Undertake a user requirements study to define and document existing, and where required, (historical), geodetic infrastructure and parameters in a standardized manner.</p> <p>Undertake a user requirements study to define what geodetic infrastructure is required to provide an accurate, sustainable and accessible GGRF.</p> <p><i>NOTE: This study should build on the geodetic infrastructure questionnaire completed by IAG Services in 2019/2020.</i></p> <p>The user requirements study should seek to understand the requirements for geodetic instruments, technology, data, data repositories, analysis, human resources, products and services required to answer economic, societal and environmental questions / challenges such as:</p> <ul style="list-style-type: none"> i. Sustainable Development Goals; ii. Sendai Framework for Disaster Risk Reduction iii. Monitoring and adapting to climate change (incl. sea level rise) iv. Real time applications (e.g. location-based services, intelligent transport services); v. High integrity applications (e.g. aviation); vi. Requirements of the land administration systems; and vii. Requirements of industry to help them grow and innovate. |
| INF.2 | <p>Develop, implement and communicate a Global Geodesy Development Plan in cooperation with relevant stakeholders for geodetic infrastructure based on results from INF.1.</p> <p>The initial Global Geodesy Development Plan should:</p> <ul style="list-style-type: none"> i. Address both the accuracy and access requirements of the GGRF; ii. Identify and mitigate the critical gaps / lack of redundancy in the GGRF; iii. Communicate plans from IAG services to be used to modernize / improve geodetic infrastructure; iv. Recognize regional differences in requirements, political, social and regulatory impediments to adoption, capability and capacity; v. Assist Member States to develop a modern coordinate reference system using current infrastructure; vi. Promote and facilitate multilateral cooperation that addresses infrastructure gaps and duplications, in order to ensure an optimal geometry and coverage; and |

| ID | Goal |
|-----------|--|
| | vii. Include a mechanism for Member States to build capacity and capability in foreign countries. |
| INF.3 | Develop and make available a business case and educational materials to assist Member States densify their geodetic infrastructure to improve access and sustainability to geodetic infrastructure in countries (based on [INF.1] and [INF.2]). |
| INF.4 | Provide a pool of geodetic equipment (GNSS, gravity and total station) which can be borrowed by developing countries to measure new data to improve the accuracy and accessibility of the GGRF in their region. |
| INF.5 | Embed dedicated personnel with geodetic expertise within the Centre who would assist developing countries observe, compute, analysis and implement modern geodetic reference frame and vertical datums aligned with GGRF. |
| INF.6 | Consider a United Nations Trust Fund in which Member States and organisations can donate funds. The Trust funds can be invested to fill critical gaps identified in INF.1 and INF.2. This will include identifying potential donors, raising awareness and communication |

3.3 Policies, Standards and Conventions

| ID | Goal |
|-----------|---|
| PSC.1 | <p>Develop and assist with implementing a data-sharing strategy and promote making geodetic data Findable, Accessible, Interoperable and Reusable (FAIR) so it can be shared globally and used to improve decision-making. Efforts would include:</p> <ul style="list-style-type: none"> i. Ensuring Member States existing data is FAIR and in existing portals in multiple forms (e.g. web services, download); ii. Develop data sharing policy templates for Member States to use in preparing their national data sharing policies; iii. Ensuring metadata records comply with international standards; iv. Establish training events / workshops (e.g. side events at plenary meetings UN-GGIM Regional Committees) to develop capability, especially for developing countries; and v. Document and share case studies of data sharing, the benefits that have arisen and strategies for overcoming barriers. |
| PSC.2 | Work with Member States to apply standards, policies and conventions for the generation of consistent geodetic products for the GGRF. |

| ID | Goal |
|-------|--|
| PSC.3 | Publish authoritative reference system definitions and transformations in the ISO Geodetic Registry and other such registries as required to facilitate sharing of data and the interoperability of data and products with the GGRF. |

3.4 Education, Training and Capacity Building

| ID | Goal |
|--------|---|
| ETCB.1 | <p>Conduct reference frame competency and educational needs assessments to assess long-term geodesy training needs of Member States, as well as capacities of Member States to assist and contribute to capacity building efforts.</p> <p>This needs assessment should be prioritized into short, mid and longer-term training needs, their objectives, and required resources for fulfilling these needs.</p> |
| ETCB.2 | <p>Develop a capacity development program based on UN Development Program guidelines⁵, and in alignment with the UN-GGIM-World Bank Integrated Geospatial Information Framework, Strategic Pathway 8: Capacity and Education. The program should provide education, training and capacity development on topics including:</p> <ul style="list-style-type: none"> • Geodesy training program (spanning from one-day courses to certification); • Development and communication of technical workshops and material; • Provision of research stipends, sponsored secondments, or other means of supporting participants from developing Member States. <p><i>NOTES:</i></p> <ul style="list-style-type: none"> • <i>Must provide balanced regional representation in the development of the program; and</i> • <i>Actively search for contributions from developing or historically under-represented Member States.</i> |

⁵ https://www.undp.org/content/dam/aplaws/publication/en/publications/capacity-development/support-capacity-development-the-undp-approach/CDG_Brochure_2009.pdf

| ID | Goal |
|-----------|--|
| ETCB.3 | Develop a Geodesy “Thematic Layer” for the UN-GGIM-World Bank Integrated Geospatial Information Framework that identifies components of IGIF Strategic Pathways that are relevant or applicable to the sustainable development of geodetic infrastructure and capacity. |
| ETCB.4 | Develop collaborative arrangements or agreements with scientific institutions / academia / government to develop and deliver geodesy ETCB resources. <i>Based on the findings from ETCB.1 and ETCB.2, the ETCB resources may need to be based centrally, or could be from a range of scientific institutions / academia / governments around the world. This would be a federated ETCB model.</i> |
| ETCB.5 | Develop an ETCB “resource hub” as a sub-section of the Subcommittee on Geodesy webpage. This “resource hub” will facilitate consolidation, vetting, translation, and dissemination of technical training materials and other relevant capacity building information, sourced from ETCB contributors around the world. |

3.5 Communication and Outreach

| ID | Goal |
|-----------|---|
| OC.1 | Develop and implement a communication and outreach strategy with deliverables including: <ul style="list-style-type: none"> i. Improved capability for geodetic experts to communicate, advocate and explain why geodesy is important to policy makers; ii. Development and dissemination of case studies, news stories, social media posts, promotional and communication materials to improve understanding of GGRF. iii. Development of a communications network including communication professionals from the whole geospatial community and; iv. Liaise with stakeholder communicator networks in international organisations and Member States; v. Descriptions and examples of how geodesy underpins UN initiatives such as Sustainable Development Goals (SDGs), Sendai Framework on Disaster Risk Reduction and climate change adaptation; vi. Collaboration space providing communications tools such as newsletter templates, social media strategies, infographics, animations, videos, photos, narratives/ case studies and collection of quotes in all UN languages. |
| OC.2 | Create strategic messages, develop communications methods including social media, in accordance with UN-guidelines and practice |

| ID | Goal |
|-----------|--|
| OC.3 | Select five critical user requirements (e.g. from INF.1 study) and demonstrate how geodesy can play a key role in resolving / achieving change. e.g. measuring sea level change. |

4. The Global Geodetic Centre of Excellence

To sustain the GGRF, the Subcommittee has proposed establishing a United Nations Global Geodetic Centre of Excellence and was encouraged by UN-GGIM at its ninth session to consult further on the practical implementation of the Centre ⁶, including modalities, function, financial arrangements and programme of work. This section introduces and discusses the potential and role of a Centre to support sustaining and ensuring the quality of the GGRF considering the challenges and growing reliance on the GGRF, and the challenges identified above.

The concept paper for the establishment of a United Nations Global Geodetic Centre of Excellence accompanies this position paper.

4.1 Role of the Global Geodetic Centre of Excellence

The role of the Centre is to assist in sustaining the GGRF by implementing operational paragraphs of UN General Assembly resolution 69/266. Among other activities, the Centre will do this by developing a work plan aligned with the work packages identified in Section 3. This can be paraphrased as:

- enhance **global cooperation and coordination** across Member States and relevant geodetic stakeholders to maximise the benefit of ongoing geodetic efforts, ensure coherence, and avoid duplication of effort.
- strengthen **geodetic infrastructure**
- assist Member States in making their geodetic data Findable, Accessible, Interoperable and Reusable in line with **standards, policies and conventions**.
- support **education, training and capacity building**
- improve **communication and raise awareness**

By fulfilling these roles, the Centre would address many of the critical gaps in capacity and capability across the five focus areas.

⁶ <https://ggim.un.org/meetings/GGIM-committee/9th-Session/documents/GGIM9-report-e.pdf>

4.2 Functional Arrangements

The Centre will be established and operationalized through a Memorandum of Understanding (MoU) between the United Nations and a host Member State(s), who are also donors. This MoU would be established in accordance with Host Country Agreement/s (HCA) between the United Nations and the Government/s of the host Member State/s. In this regard, the United Nations will establish a Trust Fund for this project in accordance with prevailing rules, guidelines and practices of the United Nations.

The Centre will be established and operated as a United Nations Centre, and will therefore be led and managed by the United Nations via well-established mechanisms. A range of operational models are available including:

- Single centre hosted by one Member State as the only donor, or
- A **Federated Centre (preferred option)** – multiple Member States to co-host the Centre. This could be:
 - A single Centre which is funded by a number of Member States, or
 - A network of Centres hosted by various Member States working under a coordinated governance model.

The Subcommittee strongly encourages any Member State interested in contributing to the Centre, no matter how small, to discuss options with the UN-GGIM Secretariat about how to be involved.

Irrespective of the operational model, the funding and operational modalities of the Centre is stipulated in an MoU with the host country/s. The operational model will require, in coordination with relevant geodetic stakeholders, the establishment of a steering committee (to assist with governance of the Centre), and an advisory committee (to provide scientific and operational guidance). Furthermore, the Centre will have a framework plan, operational budget, governance, management and funding arrangements. The United Nations will establish and operate a Trust Fund for the Centre in accordance with prevailing rules, guidelines and practices of the United Nations. Contributions to the Trust Fund is provisioned under the MoU and HCA with the host and donor Member State(s).

4.3 Framework plan and operational budget

The framework plan of the Centre (either a Federated Centre or a single Centre) will be based broadly on the work packages discussed in Section 3. The details of the framework plan, including the operational budget, will be subject to the provisions in the MoU between the UN and the donor Member State/s. The operational budget covers the costs of the establishment of

the Centre for the initial period of the operation of the Centre, in line with existing United Nations procedures.

Acknowledging that the Global Geodetic Reference Frame depends on the participation of countries all around the globe, and the need to take action to strengthen international cooperation⁷, the Centre overarching goal is to deliver a programme of work to achieve the long-term sustainability and quality of the GGRF.

⁷ https://ggim.un.org/documents/A_RES_69_266_E.pdf