Status report to ICG WG C on

UNGGIM Subcommittee on Geodesy – Focus group on

Education, Training and Capacity Building (ETCB)

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Why this presentation?

- Education, training and capacity building is crucial both globally, regional and national.
- Risk for overlap. But also possibility that 1+1=3.
- There are areas were we can learn from each other, support each other as well as join forces. We need to be smart and efficient.
- UNGGIM SCoG has just started, WG-C is well established.

From my presentation yesterday…

Global Geodetic Reference Frames for Sustainable Development
Based on work with UNGGIM working group on Geodesy

Photo: Kyoung-Soo Eom

Discussing e.g.

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

General Assembly, 26 February 2015

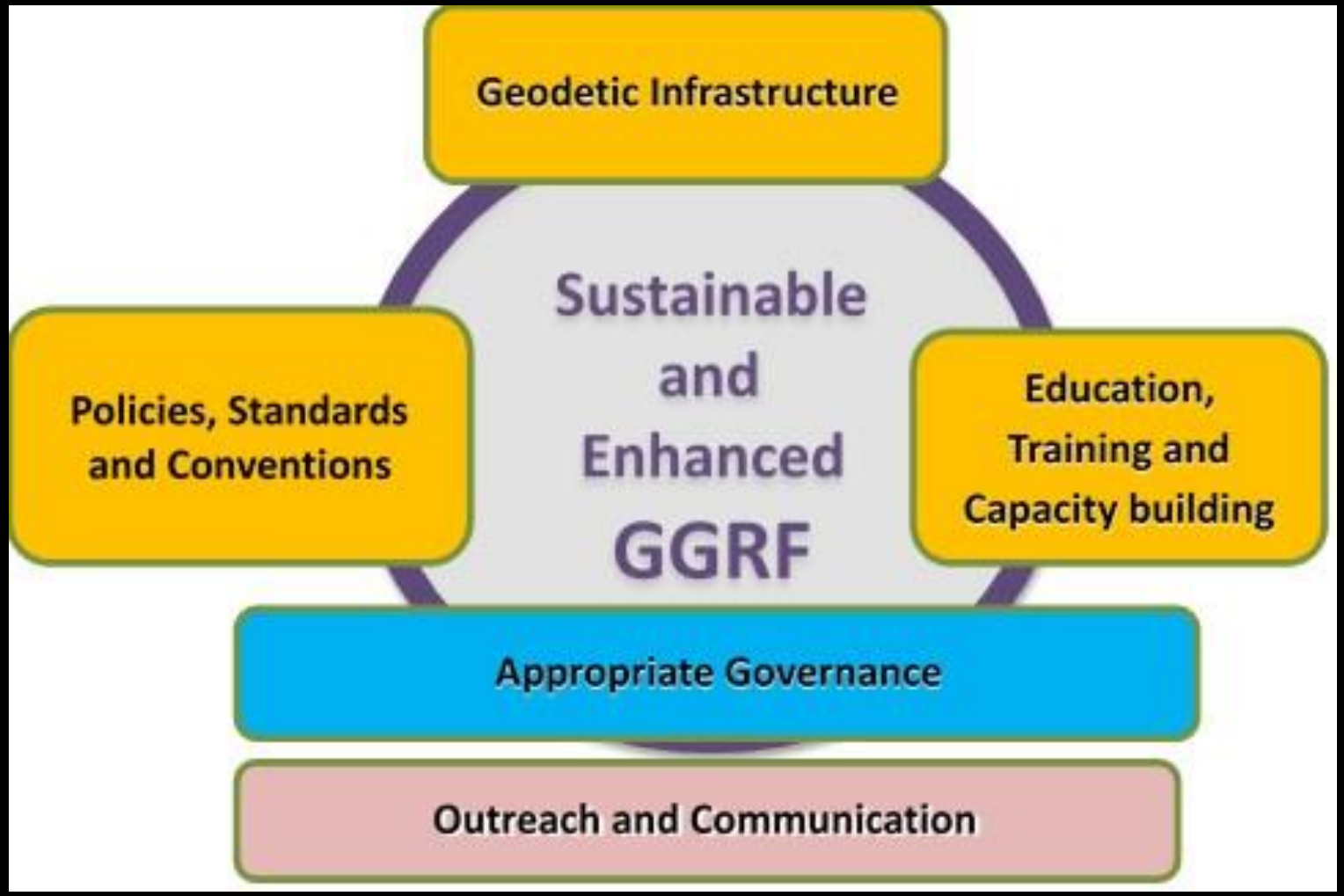
An accurate, sustainable and accessible Global Geodetic Reference Frame to support science and society

Photo: Bjørn-Owe Holmberg

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.

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.

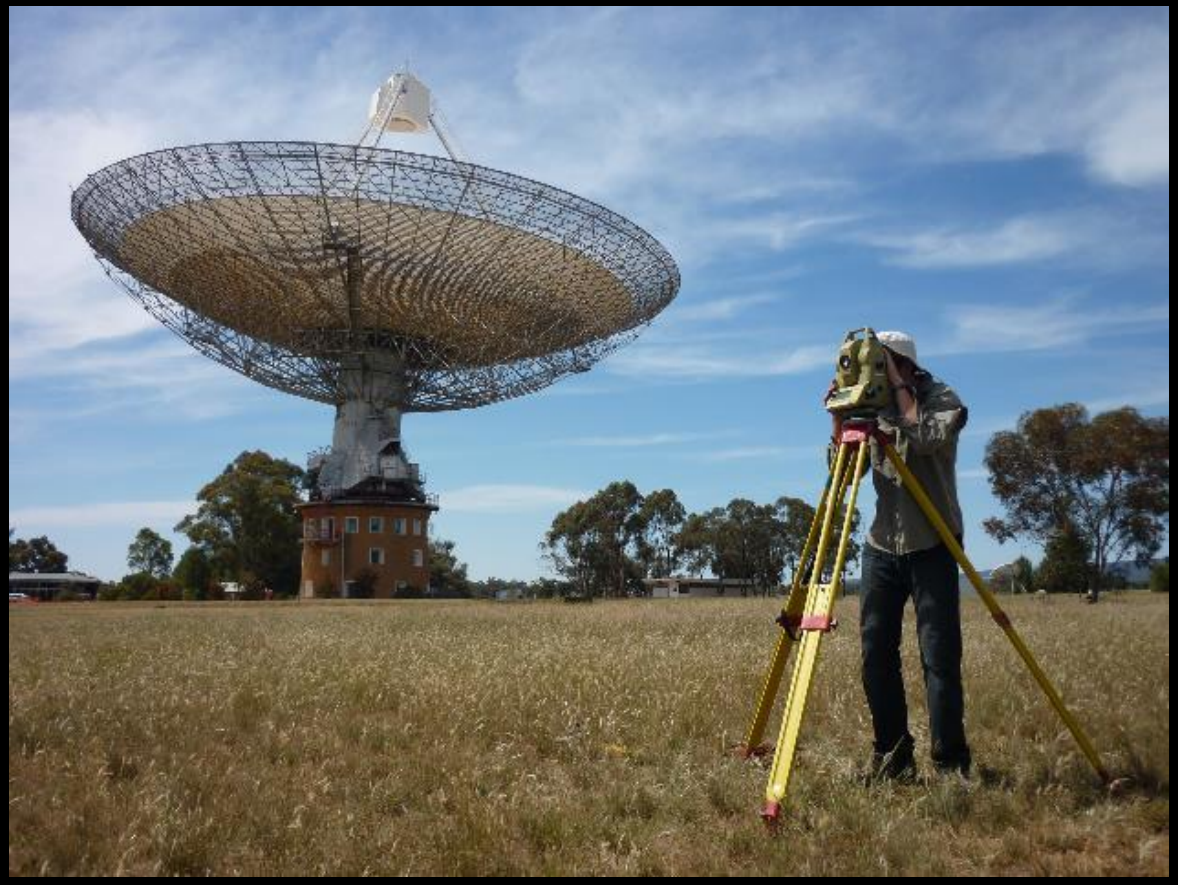


Photo: Geoscience Australia

Think globally, act regionally?

- Even though basic ETCB needs are global, a 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
- 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).

Proposed Next Steps

- Provide a framework for Member States to identify their ‘Level’ of competency and capacity requirements
- Maintain a register of Member States self-reported ‘Level’ of competency, and professional and technical 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
- 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

Level	Competence Requirements	Training provided by	
1	Basic understanding of: • GNSS • Reference frames, including geoid models, vertical and horizontal datums	• 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	The above plus knowledge of: • 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	• 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	The above plus high knowledge of: • 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	• 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	The above plus expert knowledge of: • 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	• 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?

Future aspects

- I strongly believe that we can and should avoid duplication.
- UNOOSA ICG WG-C is well-functioning, UNGGIM SCoG must learn.
- Want UNOOSA ICG WG-C to support and guide us wherever appropriate.
- Would like to learn from your experiences regarding questionnaires related to competence and capacity.