



# 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.
- 
- 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

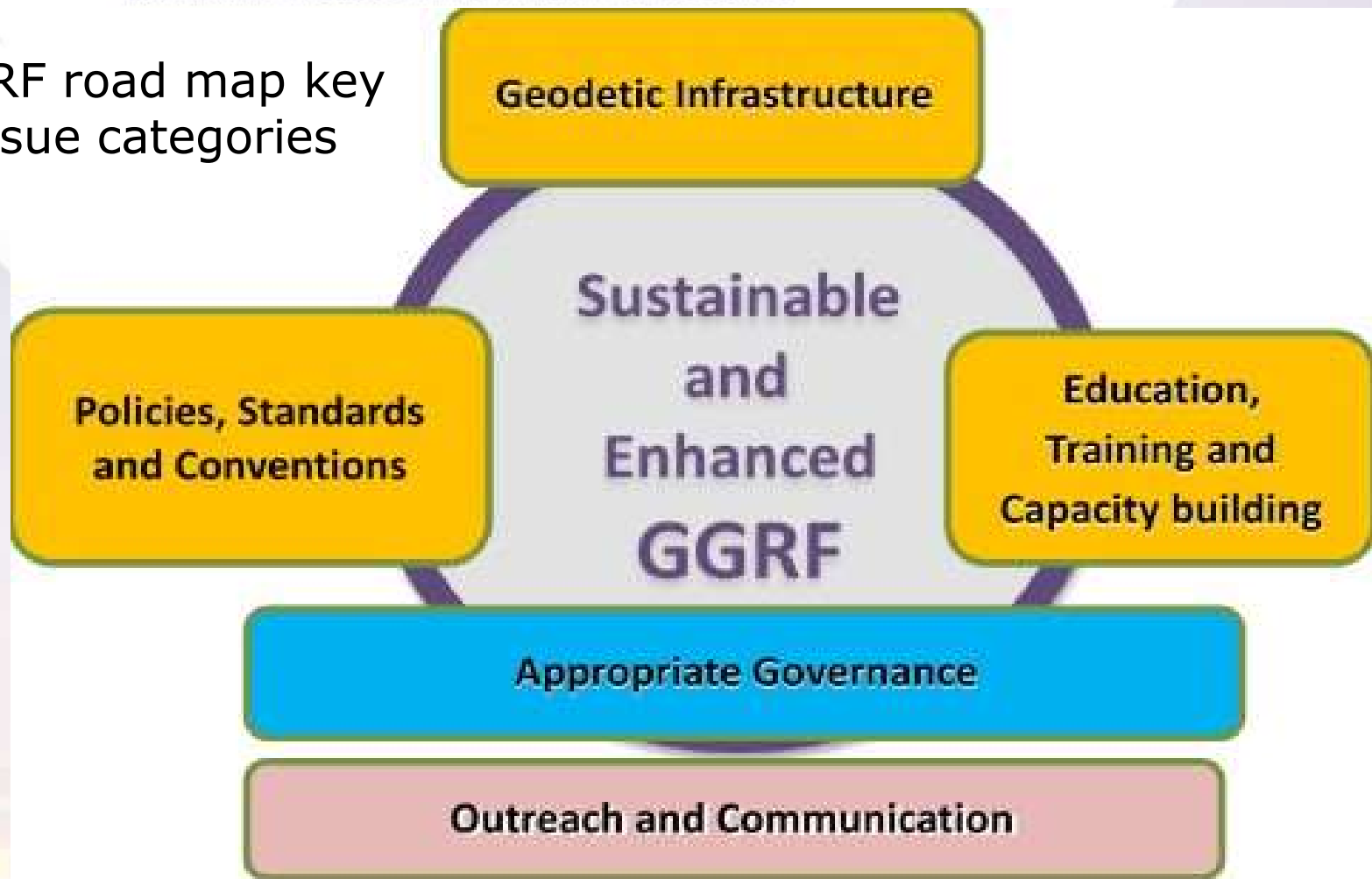
- Endorsed the global geodetic roadmap in 2016 as a “principle-based briefing document for national Governments”
- Welcomed the development of an implementation plan to link the road map recommendations to national policy developments
- Elevated the GGRF working group (WG) in 2017 to a Sub-Committee 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.



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## 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"> <li>GNSS</li> <li>Reference frames, including geoid models, vertical and horizontal datums</li> </ul>	<ul style="list-style-type: none"> <li>Educational institutions – universities and polytechnic institutes</li> <li>Government mapping agency</li> <li>Private companies</li> </ul>	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"> <li>Constructing, building and running a small CORs network</li> <li>GNSS processing using standard software - e.g. Trimble, Compass Solution (ComNav), LGO(Leica),....</li> <li>Least squares processing and provision of datum access</li> <li>Geoids models, precision, determinations and basic implementation</li> <li>Implementation of a vertical datum including use of geoid models</li> </ul>	<ul style="list-style-type: none"> <li>Educational institutions – universities and polytechs</li> <li>UN-GGIM Geodesy Capacity Group</li> <li>FIG</li> <li>Government mapping agency</li> <li>Private companies</li> </ul>	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"> <li>Implementing and running large CORs networks</li> <li>High end GNSS processing and datum access</li> <li>Geoid model computation and implementation into a vertical datums</li> <li>Monitoring earth dynamics and including in datum realization</li> <li>Geodetic database management</li> </ul>	<ul style="list-style-type: none"> <li>Specialized courses – e.g. geoid school</li> <li>UN-GGIM Geodesy Capacity Group</li> <li>IAG and FIG</li> <li>Government mapping agency</li> <li>Private companies</li> </ul>	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"> <li>Reference frame determination and computation</li> <li>High end GNSS analysis and processing</li> <li>SLR including analysis and processing</li> <li>VLBI including analysis and processing</li> <li>Gravity collection, processing and geoid determination</li> <li>Analysis centre – combining various geodetic techniques to determine reference frame parameters</li> <li>Use of other potential geodetic techniques – e.g. DORIS and InSAR</li> </ul>	<ul style="list-style-type: none"> <li>IAG</li> <li>Specialist training courses run by NASA/JPL – e.g. on VLBI or SLR</li> <li>Private companies</li> <li>Specialized software training courses – e.g. Bernese</li> </ul>	Countries engaged in Global Reference frame determination and Geodesy Science - e.g. US, Australia and Germany?