United Nations GGIM
National Institutional Arrangements (NIA)

TG1: Geospatial Information (GI) production systems analysis
Task Group 1: INDEX

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## 2. NIA Work Plan: TG1

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<th>1.1 GI production systems analysis</th>
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<td>• Real user needs in GI and Geospatial Reference Information (GRI).</td>
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3. Selection of Themes for Analysis phase

– The final GI selected themes in this first approach were (GI/Geospatial Reference Information-GRI):

• Geographical names
• Administrative units
• Cadastral parcels
• Transport networks
• Hydrography
• Elevation
• Land Cover
• Imagery
• Settlements
4. Eight questions related to production systems (for every 9 Themes)

8 questions related to production systems (for each 9 Themes)

"Taken into account to design it “The Status of Topographic Mapping in the World” (UN-GGIM / ISPRS)"

Q1.- Which are the methods applied for GRI data creation/update?
Q2.- Who does the creation/update of GRI?
Q3.- Which is the approach used in creation/update of GRI?
Q4.- Which is the production scale?
Q5.- The GRI data update is done continuously or periodically?
Q5b.- In case it is periodical, which is the update period?
Q6.- The data update done complete or partially?
Q7.- The update is done for the complete theme or for some features/attributes?
Q8.- Who are the users of GRI?
Some questions reflect the result of the *Status of Topographic Mapping in the World* (UN-GGIM/ISPRS) "e.g":

![Bar chart showing the mean of the themes and UNGGIM-SPRS results.](chart.png)

- Complete theme:
  - ADMINISTRATIVE UNITS: 67.92%
  - CADASTRAL PARCELS: 48.90%
  - ELEVATION: 41.71%
  - GEOGRAPHICAL NAMES: 51.60%
  - HYDROGRAPHY: 43.84%
  - IMAGERY: 34.84%
  - LAND COVER: 69.05%
  - SETTLEMENTS: 71.17%
  - TRANSPORT NETWORKS: 56.85%
  - TOPOGRAPHIC MAP: 41.15%

- Some features:
  - ADMINISTRATIVE UNITS: 32.08%
  - CADASTRAL PARCELS: 48.90%
  - ELEVATION: 56.85%
  - GEOGRAPHICAL NAMES: 51.10%
  - HYDROGRAPHY: 58.28%
  - IMAGERY: 65.16%
  - LAND COVER: 51.60%
  - SETTLEMENTS: 48.40%
  - TRANSPORT NETWORKS: 34.84%
  - TOPOGRAPHIC MAP: 65.16%

**Mean of the Themes**
- Complete theme: 51.60%
- Some features: 48.40%

**UNGGIM-SPRS results**
- Complete theme: 56.16%
- Some features: 48.40%
TG1 Questionnaire

- Circulated to 196 countries
- 59 responses received
- 30% countries

Countries answering the questionnaire
TG1 Questionnaire

Africa

54 countries
6 countries with answer
16% area of the Region

Total area of Africa: 30 M km²

Total Africa: 54 countries

Countries with answer
NA
TG1 Questionnaire

Americas

35 countries
13 countries with answer
89% area of the Region
TG1 Questionnaire

Arab States

22 countries
5 countries with answer
29% area of the Region

Total Arab States: 22 countries

Total area of Arab States: 13 M km²
TG1 Questionnaire

Asia-Pacific

49 countries
9 countries with answer
20% area of the Region
TG1 Questionnaire

Europe

49 countries
28 countries with answer
18% area of the Region

Map of Europe showing 49 countries, with 28 countries having answered and 18% area of the Region.
5. Questionnaire: Results

• The results are done in percentage of production effort
  ✓ When more than an answer is given to a question we have considered that the capacity of production is shared between all the answers given

• The results of TG1 questionnaire are referred to the area of countries
Q1. Methods applied for data creation/update
Q2. The creation/update of GRI is done by:

- Own production
- Third parties
- Collaborative production
- VGI

Administrative Units: 57.28%, 56.87%, 67.10%, 69.18%
Cadastral Parcels: 80.89%, 75.92%, 67.10%, 72.25%
Elevation: 81.04%, 81.04%, 67.10%, 69.18%
Geographical Names: 72.25%, 72.25%, 67.10%, 69.18%
Imagery: 72.25%, 72.25%, 67.10%, 69.18%
Hydrography: 72.25%, 72.25%, 67.10%, 69.18%
Imagery: 72.25%, 72.25%, 67.10%, 69.18%
Land Cover: 72.25%, 72.25%, 67.10%, 69.18%
Settlements: 72.25%, 72.25%, 67.10%, 69.18%
Transport Networks: 72.25%, 72.25%, 67.10%, 69.18%
Topographic Map: 72.25%, 72.25%, 67.10%, 69.18%
VGI: 0.60%, 0.60%, 0.60%, 0.60%
Q3. Approach used in creation/update of GRI

- **Bottom-up**
  - ADMINISTRATIVE UNITS: 76.37%
  - CADASTRAL PARCELS: 37.19%
  - ELEVATION: 13.75%
  - GEOGRAPHICAL NAMES: 32.86%
  - HYDROGRAPHY: 51.35%
  - IMAGERY: 11.01%
  - LAND COVER: 20.55%
  - SETTLEMENTS: 7.82%
  - TRANSPORT NETWORKS: 76.25%

- **Top-down**
  - ADMINISTRATIVE UNITS: 7.82%
  - CADASTRAL PARCELS: 7.00%
  - ELEVATION: 7.28%
  - GEOGRAPHICAL NAMES: 13.75%
  - HYDROGRAPHY: 1.01%
  - IMAGERY: 27.25%
  - LAND COVER: 28.60%
  - SETTLEMENTS: 7.18%
  - TRANSPORT NETWORKS: 77.06%

- **Independent**
  - ADMINISTRATIVE UNITS: 59.16%
  - CADASTRAL PARCELS: 55.81%
  - ELEVATION: 38.96%
  - GEOGRAPHICAL NAMES: 37.64%
  - HYDROGRAPHY: 16.48%
  - IMAGERY: 54.44%
  - LAND COVER: 16.96%
  - SETTLEMENTS: 58.49%
  - TRANSPORT NETWORKS: 79.07%
Q4. Production scale
Q5. Type of GRI update

Periodically

- ADMINISTRATIVE UNITS: 37.72%
- CADASTRAL PARCELS: 51.63%
- ELEVATION: 32.53%
- GEOGRAPHICAL NAMES: 46.87%
- HYDROGRAPHY: 44.86%
- IMAGERY: 44.64%
- LAND COVER: 52.15%
- SETTLEMENTS: 36.54%
- TRANSPORT NETWORKS: 74.45%

Continuously

- ADMINISTRATIVE UNITS: 37.72%
- CADASTRAL PARCELS: 51.63%
- ELEVATION: 32.53%
- GEOGRAPHICAL NAMES: 46.87%
- HYDROGRAPHY: 44.86%
- IMAGERY: 44.64%
- LAND COVER: 52.15%
- SETTLEMENTS: 36.54%
- TRANSPORT NETWORKS: 74.45%
Q5b. Periodicity of update

ADMINISTRATIVE UNITS
CADAstral PARCELS
ELEVATION
GEOGRAPHICAL NAMES
HYDROGRAPHY
IMAGERY
LAND COVER
SETTLEMENTS
TRANSPORT NETWORKS
TOPOGRAPHIC MAP

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

1-2 y
12.50%
11.46%
11.46%
14.21%
22.50%
2.94%

3-5 y
7.05%
9.96%
8.66%
5.41%
14.88%
10.17%
4.38%

5-10 y
34.88%
39.57%
21.27%
7.45%
36.73%
26.19%
43.53%

>10 y
45.57%
58.21%
4.38%
7.45%
72.98%
65.30%
39.61%

Positioning geospatial information to address global challenges

UN-GGIM
United Nations Committee of Experts on Global Geospatial Information Management

ggim.un.org
Q6. Complete or partial update

- **Complete Update**
  - ADMINISTRATIVE UNITS: 32.76%
  - CADASTRAL PARCELS: 24.24%
  - ELEVATION: 44.84%
  - GEOGRAPHICAL NAMES: 11.57%
  - HYDROGRAPHY: 16.21%
  - IMAGERY: 24.35%
  - LAND COVER: 33.70%
  - SETTLEMENTS: 21.53%
  - TRANSPORT NETWORKS: 8.32%

- **Partial Update**
  - ADMINISTRATIVE UNITS: 91.68%
  - CADASTRAL PARCELS: 5.76%
  - ELEVATION: 82.25%
  - GEOGRAPHICAL NAMES: 78.47%
  - HYDROGRAPHY: 88.43%
  - IMAGERY: 66.30%
  - LAND COVER: 83.79%
  - SETTLEMENTS: 6.65%
  - TRANSPORT NETWORKS: 5.65%
Q7. Update done for the complete theme or for some features /attributes of the theme
Q8. Users of GRI

The chart below illustrates the percentage of users from different sectors for various types of data.

- **Government**:
  - Administrative Units: 32.21%
  - Cadastral Parcels: 22.99%
  - Elevation: 18.96%
  - Geographical Names: 18.60%
  - Hydrography: 17.94%
  - Imagery: 17.25%
  - Land Cover: 17.05%
  - Settlements: 16.52%
  - Transport Networks: 16.96%

- **Private sector**:
  - Administrative Units: 30.48%
  - Cadastral Parcels: 20.27%
  - Elevation: 16.89%
  - Geographical Names: 14.44%
  - Hydrography: 13.58%
  - Imagery: 12.56%
  - Land Cover: 11.28%
  - Settlements: 10.45%
  - Transport Networks: 10.41%

- **Academia**:
  - Administrative Units: 20.08%
  - Cadastral Parcels: 20.48%
  - Elevation: 19.92%
  - Geographical Names: 19.24%
  - Hydrography: 18.57%
  - Imagery: 18.17%
  - Land Cover: 17.49%
  - Settlements: 17.29%
  - Transport Networks: 17.02%

- **NGO**:
  - Administrative Units: 18.60%
  - Cadastral Parcels: 20.12%
  - Elevation: 19.89%
  - Geographical Names: 19.74%
  - Hydrography: 19.69%
  - Imagery: 19.66%
  - Land Cover: 19.83%
  - Settlements: 19.76%
  - Transport Networks: 19.84%

- **Citizens**:
  - Administrative Units: 22.16%
  - Cadastral Parcels: 23.47%
  - Elevation: 23.42%
  - Geographical Names: 23.26%
  - Hydrography: 22.79%
  - Imagery: 22.25%
  - Land Cover: 21.89%
  - Settlements: 21.95%
  - Transport Networks: 21.81%
6. Next steps

- **Re-circulate the questionnaire** to be completed by more countries till **September 2015**

- Collaborate with other NIA TG's to formulate **proposal of indicators** will be sent to the NIA WG after the meeting. This must be finished before **10/2015** in order to have a further assessment of the different GIM systems

- Discuss and define **the way** to identify of **best practices** of GIM **02/2016**
7. Conclusions for the current production of all 9 themes (GI/GRI) considered:

✓ For the creation the methods more used:
  • Semi-automatic methods
  • Own production
  • Bottom-up
  • Scales 25/50,000

✓ For up-dating:
  • More continuously (but also periodically, in this case between 5/10 years)
  • Partially for the territory
  • All completely theme (but also by some features)

✓ Final users:
  • Governments (but similar amount for others users)

✓ It is possible to extract from this questionnaire many other conclusions using different point of view (consultation by countries, regions, scales, methodology...)

Thank you for your attention