Integrated Geospatial Information Framework (IGIF)

Implementation and Financing at National and Local Levels

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Kathrine Kelm, World Bank
OPERATIONALIZING THE IGIF

Adopted by UNGGIM August 2018

Draft to be presented at the UNGGIM meeting in August 2019

WB-FAO - developing toolkit for task teams/counterparts and conducting pilots
Step 1: Diagnostic
- Initial Assessment
- Country Diagnostic Report

Step 2: Action Plan
2.1. Business case
- Geospatial Alignment to Business Drivers
- Socio-Econ analysis

2.2. Action Plan

Step 3. Implementation
- Investment projects
- KPI
- Risks
IGIF TEMPLATES
# Governance and Institutions

## Indicator Scoring Guide Notes from Interview Score Guidance

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Scoring Guide</th>
<th>Notes from Interview</th>
<th>Score</th>
<th>Guidance</th>
</tr>
</thead>
</table>
| 11 | Is there a NEDX “champion” in the Government? | None-0; role defined-25; defined and person exists-50; Active-75; Tangible outcomes from role-100 | 0 | Is there a clearly identifiable individual who actively promotes GEO participation at all levels of government towards the development and implementation of GEO strategies?
| 12 | Is there a NEDX Coordinating Body? | None-0; role defined-25; defined and the body exists-50; Defined and the body is active-75; Staffed and active-100 | 0 | Does the NEDX body exist and is it active in planning and decision making? |
| 13 | Is the NEDX Coordinating body represented at senior levels in government? | None-0; role defined-25; role defined and the body exists-50; Defined, the body is active-75; Staffed and active-100 | 0 | Is the coordinating structure represented at senior levels? |
| 14 | Is the coordinating body supported by an active secretariat? | None-0; role defined-25; role defined and the body exists-50; Defined, the body is active-75; Staffed and active-100 | 0 | Is the coordinating body supported by an active secretariat? |
| 15 | Are there Terms of Reference (ToR) for the Coordinating Body? | None-0; defined-25; Defined and the body exists-50; Defined, the body is active-75; Staffed and active-100 | 0 | Does the NEDX have clear terms of reference?
| 16 | Does the coordinating body actively reach out to all levels of government (including local government) and other stakeholders (private sector, NGOs, donors) and other sectors? | None-0; role defined-25; Role defined and the body exists-50; Defined, the body is active-75; All active-100 | 0 | Does the coordinating body actively reach out to all levels of government and other stakeholders?
| 17 | Are there enabling groups supporting GEO development? (e.g. technical standards, legal, capacity development?) | None-0; role defined-25; Role defined and the body exists-50; Defined, the body is active-75; All active-100 | 0 | Are there enabling groups supporting GEO development? |
| 18 | Is there a group/forum available for consultation and to coordinate/lead initiatives? | None-0; role defined-25; Role defined and the body exists-50; Defined, the body is active-75; All active-100 | 0 | Is there a group/forum available for consultation and to coordinate/lead initiatives? |
| 19 | Does the national “champion” actively interact with the global and regional geospatial community? | None-0; role defined-25; Person is active-50; Active Regional-75; Active Global-100 | 0 | Does the national “champion” actively interact with the global and regional geospatial community? |
| 20 | Are there linkages between the coordinating body and those developing/enhancing the government agenda? | None-0; role defined-25; Being drafted-50; In place-75; Being used-100 | 0 | Are there linkages between the coordinating body and those developing/enhancing the government agenda? |

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**Current Status**

**Overall Score**

**Govern…**

**Commu…**

**Policy**

**Finance**

**Data**

**Standards**

**Innovati…**

**Partner…**

**Government**

**Agencies**

**Capacity**

**Institutional**

**Structure**

**Value**

**Proposition**

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**Initial version conducted in 15 countries 2017-2018**

**IGIF version conducted in:** Guyana, Vietnam, Seychelles
GUYANA: IGIF ACTION PLAN

ACTION PLAN

Table of Content
Preface
Executive Summary
Country Context
Integrated Geospatial Information Framework (IGIF)
Geospatial Information in Guyana
Methodology
Baseline Assessment
Business Case
Strategic Alignment with Government Policy Drivers
Socioeconomic Benefits
NSDI Vision and Mission
Goals: What will NSDI success look like?
Action Plan
Conclusions
7. Strategic Pathways

In this chapter we outline the recommended Action Plan in terms of the IGIF strategic pathways. It includes an overview of the current situation, summarized from the current state diagnostic report and possible measures by which the success of actions can be evaluated, referred to as Key Performance Indicators (KPIs).

The following chapter then arranges those in the form of an outline implementation program.

7.1. Governance and Institutions

**Governance and Institutions**

This strategic pathway establishes the leadership, governance model, institutional arrangements and a clear value proposition to strengthen multi-disciplinary and multi-sectoral participation and a commitment to achieving an Integrated Geospatial Information Framework.

The objective is to obtain political endorsement, strengthen institutional mandates and build a cooperative data sharing environment through a shared understanding of the value of an Integrated Geospatial Information Framework, and the roles and responsibilities to achieve the vision.

7.1.1. Action 1.1: Ministerial Approval of National Geospatial Policy (High Priority)

**Overview of Current Situation**

The policy has been further revised based on the emerging action plan and ECLAC input.

Another round of consultation is not necessarily helpful as the policy is only setting a framework, which should be fleshed out by regulation, so the Commissioner could proceed direct to Ministerial approval now. The feeling from stakeholders throughout this study has been that G5SC need to “get on with it”.

**Strategic Alignment**

This is a necessary underpinning to all use cases. Particularly NSDI institutional collaboration (use case 3.1).

**Tasks:**
- Soliciting set of supportive letters from major stakeholders to this effect may be helpful.
- Sensitise relevant Permanent Secretary-level representative(s) in stakeholder organisations, through a briefing session on the Action Plan.

*For supporting communication plan, see strategic pathway on communication and engagement.*

7.1.2. Action 1.2: Establish Geospatial Advisory Committee (GAC) (High Priority)

**Overview of Current Situation:**

Tasks:
- An initial “summit” meeting to agree priorities, based upon the final agreed action plan, may be useful.
- One of the most obvious first priorities is the need for coordination of the existing initiatives to avoid wasteful duplication of effort and ensure proper curtailment of their information products, without stifling innovation or their overall objectives.

7.1.3. Action 1.3: Establish Working Groups (Medium Priority)

**Overview of Current Situation**

No bodies currently exist to advance the technical development of the NSDI. An informal exercise has been undertaken to identify persons in stakeholder organisations who would be capable of participating in these working groups. The GAC will need to ratify these recommendations.

**Strategic Alignment**

This supports most directly use cases on geostatistical integration 4.1, 4.2, blue economy (use case 8.2), air navigation (use case 8.3) and improving capacity and skills of human resources (use cases 7.1, 7.3)

**Tasks:**

The working groups should be led by specialist members of the GAC and will specify practical steps and decisions to guide execution of the projects defined by the Action Plan. The groups that need forming first are:
- Standards and Guidelines: to implement technical interoperability.
- Data Content: to agree missing (or out of date) content of fundamental data themes (e.g. land use).
- Architecture: defining a distributed technical architecture for the NSDI to foster data sharing and collaboration.
- Geographical names approval (no current body)
- Innovation: including setting up a Centre of Excellence.
- Education and Capacity.

The Working Groups need to be properly established by the development of Terms of Reference (ToR) and appropriate work plans.

7.1.4. Key Performance Indicators

The following possible indicators are identified:

i. Geospatial Policy approved within 3 months.

ii. GAC and working groups established and operational within 6 months.
### Section 1: Program Management

<table>
<thead>
<tr>
<th>Action Ref</th>
<th>Title</th>
<th>GGIM Strategy Pathway Type</th>
<th>Priority</th>
<th>Description</th>
<th>Total Investment (US$)</th>
<th>Capital or Recurrent</th>
<th>Funding</th>
<th>Start Date</th>
<th>End Date</th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Secretariat Support to Geospatial Advisory Group (GAC)</td>
<td></td>
<td></td>
<td></td>
<td>486,340</td>
<td>C</td>
<td>1.00</td>
<td>6.00</td>
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<td>Note: Secretariat Support Costs only. Members assumed self-financing.</td>
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<td>1.2</td>
<td>Program and Change Management</td>
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<td>217,952</td>
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### Section 2: Strategic Actions

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<tr>
<th>Action Ref</th>
<th>Title</th>
<th>GGIM Strategy Pathway Type</th>
<th>Priority</th>
<th>Description</th>
<th>Total Investment (US$)</th>
<th>Capital or Recurrent</th>
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<th>Start Date</th>
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<th>Year 0</th>
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<th>Year 5</th>
<th>Comments</th>
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<tbody>
<tr>
<td>1.1</td>
<td>Ministerial Approval of National Geospatial Policy Governance and Institutions Medium</td>
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<td>C</td>
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<td>Use of existing resources</td>
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<td>Soliciting set of supportive letters from major stakeholders.</td>
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<td>Sensitise relevant Permanent Secretary-level representative(s) in stakeholder organisations, through a briefing session on the Action Plan.</td>
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<td>1.2</td>
<td>Establish Geospatial Advisory Committee (GAC) Governance and Institutions Medium</td>
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<td>Use of existing resources</td>
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<td>An initial &quot;summit&quot; meeting to agree priorities, based upon the final agreed action plan, may be useful.</td>
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<td>Coordination of the existing initiatives to avoid wasteful duplication of effort and ensure proper curation of their information products, without stifling innovation or their overall objectives.</td>
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<td>1.3</td>
<td>Establish Technical Working Groups Governance and Institutions Medium</td>
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<td>R</td>
<td>1.50</td>
<td>2.00</td>
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<td>Use of existing resources</td>
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<td>Standards and Guidelines: to implement technical interoperability.</td>
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<td>Architecture: defining a distributed technical architecture for the NSDI to foster data sharing and collaboration.</td>
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<td>Innovation: including setting up a Centre of Excellence.</td>
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<td>Education and Capacity Building.</td>
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</tbody>
</table>
FROM NATIONAL ..........TO SUB-NATIONAL

MUNICIPAL GEOSPATIAL ACTION PLAN Tirana, Albania
APPRAOCH: IGIF STRUCTURE FOR SUB-NATIONAL LEVEL

Step 1: Baseline Assessment
- Information Policies and Practices
- SDI Diagnostic Tool

Step 2: Impact Assessment and Action Plan
- Priorities
- City Vision
- SDI Alignment to Business Drivers
- SDI Socio-economic Assessment

Step 3: Investment and Implementation
- Municipal SDI Action Plan
- WB Investment Projects
- Key Performance Indicators

UNGGIM / WB Geospatial Framework
IGIF: MUNICIPALITY OF TIRANA, ALBANIA

• **Largest City in Albania**, recently enlarged to incorporate surrounding rural areas

• **Tirana 2030 Plan** envisages more the **doubling of size**:
  
  Current Population (est) 650,000…. Projected in 2030 1,6 million

• **Request for assistance from the City Mayor**:

  “In its daily activity, Tirana Municipality encounters endless problems - land registration is still incomplete, and service provisions, territorial planning, decentralization initiatives and tourism development are limited by the lack of current and accurate spatial and land ownership information.”
# RESULTS OF DIAGNOSTIC – CURRENT STATUS

### Policy & Strategy

<table>
<thead>
<tr>
<th>No</th>
<th>Indicator</th>
<th>Scoring guide</th>
<th>Comments</th>
<th>Score and notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Does a NSDI policy and strategy exist, and is it “aligned” by government?</td>
<td>None/ non-discussed – 0, Planned but being drafted – 25, Draft exists but Under Review – 50, Under Review – 75, Final and signed off – 100</td>
<td>Policy should include vision/mission, constraints and road map.</td>
<td>Yes – 100</td>
</tr>
<tr>
<td>1.2</td>
<td>Is there a NSDI policy and its strategy Monitoring and Evaluation Framework/ Mechanism set up?</td>
<td>None/ non-discussed – 0, Being drafted – 25, Draft exists but Under Review – 50, Under Review – 75, Exists and is being implemented – 100</td>
<td>Is there a way of checking to see if the policy, if it exists, is achieving its objective?</td>
<td>Yes – 100</td>
</tr>
<tr>
<td>1.3</td>
<td>Is the NSDI aligned to high level Government Information policies (e.g., Open Data, Statistics)?</td>
<td>None/ non-discussed – 0, Aligned to some extent – 50, Yes, fully integrated/implemented – 100</td>
<td>When the NSDI policy is designed was it done with/assiociated Government policy to mind? i.e., is it designed to support Gov’s policy – planning, implementation etc.</td>
<td>Yes – 100</td>
</tr>
<tr>
<td>1.4</td>
<td>Is there an Engagement strategy?</td>
<td>None/ non-discussed – 0, Being drafted – 25, Draft exists but Under Review – 50, Endorsed and is being implemented – 100</td>
<td>Or a communication plan including stakeholder analysis, segmentation and targeted activities</td>
<td>Yes – 100</td>
</tr>
<tr>
<td>1.5</td>
<td>Is there a policy to make geographical (and other) data accessible through “Open Data”?</td>
<td>None/ non-discussed – 0, Being drafted – 25, Draft exists but Under Review – 50, Endorsed and is being implemented – 100</td>
<td>Is there an Open Data policy, and does this recognise and include NSDI?</td>
<td>Yes – 100</td>
</tr>
</tbody>
</table>

### Governance arrangements

<table>
<thead>
<tr>
<th>No</th>
<th>Indicator</th>
<th>Scoring guide</th>
<th>Comments</th>
<th>Score and notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Is there a NSDI champion in Government?</td>
<td>None/ non-discussed – 0, Exists but active – 50, Exists and active – 100</td>
<td>General Director of ALBC is also a member of the Government – 100</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Is there a NSDI Coordinating body? (policy/ leading level)</td>
<td>None/ non-discussed – 0, Exists but active – 50, Exists and active – 100</td>
<td>This should be cross-sector, and across levels of Government. Could be officially designated or de facto.</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Is the NSDI Coordinating body represented at senior / top level in government?</td>
<td>None/ non-discussed – 0, Yes, by a senior Minister – 50, Yes, by a senior Minister – 100</td>
<td>Should someone from the co-ordinating body representing it in the top level of Government, e.g., a cabinet level minister?</td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td>Is the coordinating body involved in developing &amp; governance / Open Data &amp; Statistics governance policy?</td>
<td>None/ non-discussed – 0, Involved in some extent – 25, Considerable communication between stakeholders – 50, Yes, fully integrated / involved with tertiary policy development – 100</td>
<td>When government policy is being decided, is there expertise to speak up for the needs NSDI can play?</td>
<td></td>
</tr>
</tbody>
</table>

### Socio-economic Analysis

- **Use of NSDI:**
  - <details>
    - <summary>Table</summary>
    | Data | Governance |
    |------|------------|
    | Policy | 100 |
    | Use of NSDI | 100 |
    | Capacity Development | 100 |
    | Accessibility and Technical | 100 |
    | Socio-economic Analysis | 100 |
  </details>

### The World Bank

[Logo]

[IBRD - IDA]
### ALIGNMENT OF INTERVENTIONS TO BUSINESS DRIVERS: TIRANA 2030 PLAN

<table>
<thead>
<tr>
<th>Objective</th>
<th>Facilitated by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Government</td>
<td>Cadastral Upgrade to register state land and agricultural land on City fringe, 3D City models for valuation and taxation, participation in development of key registers, particularly completion of the National address database</td>
</tr>
<tr>
<td>Urban Regeneration</td>
<td>Upgrade of fundamental spatial datasets for master planning, formalised data sharing, spatial-enabled permitting, better real estate asset management</td>
</tr>
<tr>
<td>Accessible City</td>
<td>Spatially-enabled transport modelling, open geo-information for public mobile apps to increase public transport efficiency and minimise congestion</td>
</tr>
<tr>
<td>Flood Management</td>
<td>Overlays of critical infrastructure and population on Digital Elevation Models for smart zoning, evacuation planning and disaster recovery</td>
</tr>
<tr>
<td>Reduced Environmental Pollution</td>
<td>Using 3D models to predict air and noise pollution levels, reduction in congestion through better transport planning and building permit control</td>
</tr>
<tr>
<td>Quality Human Resources</td>
<td>Applied GIS education in local University. Improved internal communication of socio-economic benefits of a Municipal Spatial Data Infrastructure</td>
</tr>
<tr>
<td>Economic Competitiveness</td>
<td>Geovation program – stimulating innovation in the use of open geospatial information to generate new jobs in ICT and other sectors</td>
</tr>
<tr>
<td>Tourism Growth</td>
<td>Spatial-enabling market analysis and online promotion of Tirana as a destination</td>
</tr>
</tbody>
</table>
SOCIO-ECONOMIC IMPACT ASSESSMENT

**Business Benefits**
- New products and services
- Additional Jobs
- Growth of the land market
- Stimulates Tourism
- Agricultural Productivity

**Consumer Benefits**
- Fuel efficiency
- Travel time savings

**Environmental/Social Benefits**
- Improved Social Cohesion - Reduced Land-related Court Cases

**Public Sector**
- Meet European Union Accession req.
- Reduced costs from Geospatial Data Sharing
- Enhance National Key Registers
- Increased Income from Taxation
- Additional Land Value Capture
- More Responsive Master Planning
- Faster Emergency Response
ACTION PLAN: PRIORITY INTERVENTIONS AND INVESTMENTS

**Governance (€325k)**
- Management Group; Program management; Data sharing regulation

**Integrated Land Management Plan Interventions (€10.5m)**
- Implementing and enhancing Key Registers (€2.2m)
- Cadastral Upgrade (€7.8m)
- Taxation System (€375k)
- Enhanced Land Value Capture (€75k)

**Geospatial interventions (€4.4m)**
- Improved City Spatial Data Management (€1.0m)
- 3D City Model (€1.15m)
- Mobile GIS for Operations (€465k)
- Satellite Imagery-based Systems for Agri-business (€835k)
- City Open Data (€300k)
- Sponsorship of Applied GIS Professorship (€500k)
- City Geospatial Advisor (€115k)

**Total Investment: € 15.5**

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**Return on Investment (RoI)**

**Provisional benefit to cost ratio: 3:1**

Significant costs of inaction

Assumes conservative values for all impacts

Not all impacts quantified

Financial Model: project life cycle of 12 years

- 5 year implementation + 7 year use
- Based on 12% discount rate
**ACTION PLAN: PRIORITY INTERVENTIONS AND INVESTMENTS**

Implementing and enhancing Key Registers (€2.2m)

<table>
<thead>
<tr>
<th>Title</th>
<th>GGIM Strategy Pathway Type</th>
<th>Intervention</th>
<th>Total Investment (€k)</th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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</thead>
<tbody>
<tr>
<td>Section 2: ILMP Related Interventions</td>
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<tr>
<td>Key Registers</td>
<td>Governance and Institutions</td>
<td>Agree business processes with custodians and associated stakeholders, e.g. Municipalities, for maintenance of Key Registers</td>
<td>20</td>
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<td></td>
<td>Technical</td>
<td>Upgrade ICT solutions custodians and associated stakeholders to support key registers and their interoperability.</td>
<td>1,667</td>
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<tr>
<td></td>
<td>Data</td>
<td>Implement data quality assessment and improvement programs for all Key Registers. This will be incrementally implemented by geographical priorities.</td>
<td>533</td>
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</tbody>
</table>
FROM NATIONAL ........... TO SUB-NATIONAL

HO CHI MINH CITY - SMART CITY PROGRAM
Framework for Effective Land Administration

A reference for developing, renewing or strengthening Land Administration and Land Management Systems

United Nations Expert Group on Land Administration and Management
The United Nations Committee of Expert on Global Geospatial Information Management (UN-GGIM)

Draft version 0.3
March 23, 2019

The nine strategic pathways of the IGIF have been used for the development of the Framework for Effective Land Administration
IGIF AND THE VOLUNTARY GUIDELINES ON TENURE

Contents

PART I: PRELIMINARY
1. Objectives
2. Nature and scope

PART II: GENERAL MATTERS
3. Guiding principles of responsible tenure governance
   A. General principles
   B. Principles of implementation

4. Rights and responsibilities related to tenure
5. Policy, legal and institutional frameworks related to tenure
6. Delivery of services

PART III: LEGAL RECOGNITION AND ALLOCATION OF TENURE RIGHTS AND DUTIES
7. Safeguards
8. Public land, fisheries and forests
9. Indigenous peoples and other communities with customary tenure systems
10. Informal tenure

PART IV: TRANSFERS AND OTHER CHANGES TO TENURE RIGHTS AND DUTIES
11. Markets
12. Investments
13. Land consolidation and other readjustment approaches
14. Reutilization
15. Redistribution reforms
16. Expropriation and compensation

PART V: ADMINISTRATION OF TENURE
17. Records of tenure rights
18. Valuation
19. Taxation
20. Regulated spatial planning
21. Resolution of disputes over tenure rights
22. Transboundary matters

PART VI: RESPONSES TO CLIMATE CHANGE AND EMERGENCIES
23. Climate change
24. Natural disasters
25. Conflicts in respect to tenure of land, fisheries and forests

PART VII: PROMOTION, IMPLEMENTATION, MONITORING AND EVALUATION

Where the Geospatial technology could help?

Part 3: Legal recognition and allocation of tenure rights and duties: Safeguards, Public land, Informal tenure

Part 4: Transfers and other changes to tenure rights and duties: Markets, Investments, Land consolidation and other readjustments, Expropriation and compensation

Part 5. Administration of tenure: Valuation, Taxation, Regulated spatial planning, Disputes resolutions

Part 6. Responses to Climate change and emergencies: Climate change, Natural disasters, Conflicts

Part 7: Promotion, implementation, monitoring and evaluation
SUMMARY AND NEXT STEPS

➢ Completion of the **IGIF Implementation Guide**
  - First expert consultation - March 22, 23 and 25 at World Bank, Washington
  - Global/Regional consultations throughout 2019 and endorsement in April 2020

➢ Update **IGIF Templates** as per the Implementation Guide

➢ Support preparation of **Country Action Plans** at least 5 countries in 2019

<table>
<thead>
<tr>
<th>Completed Pilots</th>
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<td>Palestine</td>
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<td>Tirana, Albania - Sub-national</td>
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<td>Seashells</td>
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<td>Tanzania/Malawi</td>
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➢ **Develop/Implement training programs and capacity building** for preparation of country level action plans:
  - E-Learning/OLC course and Face to Face training through the WB Korea Office: **Colombia, Vietnam, Uzbekistan, Tanzania/Malawi, ...?**
  - Fragile, Conflict, Violence (FCV) Context (Korea TF): **Myanmar, Kosovo**
  - Disaster Risks Management Context: **Seychelles**
If you want to go fast, go alone.
If you want to go far, go together.

THANK YOU!

XIN CẢM ƠN!