

Panel Discussion

Geodetic Reference Frame: Opportunities and Challenges w.r.t. **Capacity Development (CD)**



International Fédération of Surveyors
Fédération Internationale des Géomètres
Internationale Vereinigung der Vermessungsingenieure

Asia Pacific Capacity Development Network

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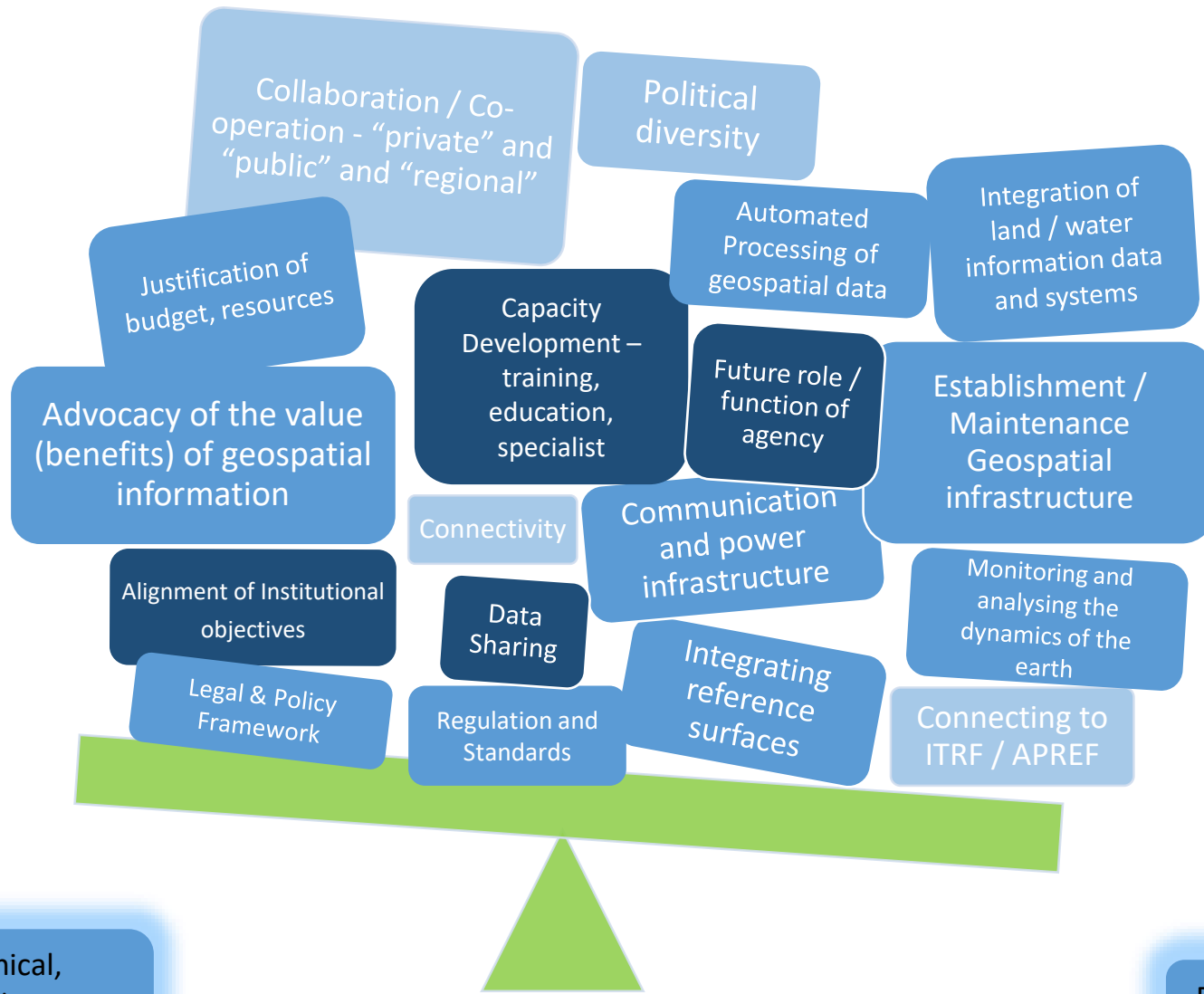


UN-GGIM-AP

REGIONAL COMMITTEE OF
UNITED NATIONS
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT
FOR ASIA & THE PACIFIC

Session 3: Working Group 1 on Geodetic Reference Frame
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Never ending Geodetic / Geospatial Challenges !



Legal, Technical, Organisational, Data, People, Standards?

Balancing the PRIORITIES?

The **COMMON** Geodetic / Geospatial Information **TRENDS** identified –

- Impact of **rapid urbanisation, and smart cities**
- Influence of **disruptive technologies and digitisation** – “automation, autonomous, applications - AAA”, mobile internet devices
- Importance of **disaster / emergency management and building resilience** – “before, during and after”
- **Real time measurement of earth dynamics**
- **Modernisation of geospatial reference systems / datums / GNSS CORS**
- Permeation of ubiquitous positioning into the community – “**the where is concept**”
- Demographic of workforce and work preference is **more diverse and inclusive** – gender, age, professional disciplines, cultural
- Increased UN GGIM lead activity – **mandates for countries, leveraging opportunities**

The **COMMON CHALLENGES** experience by Geodetic / Geospatial Organisations (1)

- Continually **justifying role, existence, value and importance to decision makers** (executive mgt / financial / political)
- **Lack of information advocating economic / fiscal benefits of geospatial and geodetic infrastructure / data**
- **Responsible governance / admin frameworks** – transparency, accountability to the community, evidence based decision making
- **Competing and securing resources**
- **Balancing priorities** – legal, technical, organisational, data, and people
- **Modernising legislation**, developing relevant and agile **policies and guidelines**
- Spatial information / datasets **“open”, “shared” or with limited restrictions**
- Developing agency **“plans” to align with high level strategic objectives**
- Updating and **complying with industry standards and practices**

The **COMMON CHALLENGES** experience by Geodetic / Geospatial Organisations (2)

- Modernising land administration systems to ensure **indefeasibility of registration of rights, restrictions and responsibilities**
- Ensuring **foundation (fundamental) data** has integrity - accurate, current, **facilitates integration and interoperability** AND in a modern information system (open source?)
- **Administering and visualising geospatial information in 3 dimensions + temporal component**
- **Leveraging the power of the internet, mobile phones, web-based data portals, crowd sourcing, web services**
- Having access to **reliable communications**
- **Provision of data in the “cloud”, via distributed web services, data retrieval through catalogues and visualisation via Web Map Services... in near real time**
- **Building and maintaining geospatial / geodetic infrastructure and systems**

CORE Geodetic Competencies / Skillsets ?

Level	Competency Requirements	Training provided by	
1	Basic understanding of: <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	The above plus knowledge of:	<ul style="list-style-type: none"> • Educational institutions – universities 	Countries with small CORs network and those

What base level of knowledge should be a prerequisite?

Are educational institutions providing appropriate curriculum?

Who can provide the necessary training of the CORE competencies?

How can we recognise qualifications through the region?

- 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

e.g. Bernese



Geodetic Challenges / Opportunities in terms of components that influence “sustainable” Capacity Development (CD)

CD - Challenges and Opportunities (1)

Type	Description
I	Lack of CD frameworks / mechanisms for - exchanging knowledge / learnings; recognising and assessing qualifications, sharing resources, accessing educational / academic institutions
I	No clear pathways, structures and roadmaps to facilitate more CD collaboration and engagement
I	Aligning (link) individual, organisational, and national (country) CD plans to an regional “initiative” or “issue”
I	Including CD programs and arrangements as part of an action agenda and incorporating ongoing strategies to justify resourcing
I	Developing more relevant strategies and policies to reflect the potential benefits of CD, the CD needs, interaction with other sectors / disciplines on CD
I, K	Improving the awareness, and understanding of the CD resourcing programs / opportunities from “donor” agencies; know who to contact; how to implement

I = Institutional, L = Leadership, K = Knowledge, A = Accountability

CD - Challenges and Opportunities (2)

Type	Description
I, K	Discovering, understanding existing capabilities; and prioritising the training and competency needs for future CD
I, L	More advocacy on CD to enable decision makers to recognise its value or importance and contribution to an organisation (country)
L	CD leaders to develop the skillsets to influence, inspire and motivate others (incl. decisions makers) to achieve both organisational and personal CD objectives
L	CD leaders to secure the political (and community) will and commitment; and have the ability to maintain momentum
L, I	CD strategies to encourage existing agencies (and countries) with “capability” to provide more support and be more involved in “core competency” education / training
L, I	CD leaders and organisations must be able to managing and implementing change
L, I	CD strategies, plans and policies must be linked to technical improvements AND other significant “drivers” – environmental , economic, social and political.

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CD - Challenges and Opportunities (3)

Type	Description
K, I	Undertake a regional analysis of capabilities to identify - knowledge “gaps” between member countries and the provision of core competencies – who, how, where and quality / suitability
K, I	Develop frameworks / mechanisms to access and learn relevant theory and practical experience w.r.t core competencies from a variety of sources
K, I	Develop frameworks / mechanisms to utilise and support “providers, trainers, educators, experts, and specialists”
K, I	Establishing a repository for CD tools and information – presentations, papers, etc.
A, I	Developing CD systems to demonstrate that individual, organisational, national (country) objectives have been achieved – NOT just technical – economic, social and political
A, K	Through CD, ensure standards, and practices (incl. professional / ethical) are maintained or complied with

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Next Collaboration Opportunity ?



The banner features a blue globe with a yellow arrow pointing towards the top right, and the SSSI logo on the globe. The word "Locate" is written in large, blue, 3D-style letters. The background is a dark red and orange gradient with a grid of glowing lines and hexagonal patterns.

28 - 30 April 2020 - Brisbane, Australia



The banner features the Amsterdam FIG logo on the left, with three red crowns above the word "Amsterdam". The text "WORKING WEEK 2020" and "10-14 MAY" is on the right. The tagline "Smart surveyors for land and water management" is at the bottom center, and the GIN logo is on the bottom right.

Amsterdam
FIG

WORKING WEEK 2020
10-14 MAY

Smart surveyors for land and water management

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Thank you !