United Nations
Global Geodetic Centre of Excellence

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The present paper contains the report prepared by the United Nations Global Geodetic Centre of Excellence (UN-GGCE) and its International Advisory Committee (IAC) on the establishment and operations of the UN-GGCE for information and consideration by the United Nations Committee of Experts on Global Geospatial Information. Management (UN-GGIM).

Introduction

1. An agreement "On the Operationalization of the United Nations Global Geodetic Centre of Excellence" between the United Nations[1] and the Federal Republic of Germany[2] was signed on 4 November 2022. The agreement formalizes the offer from Germany to host the United Nations Global Geodetic Centre of Excellence (UN-GGCE) at the UN Campus in Bonn, Germany to support the work of enhancing global geodesy cooperation and coordination across Member States and relevant geodetic stakeholders, strengthening geodetic infrastructure, as well as supporting Member States in improving their national contributions to the global geodetic infrastructure, as outlined in the Framework Plan of the UN-GGCE as annexed to the agreement.

2. The UN-GGCE's overarching goal is to assist Member States and geodetic organizations to coordinate and collaborate towards sustaining, enhancing, accessing and utilizing an accurate, accessible, and sustainable Global Geodetic Reference Frame (GGRF) to support science, society, and global development. The objective of the UN-GGCE is to support, within available resources, the implementation of General Assembly resolution 69/266 through strengthening and advancing: global geodetic cooperation and coordination; worldwide geodetic infrastructure; standards and policies; education, training and capacity development; and communication and awareness, while also coordinating measures and overseeing their implementation.

3. In accordance with the Agreement between the United Nations, represented by the Department of Economic and Social Affairs (DESA), and the Federal Republic of Germany, represented by the Federal Ministry of the Interior and Community (BMI), on the Operationalization of the UN-GGCE, a Steering Committee (SC) and an International Advisory Committee (IAC) have now been established to provide the required governance and oversight of the Centre. Comprising representatives designated by DESA and BMI, the Steering Committee will provide strategic advice on the annual plan of work and overall implementation of the agreed Framework Plan of the UN-GGCE. The IAC is comprised of twenty influential and well-respected international experts, with broad geographic representation and diversity, that have accepted invitations to be inaugural members of the IAC. The Head of the Centre, once appointed, will be an ex-officio member of the IAC. The overarching aim of the IAC is to provide the required guidance and advice on the development, implementation, and review of the substantive annual programme of work and priorities of the Centre, in consultation with the Head of the Centre.

4. The UN-GGCE had its Opening Ceremony on 29 March 2023 at the UN Campus in Bonn. The Opening Ceremony was convened in conjunction with the first meetings of the UN-GGCE Steering Committee (29 March) and its International Advisory Committee (IAC) 29 – 31 March 2023. Further, the first meeting of the IAC was convened jointly with the Third Plenary Meeting of the Subcommittee on Geodesy, also convened at the UN Campus. In its first meeting, the IAC adopted its terms of reference and confirmed its inaugural membership and co-Chairs, key governance items which were subsequently noted by the Steering Committee at its first meeting.

[1] represented by the Department of Economic and Social Affairs (DESA)
[2] represented by the Federal Ministry of the Interior and Community (BMI)

Establishing an effective International Advisory Committee

5. The IAC has been established in order for the Centre to have access to unique international scientific and operational expertise from the global UN-GGIM community, including the Subcommittee on Geodesy SCoG), regional committees and thematic groups as well as international organizations, including the International Association of Geodesy (IAG) and the International Federation of Surveyors (FIG).

6. A strong and effective IAC will be a valuable governance mechanism to support the implementation and achievement of the Centre's goals and objectives, support strategic direction setting, and encourage the promotion of communication and networking opportunities. The role of the IAC, as an "advisory" group, is not to develop and implement the Centre's programme of work, and not to make decisions, but rather to provide current knowledge, critical thinking, advice and guidance to the Head and staff of Centre.

7. The IAC works under the auspices of and reports its activities directly to, the Steering Committee. Additionally, in accordance with UN-GGIM decision 12/101, the IAC and the UN-GGCE will formally report on the implementation and progress of the programme of work of the Centre to the annual sessions of UN-GGIM, through the preparation of written reports and background documents, under the standing agenda item 'Global Geodetic Reference Frame'.

Linking to the 2030 Agenda for Sustainable Development, UN Sustainable Development Cooperation Framework, and other frameworks

8. In the lead up to the adoption of General Assembly resolution 70/1 – Transforming our world: the 2030 Agenda for Sustainable Development on 25 September 2015, the General Assembly had adopted resolution 69/266, entitled 'A Global Geodetic Reference Frame for Sustainable Development'. The resolution specifically encouraged Member States and relevant international 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 the GGRF. Resolution 69/266 urged Member States to implement open sharing of geodetic data, standards and conventions, on a voluntary basis, to contribute to the global reference frame and regional densifications through relevant national mechanisms and intergovernmental cooperation, and in coordination with relevant geodetic stakeholders. The resolution further invited Member States to commit to improving and maintaining appropriate national geodetic infrastructure as an essential means to enhance the GGRF, to engage in multilateral cooperation that addresses infrastructure gaps and duplications towards the development of a more sustainable GGRF, and to develop outreach programmes that make the GGRF more visible and understandable to society.

9. In adopting resolution 2022/24 entitled 'Enhancing global geospatial information management arrangements' on 22 July 2022, the Economic and Social Council (ECOSOC) recognized *inter alia* "the sustained efforts of UN-GGIM to establish the United Nations Global Geodetic Centre of Excellence at the United Nations campus in Bonn, Germany, which will, in an open, inclusive, participatory and transparent manner, provide opportunities to develop and expand global geospatial capacity, competence and capability, and to strengthen geospatial information management arrangements in countries, especially developing countries." Further, ECOSOC reiterated "the importance of strengthening and enhancing the effectiveness of the Committee of Experts, particularly for the achievement of its operations focused on the Sustainable Development Goals and the Integrated Geospatial Information Framework, to strengthen and ensure its continued effectiveness and benefits to all Member States."

10. In delivering the Framework Plan[3] of the UN-GGCE, its annual plan of work will leverage the United Nations Integrated Geospatial Information Framework (UN-IGIF) as a forward-looking framework at the country level, across the programme of work of the Committee of Experts, within priority areas in the workplans of the regional committees of UN-GGIM, with interlinkages with other regional-to-global frameworks, and in response to increasingly challenging national, regional and global demands[4]. In enhancing global cooperation and providing technical assistance, especially for capacity development and strengthening in geodesy for developing countries, the UN-GGCE will implement plans and activities enhancing coordination and cooperation to sustain, enhance, access, and utilize an accurate, accessible and sustainable GGRF to support science, society and global development, address climate-related challenges and leave no one behind. The plan of work will be cognizant of the United Nations Sustainable Development Cooperation Framework, translating the aspiration of Member States into actions and impacts on the ground.

Working towards a substantive programme of work

11. In a world increasingly 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 to 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. A longer-term plan to help achieve the long-term sustainability and quality of the GGRF by delivering improvement in five focus areas:

- Governance
- Geodetic Infrastructure
- Policies and Standards
- Education, Training and Capacity Development
- Communication, Engagement and Outreach

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

12. There are many actors involved in sustaining the GGRF including: Member States, UN-GGIM Regional Committees, the Private Sector and Academia, and international geodetic organizations. Despite the important contributions made by these groups, there remains a lack of global cooperation and coordination. This is largely because 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 maximize the benefit of ongoing geodetic efforts, ensure coherence, and avoid duplication of effort. Resolution 69/266 invites Member States to engage in multilateral cooperation that addresses infrastructure gaps and duplications towards the development of a more sustainable GGRF.

Strategic priority

13. The strategic priority of the UN-GGCE is to implement resolution 69/266 by enhancing coordination and coherence in global geodesy development and leveraging the UN-IGIF to facilitate enhanced coordination and coherence across Member States and international geodetic organizations towards an

[3] Annex 1 of the Agreement "On the Operationalization of the United Nations Global Geodetic Centre of Excellence" between the United Nations and the Federal Republic of Germany
[4] Decision 12/105, Twelfth Session of the United Nations Committee of Experts on Global Geospatial Information Management (E/2023/46)

accurate, accessible and sustainable GGRF for the betterment of society, the environment and economy. To deliver the agreed Framework Plan, the UN-GGCE needs to be:

- Pursuing excellence;
- Adapting to change;
- Engaging;
- Collaborating; and
- Recognizing national circumstances.

14. In working with Member States and relevant international geodetic organizations and stakeholders, the UN-GGCE needs to be:

- Strategic – capitalizing on past efforts and country-level investments;
- Holistic – benefiting all and especially Member States;
- Consultative – leveraging the international advisory committee as an independent advisory committee;
- Impactful – developing capacities, capabilities, and competence; and
- Scalable – recognizing existing indigenous capabilities and competence, incrementally developing and maturing capacities.

Vision

15. Enhanced multi-lateral collaboration for an accurate, accessible, and sustainable GGRF to support good policy development and decision-making for inclusive social progress, increasing environmental sustainability and vibrant economic development.

Objective

16. Strengthening and advancing global geodetic cooperation and coordination, worldwide geodetic infrastructure, standards and policies, education, training and capacity development, and communication and awareness, to maximize the benefit from ongoing geodetic efforts, ensure coherence and avoid duplication.

Strategic Actions

- Preparation and implementation of a global geodesy development plan;
- Developing and implementing a modality to advance global geodesy coordination and coherence; and
- Improving national contributions to global geodesy

Staffing of the UN-GGCE

17. The UN-GGCE will be staffed by internationally recruited personnel with the requisite qualifications and experience. There will be a Head of the Centre together with two professional staff members and one general service staff member. In addition, there will be two professional staff members from the Federal Agency for Cartography and Geodesy seconded to and stationed at the Centre from September 2023. The Centre will have six staff members at its premises in the UN campus in Bonn. Job descriptions for all four internationally recruited staff positions were developed, and the recruitment exercise conducted via the United Nations human resources gateway, INSPIRA. The recruitment exercise, beginning with the head of the Centre, is in progress.

18. The UN-GGCE will also have a number of virtual secondments from national geodetic entities of Member States to support its programme of work. In the lead up to the Opening Ceremony of the UN-GGCE, an arrangement was formalized with the Norwegian Mapping Authority for the virtual secondment arrangement for a communications advisor to the UN-GGCE on a full-time basis for approximately two years commencing May 2023. After the Opening Ceremony, another arrangement was formalized with the Instituto Geográfico Nacional of Spain for the virtual secondment of a geodetic advisor to the UN-GGCE on a part-time basis for nine months from September 2023. The arrangement may be extended by mutual agreement for further periods of six months. These secondment arrangements represent tangible contributions from Member States towards the implementation of resolution 69/266 thus sustaining the GGRF and the UN-GGCE.

First meeting of the IAC

19. Noting that he IAC has been established to provide a valuable governance mechanism to support the implementation and achievement of the Centre's goals and objectives, and to support strategic direction setting, and also that the first meeting of the IAC was convened jointly with the Third Plenary Meeting of the SCoG, at its first meeting, the IAC discussed and considered a number of initial strategic actions that the UN-GGCE could consider pursuing, including the following:

Strategic Action #1 – Global Geodesy Needs Assessment

- Assist the Global Geodesy Needs Assessment to be carried out by the SCoG and supported by the IAG and FIG;
- Conduct a stakeholder identification and mapping exercise (2023); and
- Identify and map stakeholders' contributions to the GGRF (2023).

Strategic Action #2 – State of Geodesy Report

- Assist in the preparation of an initial State of Geodesy Report to be carried out by the SCoG;
- Develop factsheets on the contribution of geodesy to climate studies and resilience, disaster risk reduction, space missions, sea-level and inundation, earthquakes and tsunamis, efficient (autonomous) transportation, economy and contribution to GDP, food security, SDGs (2023); and
- Engage the IAC for expert reviews of developed factsheets (2023).

Strategic Action #3 – Global Geodesy Development Plan

- Prepare the Global Geodesy Development Plan by January 2025;
- Incorporate the Global Geodesy Needs Assessment and the State of Geodesy Report;
- Identify and describe how to improve the GGRF to meet global and regional requirements by October 2024;
- Engage the IAC for an expert review of the Global Geodesy Development Plan by January 2025; and
- Assist the IAC in its submission of the Global Geodesy Development Plan to the Steering Committee by March 2025; and to UN-GGIM by August 2025.

Strategic Action #4 – Global Coordination, Coherence, and Partnership

- Engage in and improve global coordination and coherence (ongoing);
- Leverage the stakeholder identification and mapping (2023);
- Understand and leverage stakeholders' contributions to the GGRF (2023);
- Identify opportunities for coordination and prioritize engagement and coordination activities including with inputs from relevant stakeholder (ongoing);
- Engage and explore cooperation and coordination activities with the United Nations Global Geospatial Knowledge and Innovation Centre (UN-GGKIC) (2024); and

- Engage the IAC annually to review progress and further recommend opportunities and appropriate activities.

Strategic Action #5 – Awareness Raising and Advocacy

- Raise awareness, promote, and advocate for global geodesy (ongoing);
- Leverage factsheets prepared (progressively through to November 2023);
- Convene global geodesy side events as appropriate;
- Advocate for inclusion of geodesy into global reports (e.g., State of the Climate; State of the Environment) (Ongoing) supported by the IAC; and
- Identify opportunities for advocacy and prioritize activities (ongoing).

Strategic Action #6 – Improving National Contributions to the GGRF

- Develop and deliver capacity and capability development (ongoing);
- Identify requirements, in consultation with the SCoG and regional committees of UN-GGIM, to develop capacity and capability development activities (ongoing);
- Leverage the Global Geodesy Needs Assessment (available in February 2024) and refine ongoing capacity and capability development plan and activities;
- Coordinate with UN-GGKIC and regional committees of UN-GGIM and relevant stakeholder to enhance geodetic knowledge and innovation (ongoing); and
- Engage the IAC annually to review progress and further recommend opportunities and appropriate activities.

Strategic Action #7 – Communication and Knowledge Management

- Develop a communication and knowledge management plan within four months of the arrival of the Head of the UN-GGCE in Bonn, and implement the plan (ongoing);
- Develop a logo and deploy a website for the UN-GGCE no later than two months after the arrival of the Head of the UN-GGCE;
- Develop branding and promotional materials including generic presentation on the UN-GGCE and explain the nexus and collaboration between global geodesy actors (ongoing);
- Consider and develop a mechanism to recognize contributions to the GGRF (ongoing); and
- Engage the IAC annually to review progress and further recommend activities (ongoing).

Annex 1

Inaugural Membership of the UN-GGCE International Advisory Committee (IAC)

1. Nicholas Brown, co-Chair of SCoG, Geoscience Australia, Australia
2. Elisabetta D'Anastasio, GNS Science, New Zealand
3. Victor Khoo, Singapore Land Authority, Singapore
4. Sergio Cimbaro, National Geographic Institute, Argentina
5. Calvin Klatt, Natural Resources Canada, Canada
6. John Nyberg, National Oceanic and Atmospheric Administration, United States of America
7. Fernand Bale, Centre d'Information Géographique et Numérique (CIGN), Côte d'Ivoire
8. Zouheir Fatnassi, Office of Topography and Cadastre, Tunisia
9. Abdullah AlQahtani, General Authority for Survey and Geospatial Information, Saudi Arabia
10. Ingrid Vanden Berghe, National Geographic Institute, Belgium
11. Johannes Bouman, Bundesamt für Kartographie und Geodäsie, Germany
12. Laila Løvhøiden, Kartverket, Norway
13. Zuheir Altamimi, International Association of Geodesy (IAG)
14. Basara Miyahara, Global Geodetic Observing System, IAG
15. Ryan Keenan, Commission 5: Positioning and Measurement, International Federation of Surveyors (FIG)
16. Werner Enderle, European Space Agency
17. Stephen Merkowitz, National Aeronautics and Space Administration
18. Serena Coetzee, University of Pretoria
19. Tulu Besha Bedada, GIZ Ethiopía Office
20. Albert Momo, Trimble