
Economic and Social Council

2 July 2015

Committee of Experts on Global Geospatial Information Management

Fifth session

New York, 5-7 August 2015

Item 3 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 fourth session, held in New York from 6 to 8 August 2014, the Committee of Experts adopted decision 4/101, in which it underlined the importance of a widely accepted global geodetic reference frame; endorsed the terms of reference of the Working Group; agreed to enlarge the Working Group in order to allow for broader regional representation; requested that the Working Group continue its activities related to the development of the road map; and requested that the Working Group report to it at its next session. The Committee of Experts also drafted a resolution on the topic for adoption by the Economic and Social Council, with the recommendation that the Council refer the resolution to the General Assembly for endorsement. The report describes the process whereby the General Assembly adopted resolution 69/266 on a global geodetic reference frame for sustainable development; the initial development by the Working Group of the road map; and the results of the global questionnaire sent to Member States for the purpose of gathering opinions on the key elements of the global geodetic reference frame and its sustainability.

I. Introduction

1. The global geodetic reference frame is a necessary tool to help address the growing demand for more precise positioning frameworks. It is also essential for effective decision making and a vital underpinning infrastructure which is applied in areas of natural hazard and disaster management, climate change and sea level monitoring, geospatial information, mapping and navigation by society at large every day.

2. At its fourth session, held in August 2014, the Committee of Experts considered the report of the Working Group on the Global Geodetic Reference Frame and its substantial progress towards the development of a draft resolution on a Global Geodetic Reference Frame for Sustainable Development. Stressing the importance of a widely accepted global geodetic reference frame and its many uses for science, social and economic development and disaster risk reduction and management, the Committee of Experts endorsed the terms of reference of the Working Group; agreed to enlarge the Working Group in order to allow for broader regional representation; and requested that the Working Group continue its activities related to the development of the road map and that the Working Group report to the Committee at its next session (decision 4/101).

3. In implementing decision 4/101, the Committee of Experts adopted the draft resolution on a Global Geodetic Reference Frame for Sustainable Development and requested the Secretariat to refer the resolution to the Economic and Social Council (ECOSOC), with the recommendation that the Council refer the resolution to the General Assembly for endorsement. The Committee gratefully noted the commitment of Member States to provide support in this process.

4. The present report describes the process whereby the General Assembly adopted resolution A/69/266 on a Global Geodetic Reference Frame for Sustainable Development; the initial development by the Working Group of the road map; and the results of the global questionnaire sent to Member States for the purpose of gathering opinions on the key elements of the global geodetic reference frame and its sustainability. The Committee of Experts is invited to take note of the report and to express its views on the way forward for the international community, under the coordination of the United Nations, to work with all stakeholders to improve intergovernmental coordination for a sustained operational global geodetic reference frame and infrastructure for sustainable development. Points for discussion and decision are provided in paragraph 25.

II. Adoption of the resolution on a Global Geodetic Reference Frame for Sustainable Development

5. In its report to ECOSOC on the fourth session (E/2014/46), the Committee of Experts recommended the draft resolution on a Global Geodetic Reference Frame for Sustainable Development for adoption by ECOSOC and for subsequent referral to the General Assembly for endorsement. At the 50th plenary meeting of ECOSOC, held on 17 November 2014, the President of ECOSOC took note of the report of the Committee of Experts and drew attention to the draft resolution before the Council. Without intervention, the President took it that the Council wished to adopt the draft resolution and transmit it to the General Assembly for further endorsement as recommended by the Committee of Experts. The draft resolution

was agreed and recorded in the summary record of the 50th meeting (E/2014/SR.50).

6. Upon adoption of the resolution by ECOSOC, with the objective of endorsement by the General Assembly in the first quarter of 2015, and noting that such a resolution to the General Assembly must be submitted by the Member States, the Permanent Mission of Fiji to the United Nations offered to put forward the resolution on behalf of the Member States. During January 2015, and working closely with the Secretariat and the Permanent Missions of Australia and Norway, the Permanent Mission of Fiji hosted three informal consultations bringing together Member States from diverse phases of economic and social development under the important underlying message of the resolution, that “no one country can do this alone”. During the consultations, minor technical changes were made to the initial draft originally adopted by the Committee of Experts and ECOSOC. The informal consultations were concluded on 23 January 2015 with an agreed resolution. At that time, Fiji’s leadership and influence had brought forty-four Member States to co-sponsor the resolution. Prior to the tabling of the resolution to the General Assembly, a further eight Member States co-sponsored, bringing the final list to 52 Member States.

7. At its 80th plenary meeting, held on 26 February 2015, Ambassador Peter Thomson, Fiji’s Permanent Representative to the United Nations, introduced the draft resolution to the General Assembly. Explaining that, as a Small Island Developing State, Fiji is vulnerable to increasingly severe natural disasters, sea-level rise and other problems triggered by climate change, but uses geodetic data to plan as best as it can. Ambassador Thompson stated “We fully realize the importance of critical geospatial infrastructure and information in helping countries and decision-makers make more informed, evidence-based decisions on mitigation and preparedness”. The General Assembly adopted the resolution on a Global Geodetic Reference Frame for Sustainable Development (A/RES/69/266).

8. Following the adoption of the resolution, Under-Secretary-General of Economic and Social Affairs, Wu Hongbo, noted that while 2015 has been widely acknowledged as a crucial year in which world leaders will be called upon to determine the global course of action to improve people’s lives and protect the planet, the adoption of the resolution is a very important and concrete achievement that will have ramifications in the global geospatial community for many years to come. In this regard, he very much thanked Fiji for its leadership and vision in bringing what was an ambitious dream in 2012, to tangible reality in 2015.

9. The Working Group on the Global Geodetic Reference Frame has diligently begun working on the Roadmap requested in decision 4/101 from the forth session of the Committee of Experts. The Roadmap will provide a framework in which nations can collaborate to enhance the implementation of the Global Geodetic Reference Frame in order to serve the global community and to contribute to the sustainable development agenda in the coming period.

III. Activities of the Working Group on the Global Geodetic Reference Frame

10. The Global Geodetic Reference Frame Working Group (GGRF-WG), enlarged its membership during the intercessional period, and now comprises 28 Member States and the International Association of Geodesy (IAG). The Working Group has convened four meetings (Luxembourg 16 October 2014, San Francisco 14

December 2014, Vienna 13 April 2015, and Prague 22 June 2015) since the fourth session of the Committee of Experts.

11. In late 2014 and early 2015 the GGRF Working Group drafted a questionnaire with the objective of gathering input from the UN-GGIM Member States about the importance of key elements of the development and sustainability of the global geodetic reference frame to inform the development of the Roadmap. The questionnaire was subsequently distributed as a pilot survey within the Working Group for testing the appropriateness of the questions. Feedback, including from some SIRGAS (Geocentric Reference System for the Americas) members, was received and included into the final questionnaire.

IV. Questionnaire on the Global Geodetic Reference Frame

12. Following the General Assembly's adoption of the GGRF resolution, and at the request of the Working Group, the Secretariat distributed the invitation to participate in the survey to all UN-GGIM Member States, initially on 10 March 2015, with reminders sent on the 25 March and 9 April. The poll closed on 5 May.

13. The survey resulted in 92 responses from 84 countries (in some cases multiple organizations from the same country completed individual surveys). These include responses from North America: 2 (50%); South America: 7 (54%); Caribbean: 8 (36%); Europe: 32 (67%); Middle East: 3 (14%); Asia: 11 (35%); Pacific: 4 (20%); and Africa: 17 (27%). Percentages are calculated from the global total of countries in that region, not by number of countries the questionnaire was originally sent to. The respondents varied in organisational level from geodetic specialists up to directors, which may bias the focus of the respondents from technical to managerial issues respectively.

14. The socio-economic distribution of respondents is similar to that of the previous survey performed by UN-GGIM in December 2012. The survey recorded responses from 18 countries listed by the United Nations as "Least Developed and "Small Island Developing States".

15. A low 22% of the respondents reported that they did not currently contribute to a global geodetic reference frame or its elements (ITRF, ICRF, gravimetry or physical height systems). This provides some evidence that answering the survey was perceived as more important by those who contribute to the GGRF already. The GGRF infrastructure is primarily built, maintained and operated by developed countries. Conversely those countries that did not respond are less likely to be currently contributing to the GGRF. Even though a sustainable and more accurate GGRF can be very beneficial for developing countries, they may not be aware of it.

16. Outreach programmes have been rated as less important than other key elements throughout the survey. This may be caused by the comparative nature of the questions, where some responses appear to be less important when compared to "very important" key issues. The Working Group considers outreach and effective communication work as key success factors in the successful adoption of the GGRF General Assembly resolution and the ongoing Roadmap development.

17. The respondents rated "**Commit to improve and maintain national geodetic infrastructure**" as the most important paragraph of the GGRF resolution, while "**Cooperate to address infrastructure gaps and duplications**" is rated as the least important paragraph.

18. The survey reports that the key elements to **achieve a sustainable GGRF** are “**governmental/country commitment and funding**”, “**common standards**” and “**international obligations**”. The most important key elements reported for **development of the GGRF** are to “**maintain and build infrastructure**”, “**common standards**” and “**internationally coordinated policies**”.

19. The survey summary clearly states that a **joint international governance** effort is needed in order to meet the objectives of the GGRF resolution. It does not however give any details as to how this can best be achieved, as this was not within the scope of the survey.

20. By the respondents, the importance of the different pertinent paragraphs of the GGRF resolution is rated as follows (% scores are a combination of very high% + high %):

- a. Commit to improve and maintain national geodetic infrastructure: 88%;
- b. Enhanced global cooperation in providing technical assistance: 82%;
- c. Open sharing of geodetic data, standards and conventions: 80%;
- d. Developing a global geodetic roadmap: 80%;
- e. Cooperate to address infrastructure gaps and duplications: 74%; and
- f. Develop outreach programmes: 53%.

V. Working Group communications and outreach

21. Geodetic science and the underpinning Global Geodetic Reference Frame are not well understood by decision makers, particularly at the political level. The Working Group has therefore put considerable and recognised efforts into communications and outreach work.

22. A communication strategy on how geodesy contributes to strengthening the study of our changing planet was first developed in May 2014. This has been the framework in which all communications efforts have been completed. The strategy has been revised and updated as the process moved forward.

23. A set of communication tools have also been developed and used widely. These include: an animation movie "Geodesy - a global science on a restless planet"; newsletters; a fact sheet; power point templates; and a social media strategy/ twitter campaign @unggrf. The objective of the twitter campaign is to increase awareness and drive engagement around the UN resolution on a Global Geodetic Reference Frame and draw followers to both UNGGRF and UN-GGIM. It also directs twitter followers to the Working Group's web page (www.unggrf.org.)

VI. Development of the Roadmap

24. A strong focus of the working group meetings has been planning the development of the Roadmap. Early efforts towards drafting the text were delayed until the completion of the recent questionnaire in order to be more inclusive when formulating the scope, audience, and key issues. Drafting of the Roadmap skeleton is now the priority, including some options for the consideration of the Committee of Experts.

VII. Points for discussion

25. The Committee is invited to:

(a) Take note of the work carried out by the Working Group on the Global Geodetic Reference Frame, including the successful adoption of the resolution by the General Assembly;

(b) Provide guidance on the planned activities of the Working Group, specifically the development of a Roadmap for the global geodetic reference frame; and

(c) Commit to undertake outreach of the global geodetic reference frame, through the use of the GGRF communications materials, thereby providing advocacy for the GGRF, including the efforts to develop a Roadmap, both towards national organizations/agencies and towards decision makers and governments in Member States.