Statistics Division

WORLD BANK

UN-GGIM
UNITED NATIONS INITIATIVE ON GLOBAL GEOSPATIAL INFORMATION MANAGEMENT

Integrated Geospatial Framework

Towards an Integrated Geospatial Framework

A reference for developing and strengthening National Geospatial Information Management

Consultation with Eurogeographics
16 May 2018

Background

Integrated Geospatial Framework

- In August 2017, UN-GGIM welcomed a new Collaborative Agreement between UNSD and the World Bank.
- The basis of this collaboration was a reflection and recognition of the growing need to explore and develop possible mechanisms for **geospatial data, infrastructure and policies** to be embedded more holistically within concessional financing, technical assistance and knowledge sharing services, and their subsequent implementation in developing countries.
- A key deliverable of the collaboration is an overarching **geospatial information management framework** that Member States can reference when implementing integrated evidence-based decision-making solutions, and that maximize and leverage national systems tailored to their own situations.

Background

- A first draft of an ‘Integrated Geospatial Framework’ was discussed at a Consultative Workshop on 19 March 2018 on the margins of the 2018 World Bank Land and Poverty Conference in Washington DC, and hosted by the World Bank.
- The Framework will continue to be refined in a number of further consultations during April and May 2018, including in Africa and Europe, prior to a global consultation which will be initiated by the Secretariat from end of May through to late June 2018.
- It is expected that the final Framework will be completed and posted on the UN-GGIM website (as a Background Document to the formal technical report) by Friday 13 July 2018.
- The intent is to have the Geospatial Framework adopted by UN-GGIM at its eighth session in August 2018.

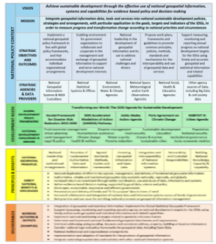
Objective

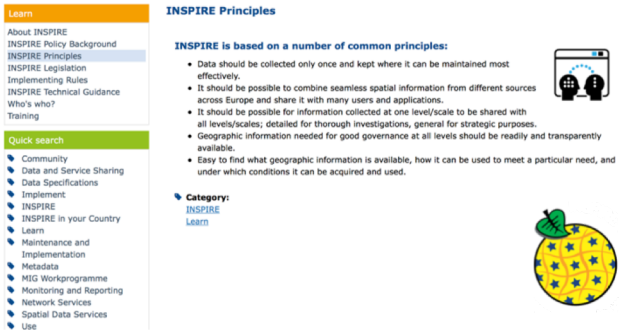
Integrated Geospatial Framework

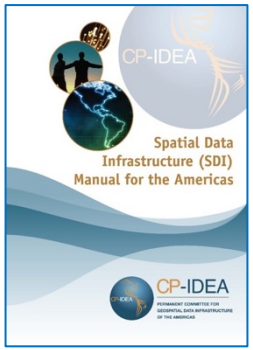
- Bridge the Geospatial Digital Divide.
- Provide the reference for country-level action plans, including investment plans and socio-economic justification, to operationalize and ensure the sustainability of national geospatial information systems.
- Aimed specifically at low and medium income countries, but with broader relevance.
- Focus at developing national information infrastructure, not only the 2030 Development Agenda.

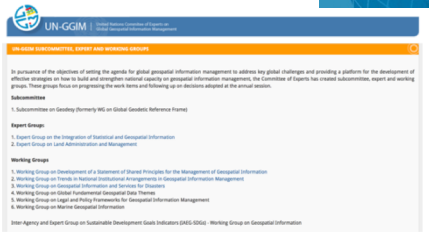
Input from many existing concepts

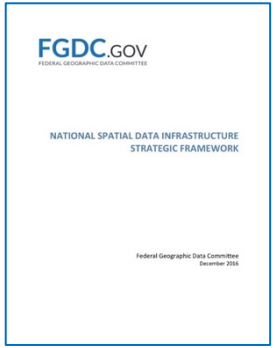
Integrated Geospatial Framework











Extended to broaden scope

Integrated Geospatial Framework

- Broader scope than existing models:
  - infrastructure (Inspire, GSDI)
- Broaden focus on Financial/Economic aspects:
  - investment, including RoI or shared investment models
  - operational aspects, including sustainable business models
  - multi-stakeholder approach, such as with the private sector
- Broaden focus on specific challenge of developing nations;
- Broaden focus on various substantial issues:
  - operational aspects of data, such as data maintenance and quality management;
  - capacity development and education;
  - communication and outreach;
  - innovation

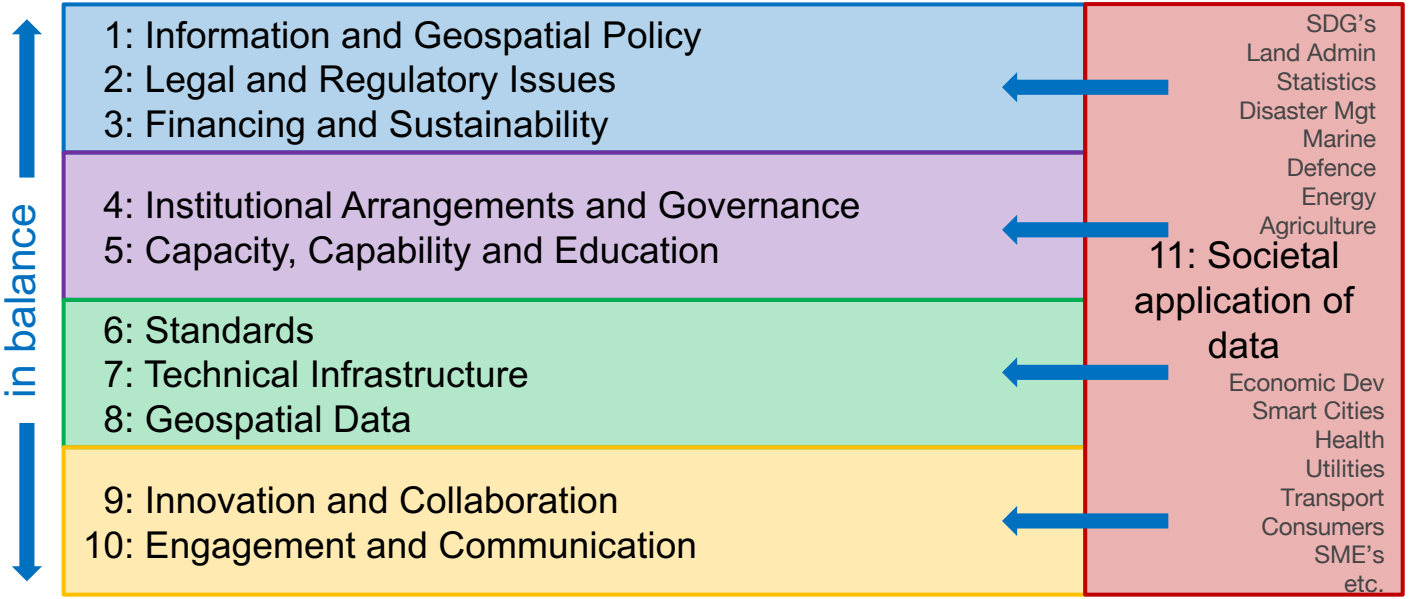
Towards an Integrated Geospatial Framework

The VISION for the Integrated Geospatial Framework:

“To enable governments to achieve sustainable social, economic and environmental development through the effective use of geospatial information for evidence-based policy and decision-making”

- There is a specific focus in the Framework on issues related to sustainability of geospatial information management in a nation.
- Specific attention is given to issues related to longer-term financial sustainability, multi-stakeholder approaches, capacity building, innovation and communication, as well as more technical aspects such as data maintenance.
- While the emphasis of the Framework is on the nation, much of the approach is applicable to other functional levels including regions and lower level governments.

Integrated Geospatial Framework (draft v2.1)

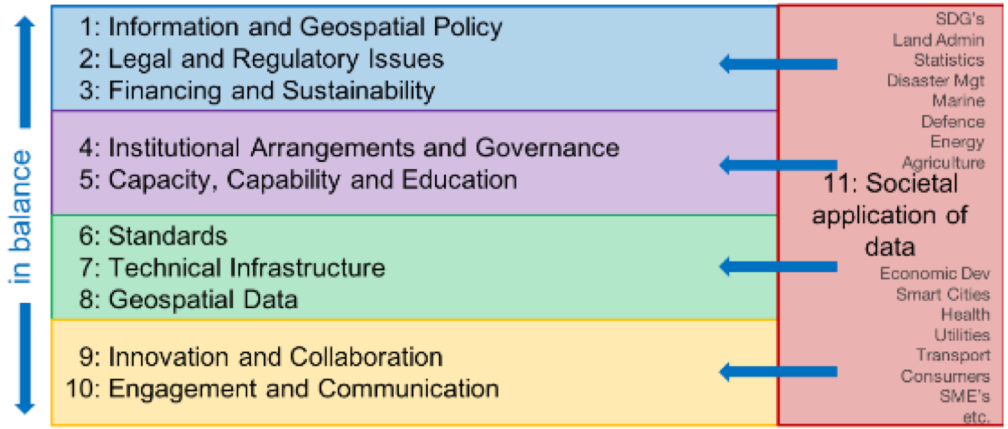


The Framework components should operate in unison, where component 11: Societal application of data, informs the scope of implementation. The Framework presently advises a balanced approach for this development, no component is necessarily more or less important than the other.

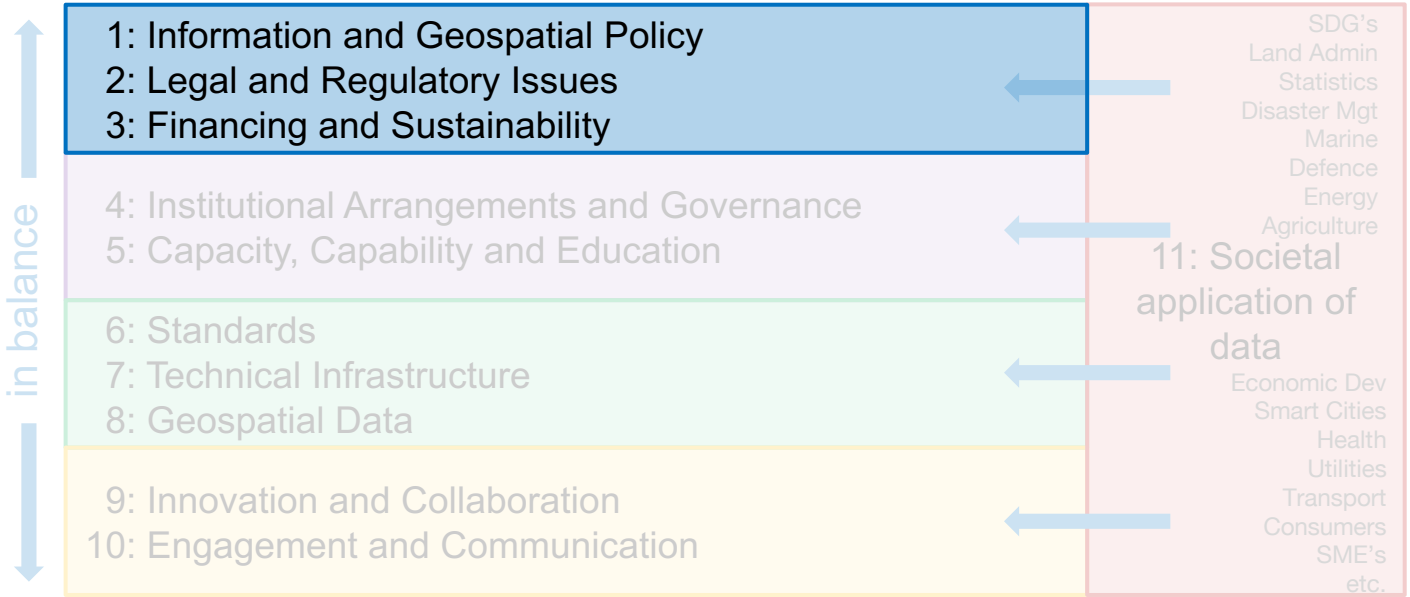
Integrated Geospatial Framework (draft v2.1)

For each Component:

- Introduction
- Guidance
- ***Focus on Developing Nations***
- Assessment
- Existing UN-GGIM (and World Bank) Concepts complemented with examples and case studies



Components 1-3



1: Information and Geospatial Policy
2: Legal and Regulatory Issues
3: Financing and Sustainability

Integrated Geospatial Framework

Component 1: Information and Geospatial Policy

- Focus on policy and strategy issues. Provide options to make strategic choices, also related to broader policies and guidelines.

Developing Countries:

- Some developing countries have the expertise but lack the resources to make substantive progress. Many developing nations will be dependent on donors for the establishment of geospatial information management.
- The SDGs help in identifying where national policies and strategies are needed. Efforts at determining policies for geospatial information should be included in determining national policies and strategies. The SDG process can act as a good proxy to understand a generic set of requirements for geospatial information management, as long as nations strive to coherence in these requirements.

1: Information and Geospatial Policy
2: Legal and Regulatory Issues
3: Financing and Sustainability

Integrated Geospatial Framework

Component 2: Legal and Regulatory Issues

- Focus on legal and regulatory issues, primarily those related to use of geospatial information and data sharing.

Developing Countries:

- The issue of unofficial data (new and emerging data sources, often crowd sourced or supplied by the private sector) is a major consideration for developing countries, and the least developed in particular.
- Recognizing that the Framework is aimed at supporting the lower to middle income countries, this is an issue that needs to be considered, as in many cases data simply does not exist.
- For many developing countries, unofficial data is often the starting point of developing a geospatial capability. Requires a clear understanding of the opportunities and limitations of such data.

1: Information and Geospatial Policy
2: Legal and Regulatory Issues
3: Financing and Sustainability

Integrated Geospatial Framework

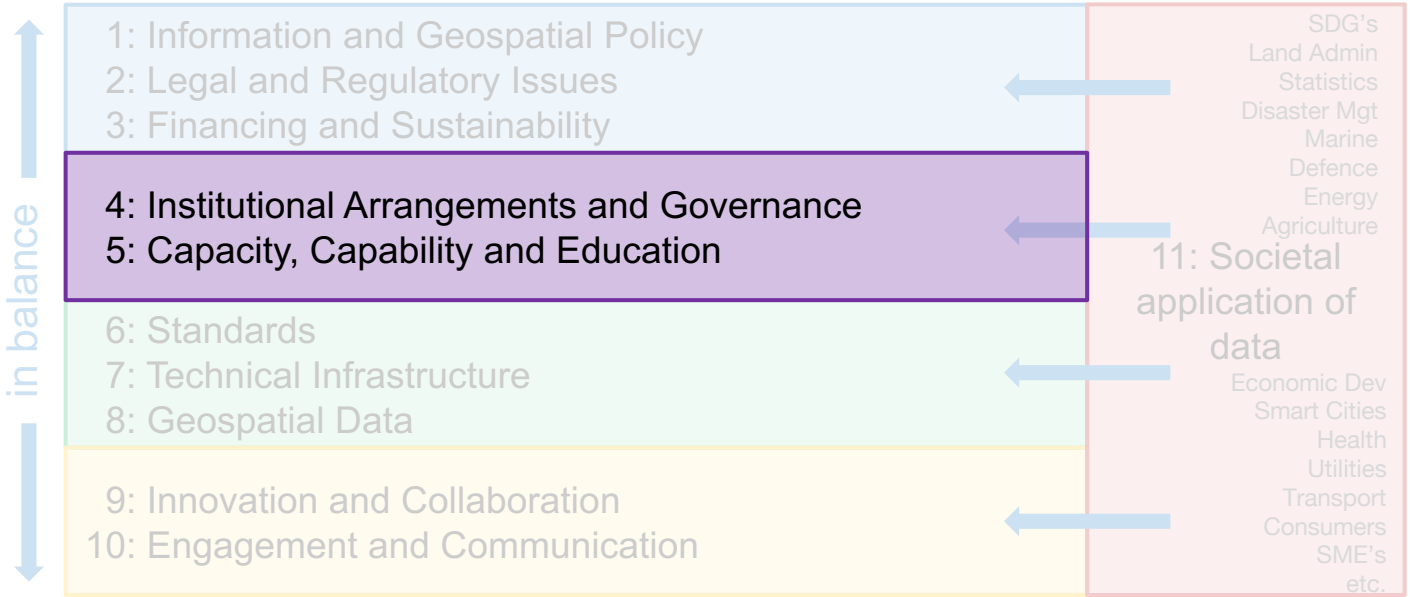
Component 3: Financing and Sustainability

- Focus on financing and sustainability of development and maintenance of the national GI framework. Specific focus on benefits to justify the expense.

Developing Countries:

- Will need to consider which economic model is appropriate. Copying an existing economic model from another nation may not be optimal, especially if copying from a well-developed geospatial economy to a lesser developed geospatial economy.
- May be easier to take advantage of new business models and technologies, as well as lessons learned by more developed nations, when investing in geospatial information management.
- Should be specifically aware of the operational commitments associated with investments by third parties, and whether or not there is long-term funding available for this.

Components 4-5



4: Institutional Arrangements and Governance
5: Capacity, Capability and Education

Integrated Geospatial Framework

Component 4: Institutional Arrangements and Governance

- Focus on appropriate institutional arrangements and governance to organise delivery of the GI policies, laws and regulations

Developing countries:

- Will need to consider which institutional model is appropriate. Copying an existing institutional model from another nation will not be optimal, considering different levels of development maturity and cultural aspects. Rather than a wholesale copy, there likely are aspects of other countries' models that will be useful, with or without modification, which will eventually be the easiest and quickest way to get started.
- Will typically need to consider an even wider set of stakeholders as part of their institutional setup. NGO's, funding agencies, research institutions, projects and volunteers will all expect to have a certain role, dependent on their contribution.

Integrated Geospatial Framework

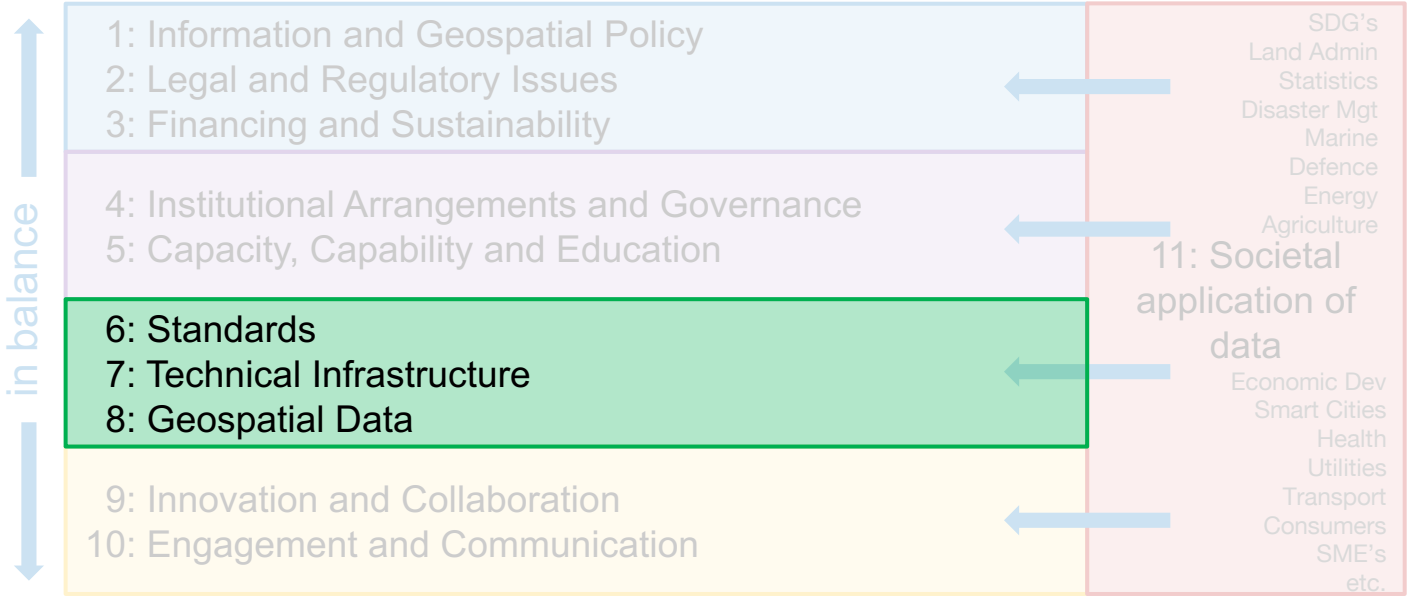
Component 5: Capacity, Capability and Education

- Focus on the capacity, capabilities and education required to deliver the GI policies, laws and regulations

Developing countries:

- This topic is particularly important for developing nations, where dependency on international knowledge can over time be costly and undesirable.
- Many of the critical issues where geospatial information can assist are found in developing nations.
- There is a role for non-governmental organizations and development agencies to ensure that there is an effective skills base developed to provide the benefits of a spatially-enabled society.

Components 6-8



6: Standards
7: Technical Infrastructure
8: Geospatial Data

Integrated Geospatial Framework

Component 6: Standards

- Focus on technical standards to deliver the geospatial infrastructure and share information with (and between) users and applications

Developing countries:

- Standards development has been driven by technology innovation and development. While the past decade has seen considerable increase in engagement, there is still only minor involvement from nations in Africa and other developing nations. Great benefits are to be derived from participation in the standards development process.
- For developing nations, uptake and adherence to standards is in early stages. Particularly relevant in working with donor agencies to ensure sustainability of data created. Needs to be an increasing focus on engaging with standards development and implementation.

6: Standards
7: Technical Infrastructure
8: Geospatial Data

Integrated Geospatial Framework

Component 7: Enabling Technical Infrastructure

- Focus on choices to be made about the enabling technical infrastructure for geospatial information management:
  - geodetic infrastructure; data management infrastructure; data sharing infrastructure; systems infrastructure; end-user applications.

Developing countries:

- For developing nations, provides a unique opportunity to “leapfrog” more mature nations through the use of new technology and systems infrastructure. Important that appropriate knowledge is built up before investing in technology so that unnecessary or obsolete investments can be avoided.
- Cloud computing/storage and SaaS provides significant opportunity. Supports collaborative data creation and management. Stable and fast internet and mobile connectivity is a necessary component of the overall enabling framework.

6: Standards
7: Technical Infrastructure
8: Geospatial Data

Integrated Geospatial Framework

Component 8: Fundamentals of Geospatial Data

- Focus on what data as essential part of a nation's geospatial strategy:
  - fundamental data; supply chain strategy; data creation, management and maintenance; fit for purpose data; application of standards and frameworks; non-traditional data sources; official vs unofficial data.

Developing countries:

- Many do not have national availability of high-quality data for relevant fundamental geospatial data themes. As with the enabling infrastructure, developing nations have an opportunity to "leapfrog" more mature nations through the use of new data sources (EO) and capture technologies (AI) and collaborative, multi stakeholder approaches between government, the private and academic sectors, NGO's and volunteers.
- Prioritization of fundamental data themes assist in managing the financial and programmatic levels of effort. With benefits from initial efforts realized, it may be possible to add more data themes over time.

6: Standards
7: Technical Infrastructure
8: Geospatial Data

Integrated Geospatial Framework

Component 8: Fundamentals of Geospatial Data

- Focus on what data as essential part of a nation's geospatial strategy:
  - fundame… tenance; fit for purpose… urces; official vs unofficia…

Sustainable Development Goal indicators should be disaggregated, where relevant, by income, sex, age, race, ethnicity, migratory status, disability and geographic location, or other characteristics, in accordance with the Fundamental Principles of Official Statistics (General Assembly resolution 68/261).

Developing

- Many do no… ental geospatial data theme… opportunity to "leapfrog" m… d capture technologies (AI) and collaborative, multi stakeholder approaches between government, the private and academic sectors, NGO's and volunteers.
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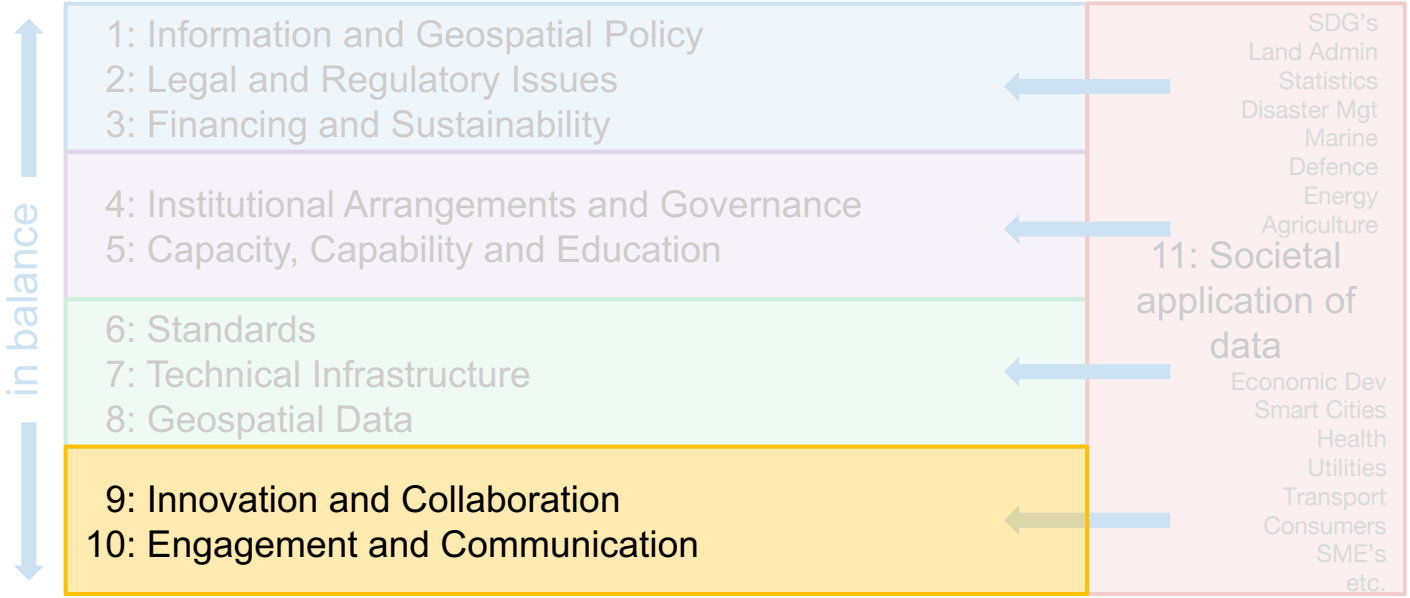
Components 9-10



9: Innovation and Collaboration
10: Engagement and Communication

Integrated Geospatial Framework

Component 9: Innovation and Collaboration

- Focus on innovation and collaborative aspects of geospatial information management, including with the private and academic sectors, NGO's and other willing contributors.

Developing Countries:

- These developments offer significant opportunities but also present challenges, both in terms of policy/law and the data itself.
- In some countries the availability of crowdsourced data may be an addition to a wide range of other sources of geospatial information. In others it may be an essential ingredient for socio-economic development, particularly in areas where no, or limited, data is available.
- VGI is a valuable mechanism to encourage public participation and engage and empower citizens – which may be a necessity as opposed to a choice.

9: Innovation and Collaboration
10: Engagement and Communication

Integrated Geospatial Framework

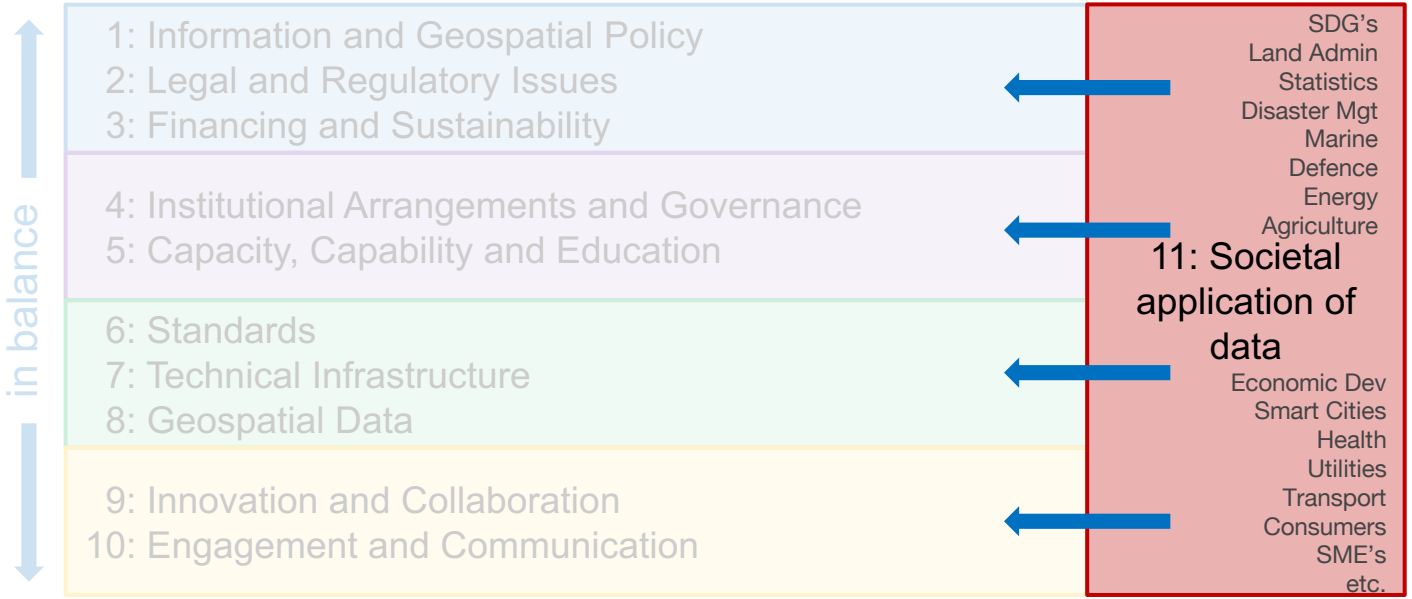
Component 10: Engagement and Communication

- Focus on engaging and educating (data) users so that they understand what information is available and how it can be applied in their work.

Developing Countries:

- The issue of communication and engagement is even more important in developing nations, where the number of stakeholders can be significantly higher. Different agencies can be supported by a different donor, with potentially conflicting approaches to development and implementation of geospatial information.
- Education materials and presentations on the goals, objectives, and opportunities for stakeholders, partners, and users could be very beneficial.

Component 11: Application of data



Application and Use

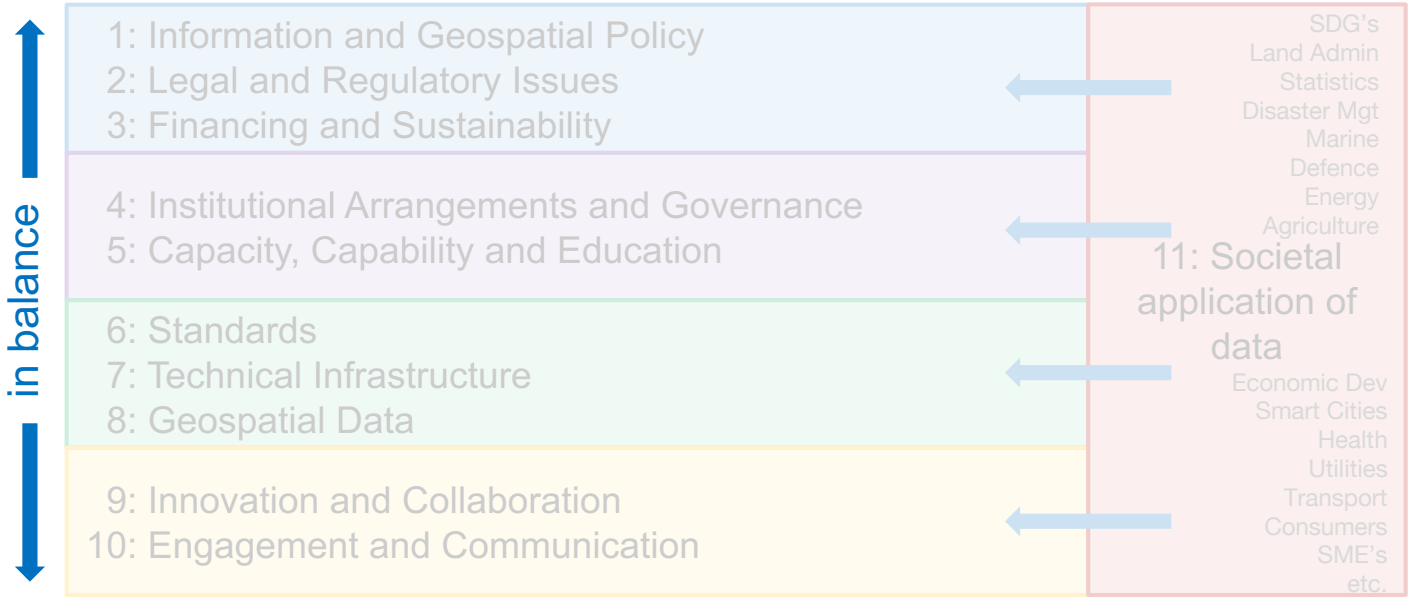
Component 11: Societal application of data

- Focus on applications of geospatial information that need to feed geospatial policy development, data capture requirements, data sharing regulations and outreach activities, to ensure that a vibrant geospatial economy can exist:

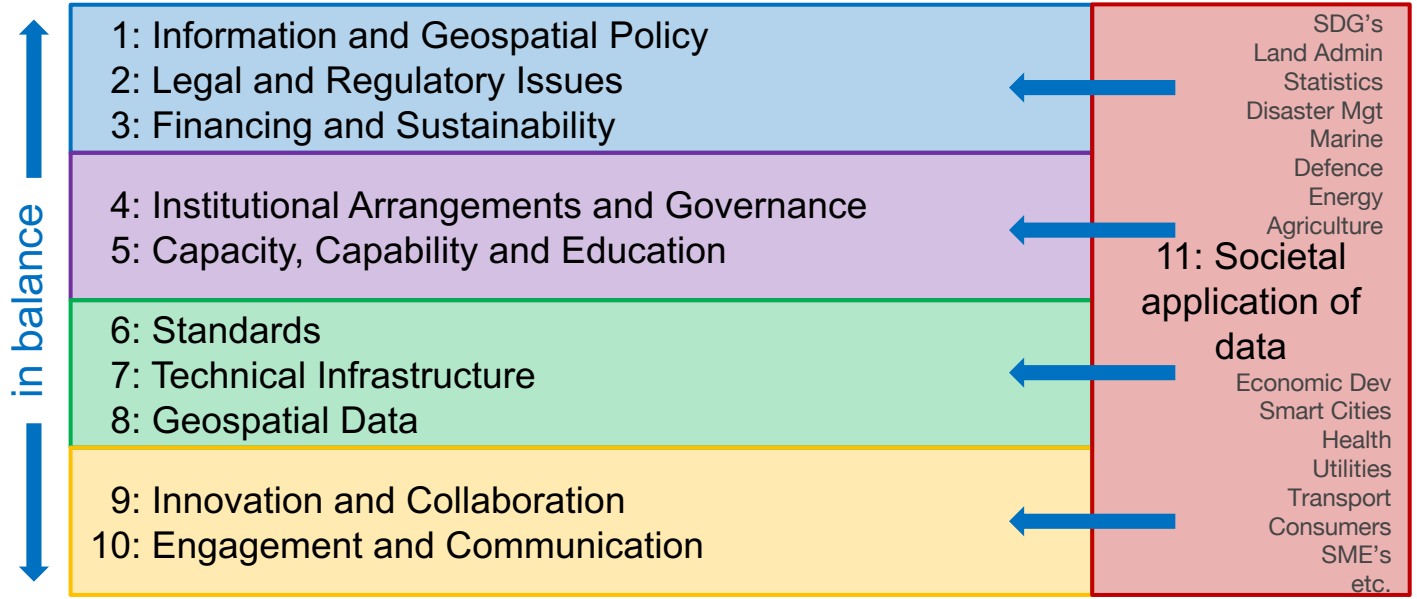
Developing Countries:

- Important to establish collaboration between governments, donor agencies and the wider geospatial sector so that national and local issues can be addressed, not just those issues that are the focus of the donor agencies. Active participation by the developing country in every step of the geospatial information management capacity development process is crucial to its success. This is particularly important for the overall sustainability of geospatial information management.

Balance


in balance
1: Information and Geospatial Policy
2: Legal and Regulatory Issues
3: Financing and Sustainability
4: Institutional Arrangements and Governance
5: Capacity, Capability and Education
6: Standards
7: Technical Infrastructure
8: Geospatial Data
9: Innovation and Collaboration
10: Engagement and Communication
11: Societal application of data
SDG's
Land Admin
Statistics
Disaster Mgt
Marine
Defence
Energy
Agriculture
Economic Dev
Smart Cities
Health
Utilities
Transport
Consumers
SME's
etc.

Integrated Geospatial Framework (draft v2.1)



Consultation

Initial draft

(Dec 2017)

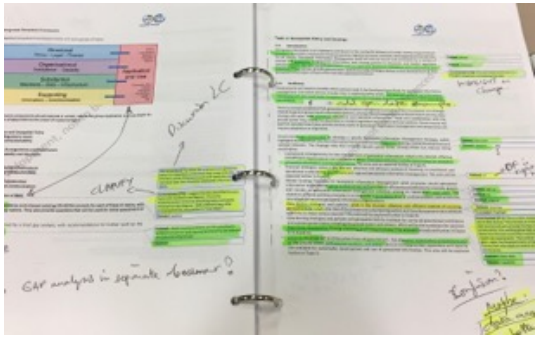
Feedback from UN-GGIM Groups and Experts

(Jan 2018)

▼ 721 REVISIONS

Insertions: 455
Deletions: 242
Moves: 4
Formatting: 4
Comments: 16

input World Bank Albania mission



Feedback review

Consultations at:

World Bank Land Conference, Washington DC

Workshop on Global Fundamental Geospatial Data Themes for Africa Addis Ababa

EuroGeographics, Leuven (Belgium)
(April-May 2018)

Drafting Workshop New York, 21-25 May

Global Consultation (UN Member States)

(June 2018)

input World Bank Palestine mission

UN-GGIM Committee of Experts decision

(Aug 2018)

Initial Feedback and Major Issues

Integrated Geospatial Framework

- Style:
  - The document does not yet “feel” like a UN-GGIM document
  - Is this the right style (do we need to be more, or less, prescriptive and/or descriptive)?
  - Is this style flexible enough?

- Structure:
  - Are these the right Components? (should some be added, removed, combined or split?)
  - Is this the right order of Components?
  - Is this a useable structure?
  - Are these the right paragraphs per chapter?
  - Is it implementable?

Initial Feedback and Major Issues

Integrated Geospatial Framework

- Substance:
  - Additional guidance required in various areas, mainly related to developing nations
  - Should the focus be on government (government data, government policy, government use, NSDI's, etc.) or society (include focus on private sector, academia, citizen, volunteers)?

- Supplementary:
  - Examples from other nations, preferably developing nations
  - Provide a reading guide

Major Issues: Summary

1. Do we have the right focus?
   - Government vs Society
   - Developing vs Developed Nations
   - Technical vs Organisational
   - Traditional vs Innovative

2. Are all elements there to address that focus?
   - Guidance or prescriptive
   - Examples & best practices

3. Impact of the Framework?

4. Can you help?
   - Regional experience (standards, capacity building, financing, legislation, policy, etc.)
   - Twinning experience
   - Working with donors (experience as recipient or donor)

Integrated Geospatial Framework

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