



XXVI FIG Congress 2018

6-11 May 2018

ISTANBUL

FIG and UN GGIM Subcommittee on Geodesy

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**EMBRACING OUR SMART WORLD WHERE THE CONTINENTS CONNECT:
ENHANCING THE GEOSPATIAL MATURITY OF SOCIETIES**

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UN-GGIM

- Committee of Experts on Global Geospatial Information Management
 - To promote international cooperation in the field of global geospatial information
 - Committee comprised of experts from all Member States, as well as experts from international organizations as observers.
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- UN-GGIM-Regions as e.g. UNGGIM:Europe
 - UN-GGRF WG => Subcommittee on Geodesy



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EMBRACING OUR SMART WORLD WHERE THE CONTINENTS CONNECT:

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



Photo: Bjørn-Owe Holmberg

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UN Resolution 2015: Global Geodetic Reference Frames for Sustainable Development

Discussing e.g.

- Need of global geodetic infrastructure
- Data sharing
- Education, Training and Capacity Building



Photo: Kyoung-Soe Eom

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The UN-GGIM Committee of Experts

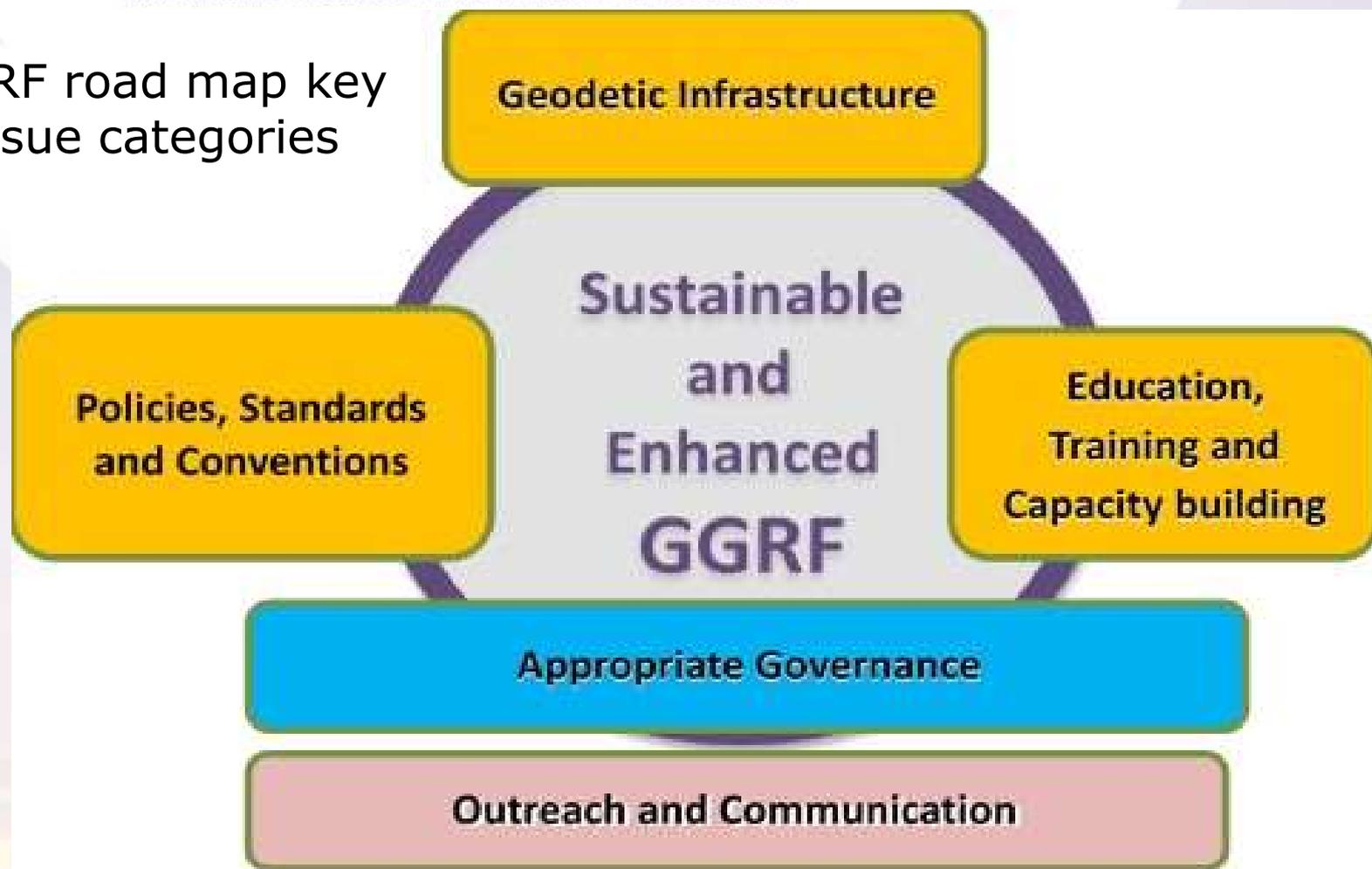
- Endorsed the global geodetic roadmap in 2016 as a “principle-based briefing document for national Governments”
- Welcomed the development of an implementation plan to link the road map recommendations to national policy developments
- Elevated the GGRF working group (WG) in 2017 to a Sub-Committee on Geodesy (SCoG) to strengthen the GGRF
- Requested the development of a position paper to define the appropriate governance arrangements for the GGRF. To be presented in 2018.

The start of the UNGGIM Subcommittee on Geodesy



First formal meeting held 26-27 November, 2017

GGRF road map key
issue categories



Education, Training and Capacity building

The ETCB focus group seeks to

- assess the current availability of education, training, and capacity building resources
- identify gaps in capacity or other areas of need
- propose short- and long-term solutions to realize the full scientific and social benefit of the Global Geodetic Reference Frame.



Photo: Geoscience Australia

Think globally, act regionally?

- Regional focus strategy is essential!
- The nature, size, and variety of challenges differ regionally and may include linguistic, technological, economic, and cultural impediments.
- It is also clear that access to highly skilled personnel varies widely among Member States, thus necessitating the need to ensure that knowledge and competence is readily and openly shared.
- A key to optimizing the efficiency of the group's objectives is to identify and make existing educational and capacity building resources easily discoverable.

Our currently proposed mission

Five years from now there will be:

- A higher level of geodetic technical capability, particularly among developing nations
- A developed capacity building programme that focuses at the regional level and emphasizes supporting efforts in developing nations
- Recognized certification and achievement documentation programs, supported by regular technical training courses and material that is openly available to all nations



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Our currently proposed mission

Five years from now there will be:

- A permanent working group for UN Geodesy Education, Training, and Capacity Building established and operating under the auspices of the UN GGIM Subcommittee on Geodesy
- Documented evidence of geodetic education, training, and capacity building in support of the United Nations Sustainable Development Goals (SDGs).

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Proposed Next Steps

- Questionnaire is out for Member States to identify their 'Level' of competency and capacity 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 and 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

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Level	Competence Requirements	Training provided by	
1	<p>Basic understanding of:</p> <ul style="list-style-type: none"> GNSS Reference frames, including geoid models, vertical and horizontal datums 	<ul style="list-style-type: none"> Educational institutions – universities and polytechnic institutes Government mapping agency Private companies 	Countries that might have one CORs and maintain a traditional geodetic network of reference marks – e.g. small Pacific Island Nations?
2	<p>The above plus knowledge of:</p> <ul style="list-style-type: none"> Constructing, building and running a small CORs network GNSS processing using standard software - e.g. Trimble, Compass Solution (ComNav), LGO(Leica),.... Least squares processing and provision of datum access Geoids models, precision, determinations and basic implementation Implementation of a vertical datum including use of geoid models 	<ul style="list-style-type: none"> Educational institutions – universities and polytechs UN-GGIM Geodesy Capacity Group FIG Government mapping agency Private companies 	Countries with small CORs network and those who adopt global Reference frames for their nation reference frames – e.g. Fiji?
3	<p>The above plus high knowledge of:</p> <ul style="list-style-type: none"> Implementing and running large CORs networks High end GNSS processing and datum access Geoid model computation and implementation into a vertical datums Monitoring earth dynamics and including in datum realization Geodetic database management 	<ul style="list-style-type: none"> Specialized courses – e.g. geoid school UN-GGIM Geodesy Capacity Group IAG and FIG Government mapping agency Private companies 	Countries with a more extensive CORS and developing their own specialized national and vertical datum – e.g. New Zealand and Sweden?
4	<p>The above plus expert knowledge of:</p> <ul style="list-style-type: none"> Reference frame determination and computation High end GNSS analysis and processing SLR including analysis and processing VLBI including analysis and processing Gravity collection, processing and geoid determination Analysis centre – combining various geodetic techniques to determine reference frame parameters Use of other potential geodetic techniques – e.g. DORIS and InSAR 	<ul style="list-style-type: none"> IAG Specialist training courses run by NASA/JPL – e.g. on VLBI or SLR Private companies Specialized software training courses – e.g. Bernese 	Countries engaged in Global Reference frame determination and Geodesy Science - e.g. US, Australia and Germany?