

SUSTAINABLE FINANCING FOR THE IGIF: DEVELOPING A “BANKABLE” INVESTMENT PLAN



WORLD BANK GROUP

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Urban, Disaster Risk Management, Resilience and Land Global Practice

The World Bank Group

Introduction to the World Bank Group

The World Bank Group: Five Institutions



	International Bank for Reconstruction and Development (IBRD)	1944
	International Development Association (IDA)	1960



Finance to Government



1956

Private Sector



US\$ 20 million



1966

Dispute settlement/arbitration



1988

Guarantee Agency



How the World Bank is organized

Financing is allocated through the Ministry of Finance

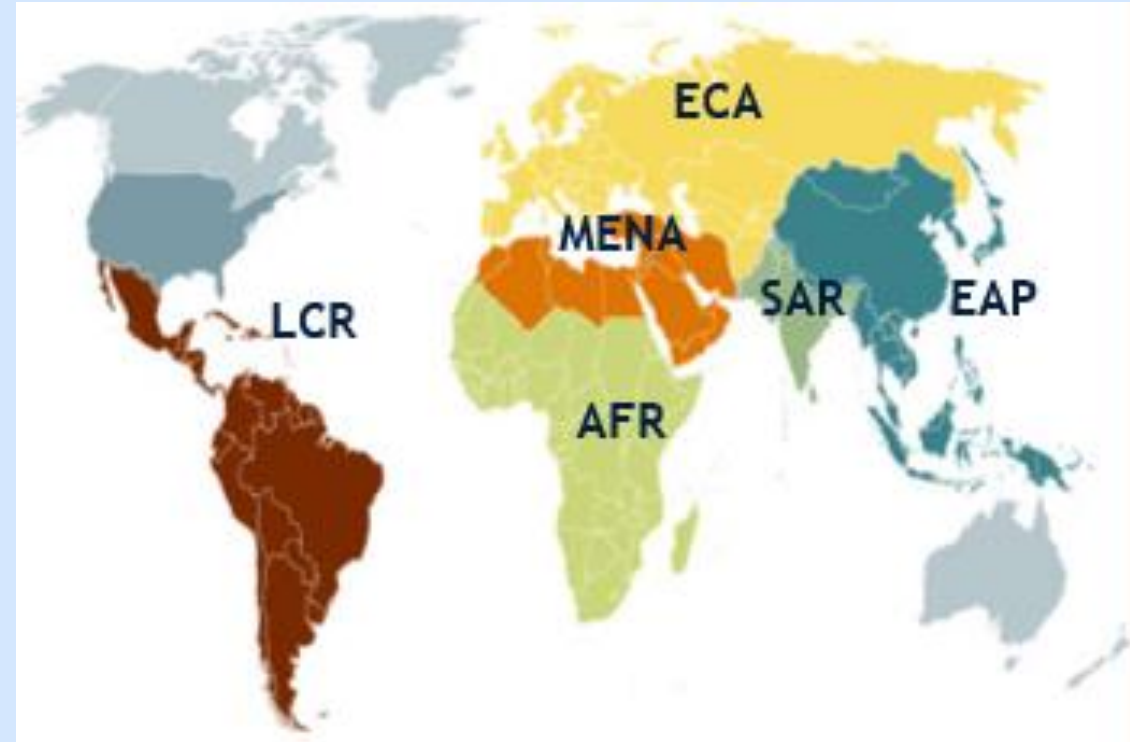
Six Regions: Regional VP and Directors

- AFRICA
- EAST ASIA PACIFIC
- EUROPE AND CENTRAL ASIA (ECA)
- MIDDLE EAST & NORTH AFRICA
- LATIN AMERICA AND CARRIBEAN
- SOUTH ASIA

Operations:

- 100+ country offices
- Sustainable Development Group
Urban, Disaster Risk Management, Resilience and Land Global Practice

Portfolio US\$ 40+ billion



Country Partnership Strategy/Framework: defines investment priorities

The screenshot displays the World Bank website for Mongolia. At the top, the navigation menu includes 'WHO WE ARE', 'WHAT WE DO', 'WHERE WE WORK' (underlined), 'UNDERSTANDING POVERTY', 'WORK WITH US', and 'COVID-19' (highlighted in red). The main header features the World Bank logo and the text 'Where We Work / Mongolia' on the left, and 'This page in: English | Монгол' on the right. The main content area has a dark background with a circular image of a young girl on the left. The title 'The World Bank in Mongolia' is centered, followed by a paragraph: 'Over the past 30 years, Mongolia has transformed into a vibrant democracy, with treble the level of GDP per capita and increasing school enrollments, and dramatic declines in maternal mortality and child mortality.' Below this is a navigation bar with three buttons: 'Mongolia Home', 'Overview' (highlighted with a white arrow), and 'COVID-19'. The 'Overview' section is active, showing sub-sections 'Context', 'Strategy', and 'Results'. A 'RELATED' section on the right lists 'Performance and Learning Review (PLR)' and 'Mongolia Country Partnership Strategy, 2021-2025' (highlighted in yellow). A partial sentence at the bottom reads '... has transformed into a vibrant'.

Country Partnership Framework: identify role of geospatial information

Document of
The World Bank Group

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Report No. 132141-MN

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

INTERNATIONAL FINANCE CORPORATION

MULTILATERAL INVESTMENT GUARANTEE AGENCY

COUNTRY PARTNERSHIP FRAMEWORK

FOR

MONGOLIA

FOR THE PERIOD FY21-FY25

63. The Bank will also support the growth of Mongolia's digital economy..... **the ambitious goal of completing the eMongolia initiative in seven years. The new government has further prioritized the digital agenda. The pipeline Digital Transformation project....to build Mongolia's digital and ICT industry for economic diversification and resilience.**

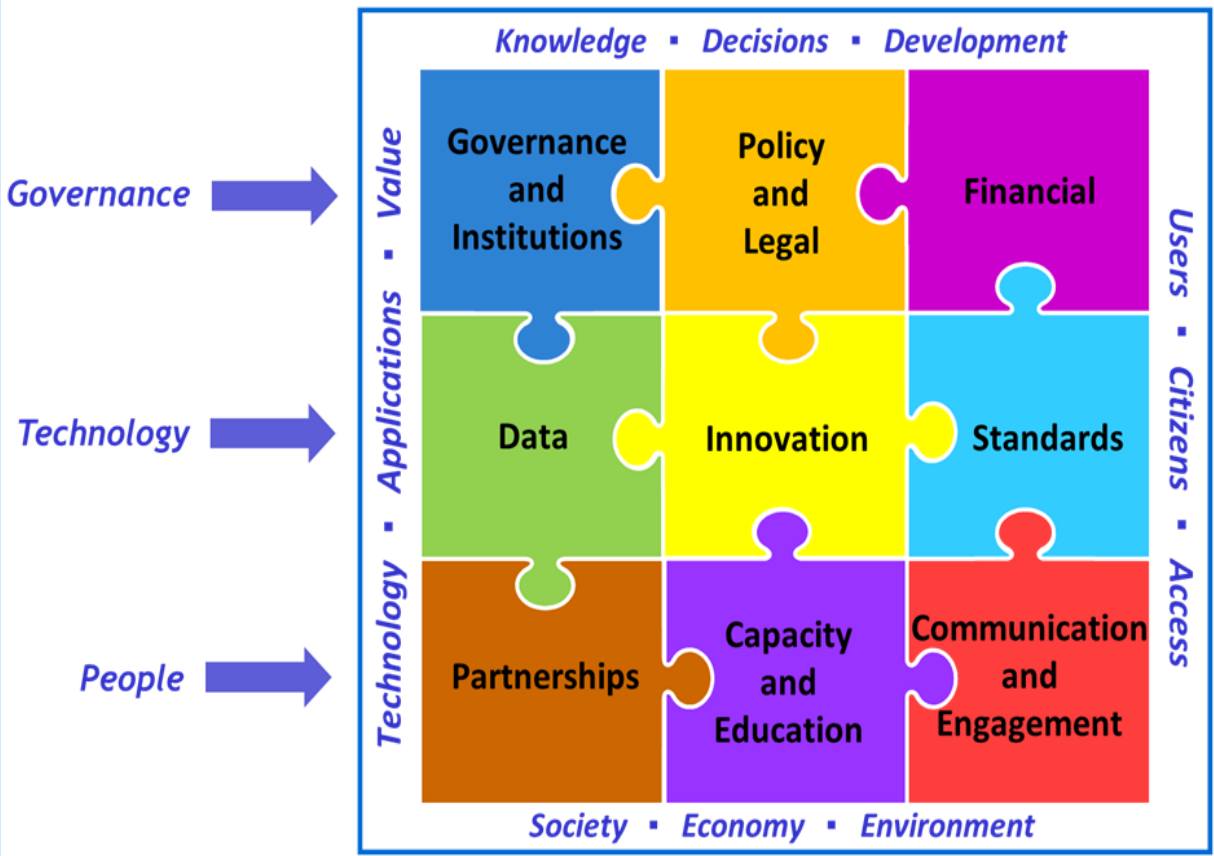
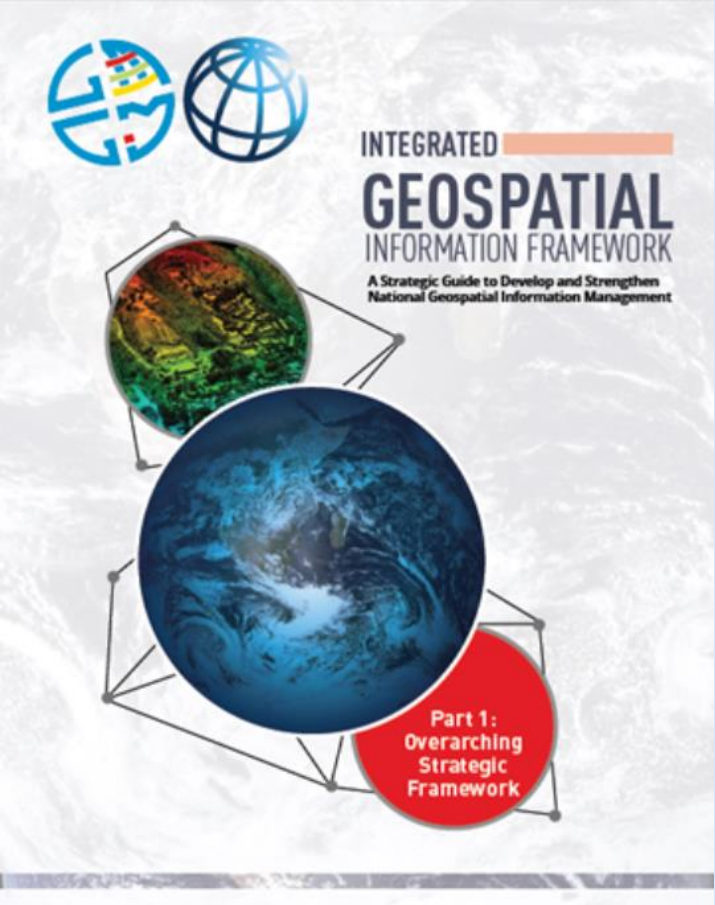
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Work with Countries: Financing Geospatial Information and Infrastructure

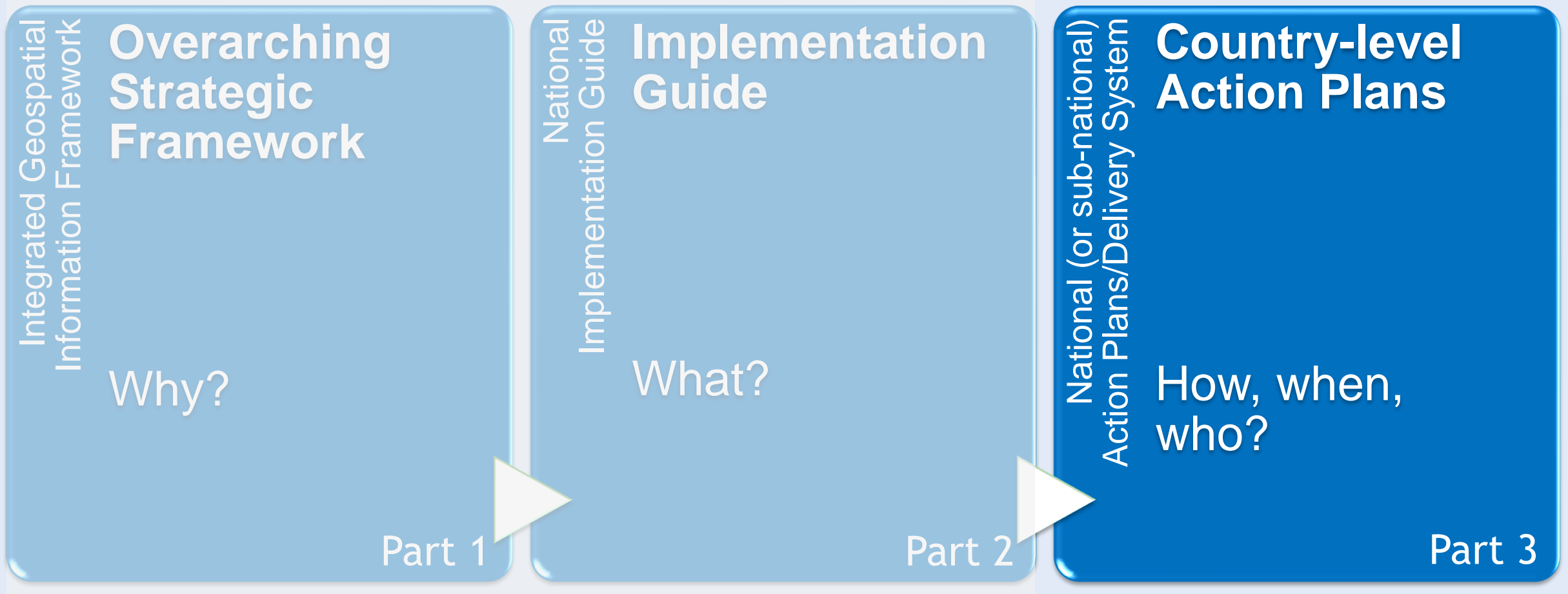
Kathrine Kelm, Dr. Lesley Arnold, Andrew Coote, Elmer Mercado, Bayarmaa Enkhtur, Hong Thu Thi Nguyen, Thai Quoc Ngo, Somunin Nhean, Enkhbayar Batmunkh, The Dzung Nguyen, Dr. Robin McLaren, Romyana Tonchovska, Simon Wills

Integrated Geospatial Information Framework (IGIF)

The IGIF was adopted by member states in August 2018. It provides a holistic view of geospatial information management through 9 Strategic Pathways.



OPERATIONALIZING THE IGIF



Adopted by UNGGIM August 2018

Adopted by UNGGIM August 2020

World Bank - toolkit for task teams and gov. counterparts

IGIF Country Level Implementation: Templates and Tools

Open and Available on the World Bank Open Learning Campus website

Diagnostic/Baseline Assessment

INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

[Template]

Baseline Assessment

World Bank Implementation Methodology

Business case

- Alignment to Policy/ Business Drivers
- Socio-Economic Impact Assessment**

INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

[Template]

Geospatial Alignment to Policy Drivers

World Bank Implementation Methodology

INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

[Template]

Socio-Economic Impact Assessment

World Bank Implementation Methodology

Action/Investment Plan

INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

[Template]

Action Plan

World Bank Implementation Methodology

Use Cases - relationship to sectors and investments required

SECTORS

Urban Planning, Transport, Land, Environment, Health, Law, Disaster Management, Energy, Tourism, Community Services, Mining, Security, Government Administration, Water, Agriculture, **Marine**

USE CASES

Event Management, Mining Cadastre, Environmental Permitting, Emergency Response, Crop Production, Rangeland Monitoring, Transport Modelling, Traffic Operations, Intelligent Transport Network, Waste Management, Eco-tourism, Crime Mapping, Farm to Table, Road Safety, State Land Cadastre, Business Registration, Energy Sourcing, Location-based Services, Freehold Land Cadastre, Street Works, Census, Valuation, SmartCities, eGovernment, Community Services, Livestock Management, National Development Plan, Ride-sharing Apps, Parking, Earthquake Monitoring, Retail Apps, Real Estate Apps, Disease Monitoring

ACTIONS/INVESTMENTS

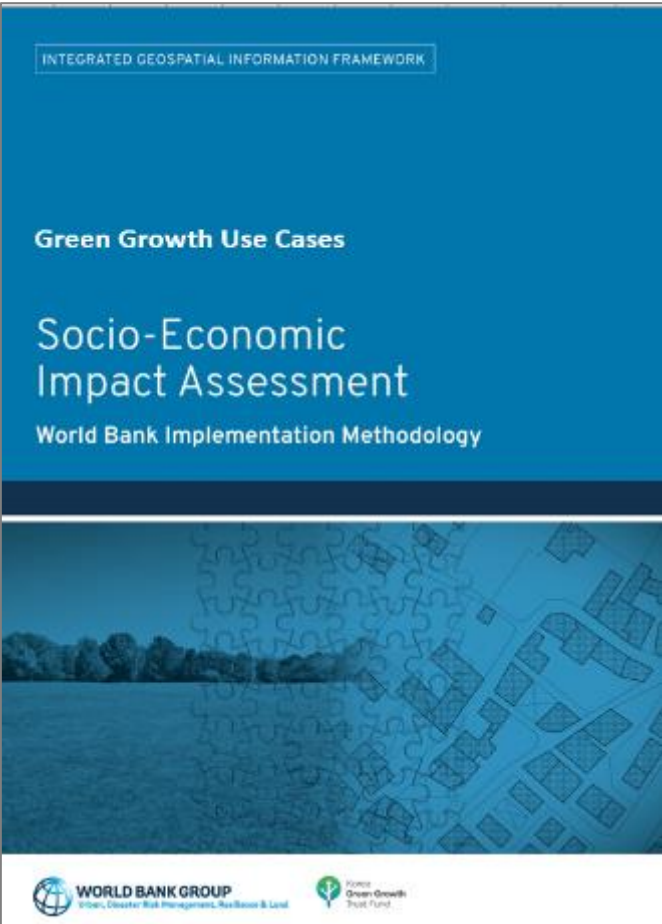
- Positioning e.g. GNSS Network
- Imagery Acquisition e.g. Satellite and Drone Imagery
- Data Capture e.g. Land and Building cadastre
- Data Integration e.g. Street Address
- Data Sharing Geoportal/Policy
- Business Intelligence e.g. AI and Machine-learning Applications

Socio-Economic Impact and Benefits: Mongolia example

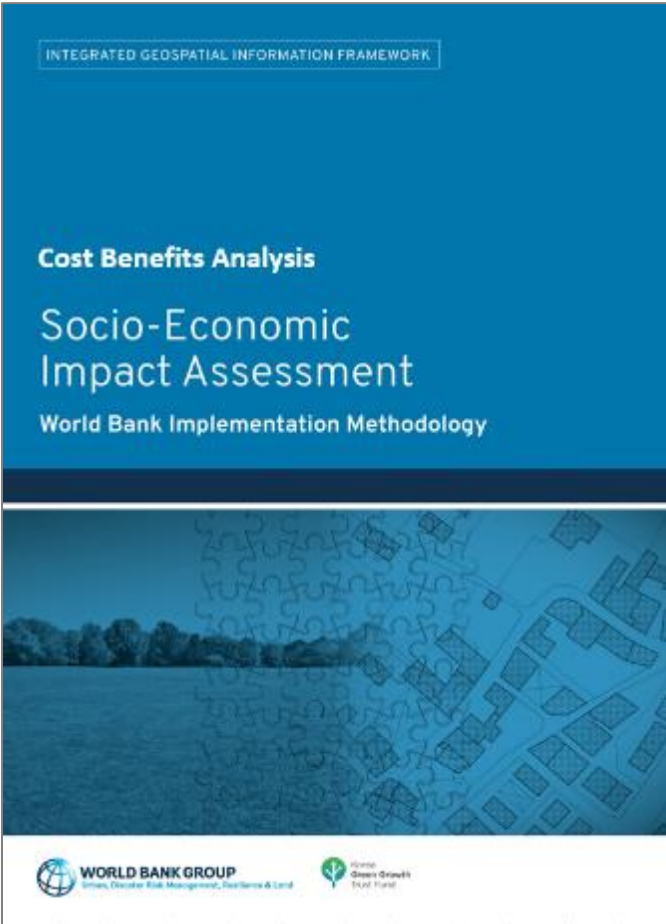
Qualify/Quantify Impacts and Benefits across Public and Private Sectors

Ref	Impact	Evidence	Methodology	Benefit Recipients	Net Discounted Value of Benefits	
					Billion MNT	US\$ Million
1	National geospatial data sharing (addresses)	ALAMGC cost estimates and current data duplication	Multiplier effect of information sharing	Govt	12.0	4.5
2	Reduced Loss and Damage during Disasters	Substantial Case Study Expert predictions of reduced costs for future Forest Fires, weather and other natural disasters	Reasoned extrapolation from case study, statistics and expert opinion	Indirect	71.5	26.8
3	Faster emergency response in case of building fires, leading to savings in damage	Statistics supplied by NEMA. Global Geospatial Value studies	Reasoned estimation of potential savings, backed by expert opinion.	Indirect	14.5	5.4
4	Increased land use fees and taxes	Current revenues Volumes where premium rates apply	Estimation of proportions of land where premium rates of fees or taxes apply	Revenue	71.5	26.8
5	Increased collection of Property Tax	WB Study in Ulaanbaatar	Predictions of increased revenues for City Council	Revenue	7.1	2.6
6	Land Market Growth	Current real estate market size, Comparable study in Bulgaria	Local market analysis, validated by recent comparative study	Indirect	9.3	3.5
7	Urban Planning efficiencies from 3D City Model	In-depth EuroSDR study for Republic of Ireland	Benefits Transfer, validated by local expert opinion	Govt	6.9	2.6

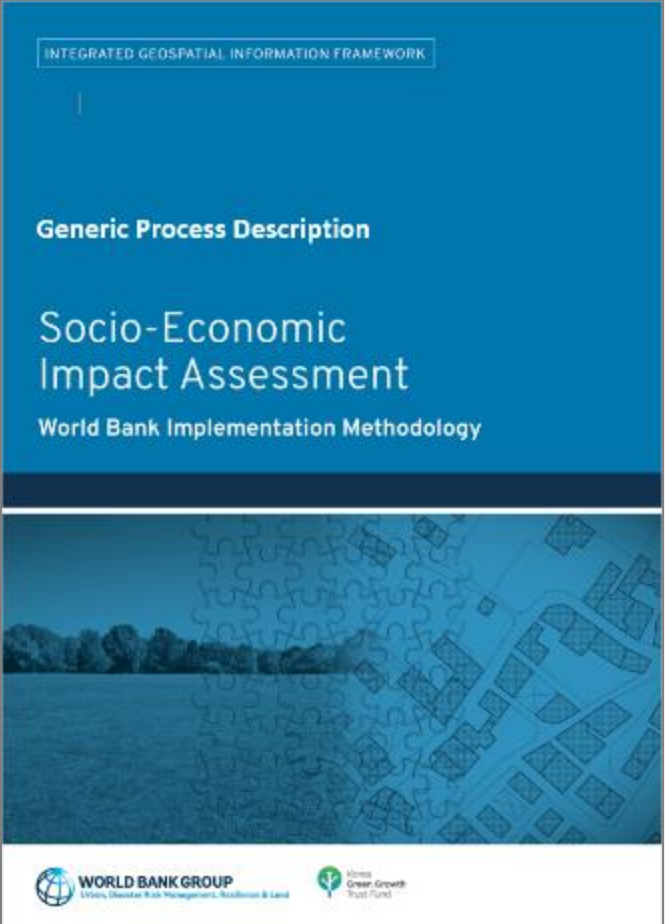
Additional Tools for the Socio-economic Impact Assessment



Green Growth Use Cases



Cost Benefits Analysis



Generic Process Description



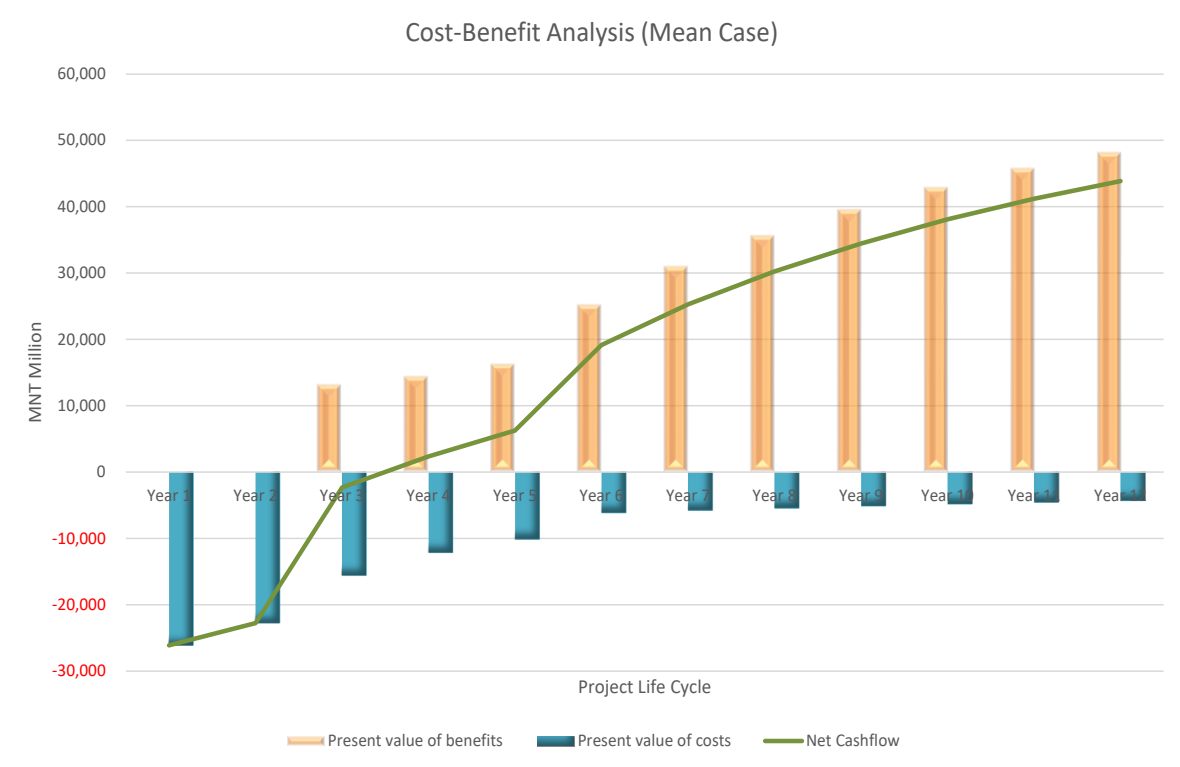
3. Socio-Economic Impact Assessment: Financing Justification

Benefit to Cost Ratio: 2.5: 1
Return on Investment: 250%
Net Present Value: US\$ 66,1 million

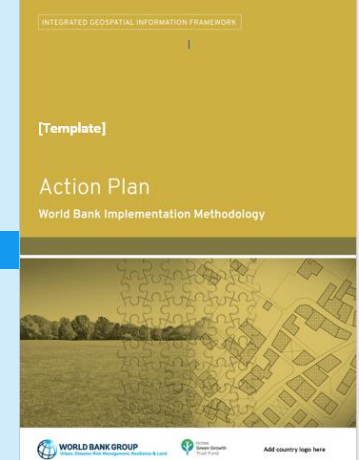
World Bank Infrastructure Project Model:

- Project Life Cycle:
 5 years development
 7 years operation
- Discount Rate: 6%

<p>Government Efficiency</p> <p>+</p> <p>Business Growth</p> <p>+</p> <p>Social and Environmental Benefits</p>	<p>Reduced operating costs by having a common National address database</p> <p>12 Bn MNT (\$4.5 Mn)</p> <p>Data Sharing </p>	<p>Increased land use fees from complete land parcel register</p> <p>72 Bn MNT (\$26.6 Mn)</p> <p>Fee Collection </p>	<p>Improved Commercial Property Tax Collection</p> <p>7 Bn MNT (\$2.1 Mn)</p> <p>Tax Revenues </p>
	<p>Reduced survey costs for mining, construction, utilities and transport</p> <p>49 Bn MNT (\$18.3 Mn)</p> <p>Geodetic Reference Stations </p>	<p>New jobs directly linked to geospatial globally estimated at 4 million, scaled to Mongolia</p> <p>17 Bn MNT (\$6.2 Mn)</p> <p>Employment </p>	<p>Land market growth stimulated by auctions of state land</p> <p>9 Bn MNT (\$3.5 Mn)</p> <p>Land market </p>
	<p>Improved response to disaster events</p> <p>89Bn MNT (\$33.2 Mn)</p> <p>National Emergency Management </p>	<p>Better and quicker urban planning decision making</p> <p>7Bn MNT (\$2.6m)</p> <p>Employment </p>	<p>Global decrease in CO2 emissions</p> <p>1686m Tonnes</p> <p>Climate Change </p>



4. Action Plan Priority Investments- detailed investment plan



Example from Colombia IGIF Action Plan

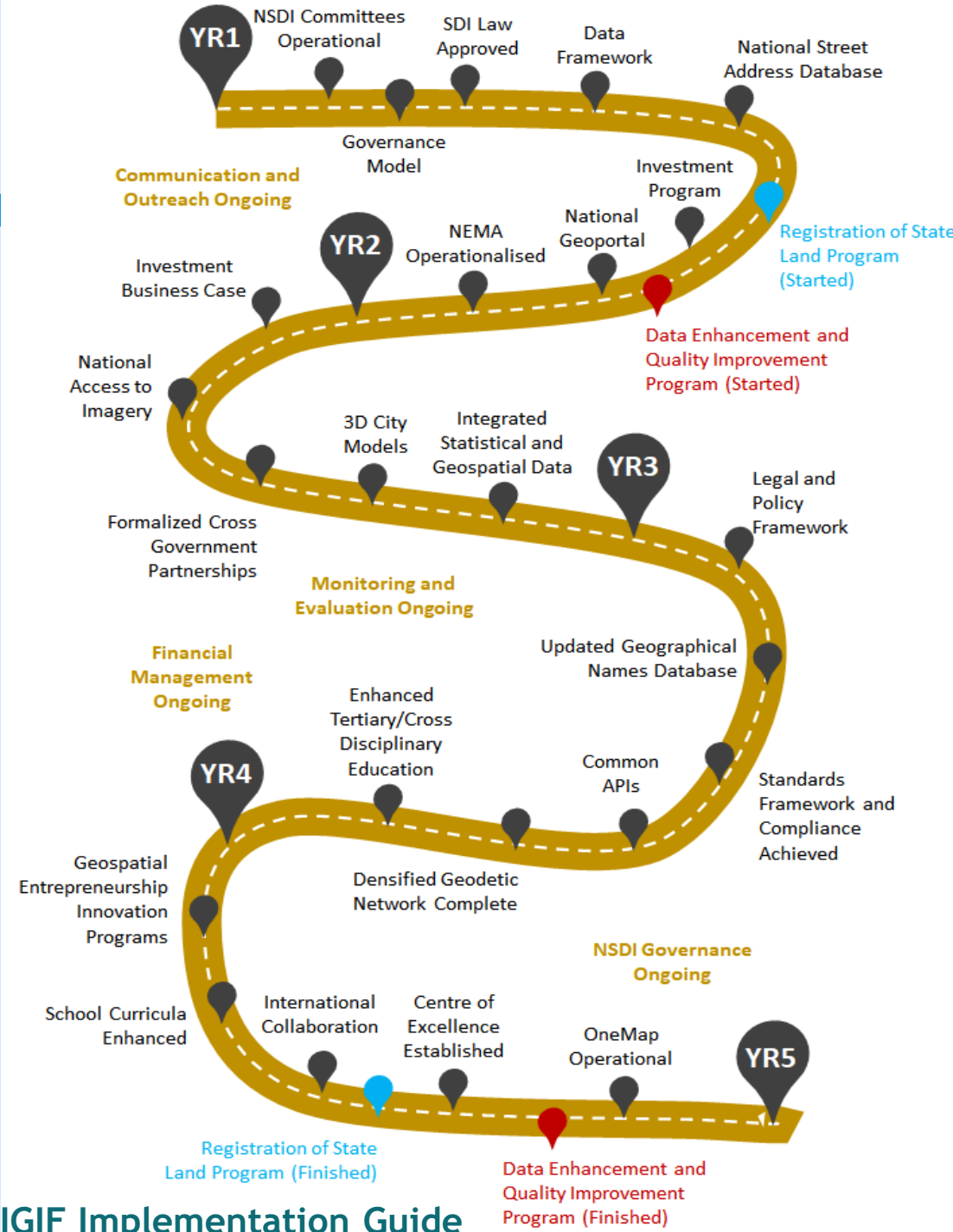
Ref	Task Type	IGIF Pathway	Priority	Description	Financial			Time Frame					
					Total Investment (US\$)	Capital or Recurrent	Funding Source	Year 1	Year 2	Year 3	Year 4	Year 5	
		Financial											
3.1	Create an NSDI Business Model		Med		35,000	C	WB	■					
4.1	Create inventory of existing data	Data	High	See also overlap with 6.3	30,000	C	WB	■					
4.2	Train and Guide data owners to complete metadata		High		50,000	C	Gov		■				
4.3	Define fundamental dataset & custodians		High	Consultancy advised	50,000	C	Gov	■					
4.4	Invest in data themes, prioritised to demand		High	Depending on theme and demand									
	Cadastral Parcels - MPC		High	MPC Subcomponent 3.2	19,500,00	C	WB	■	■	■	■	■	■
	Functional Areas		High	Consultancy advised	500,000	C and R		■	■	■	■	■	■
	BaseMap		High	Consultancy advised	500,000	C and R		■	■	■	■	■	■
	Address Database		Med	Consultancy advised	500,000	C and R		■	■	■	■	■	■
	Security / Safety		High	Consultancy advised	50,000	C and R		■	■	■	■	■	■
4.5	Create digital archive of historical data and imagery		Low	Could be a PPP	500,000	C and R			■	■	■	■	■
		Innovation											
5.1	Ensure real time GNSS corrections are available		High	System testing	20,000	C		■					
5.2	Evaluate imagery for updated topographic base maps		High		20,000	C		■					
5.3	Develop a Geospatial Centre of Excellence (CoE)		Med	Assumes Head, 2 x trainers	250,000	C and R		■	■	■	■	■	■
5.4	Assess Geospatial Innovation start-up scheme		Med		20,000	C		■					
5.5	Improve access to key registers	Demonstrator	Med		50,000	C			■				

4. IGIF Action/Investment Plan: Mongolia Example



Vision: *Geo-driven eGovernment and innovation that empowers efficient and effective use of geospatial information towards national sustainable development and economic growth.*

Financing through the WB- financed Digital Development Project: 2022



IGIF IMPLEMENTATION USING WB METHODOLOGY



Source: World Bank



Food and Agriculture Organization of the United Nations



Kartverket



Bundesamt für Kartographie und Geodäsie

NGI
Nationaal Geografisch Instituut



IGN
Institut Géographique National

States of Jersey

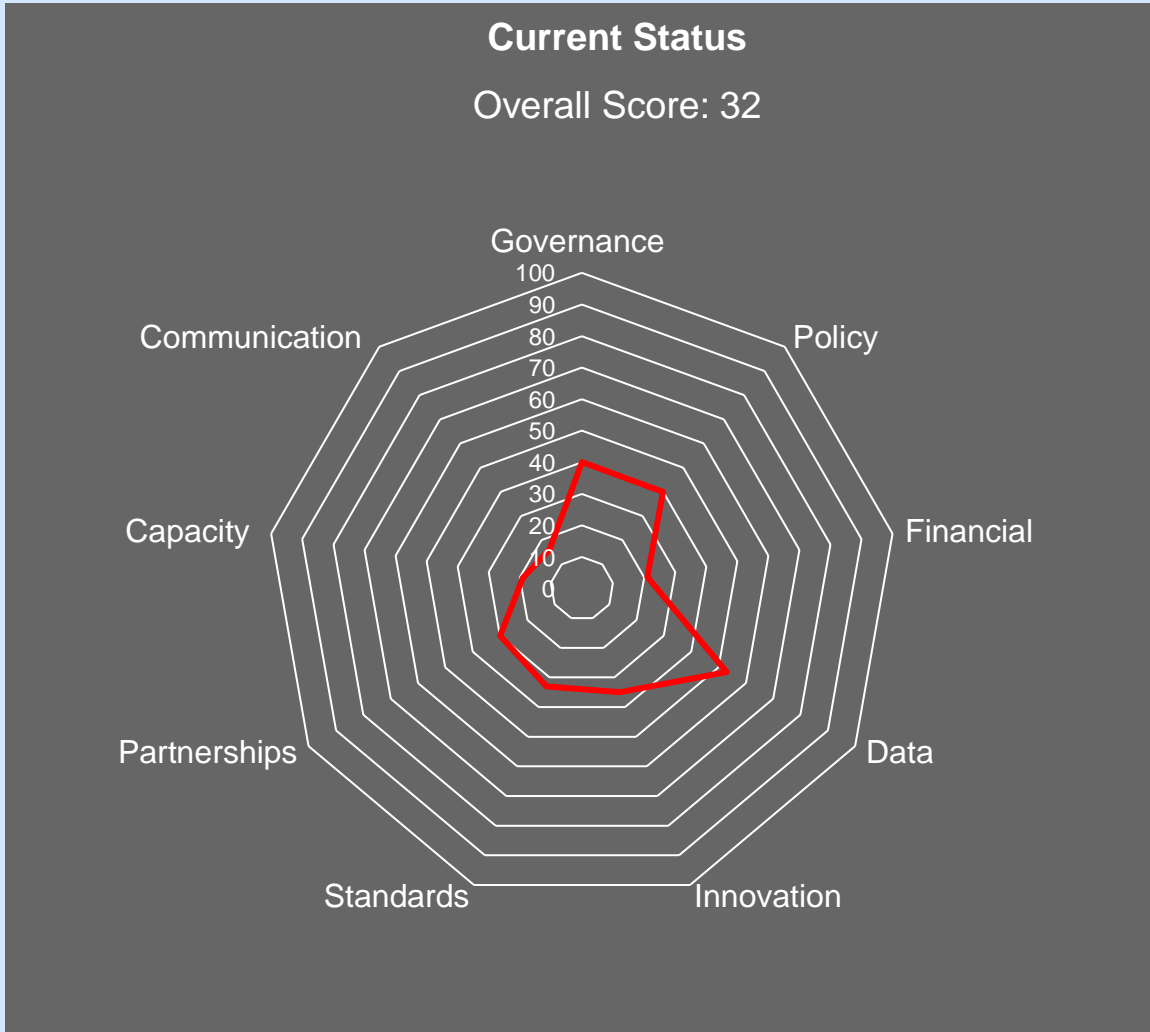


consultingwhere
Maximising the value of location information



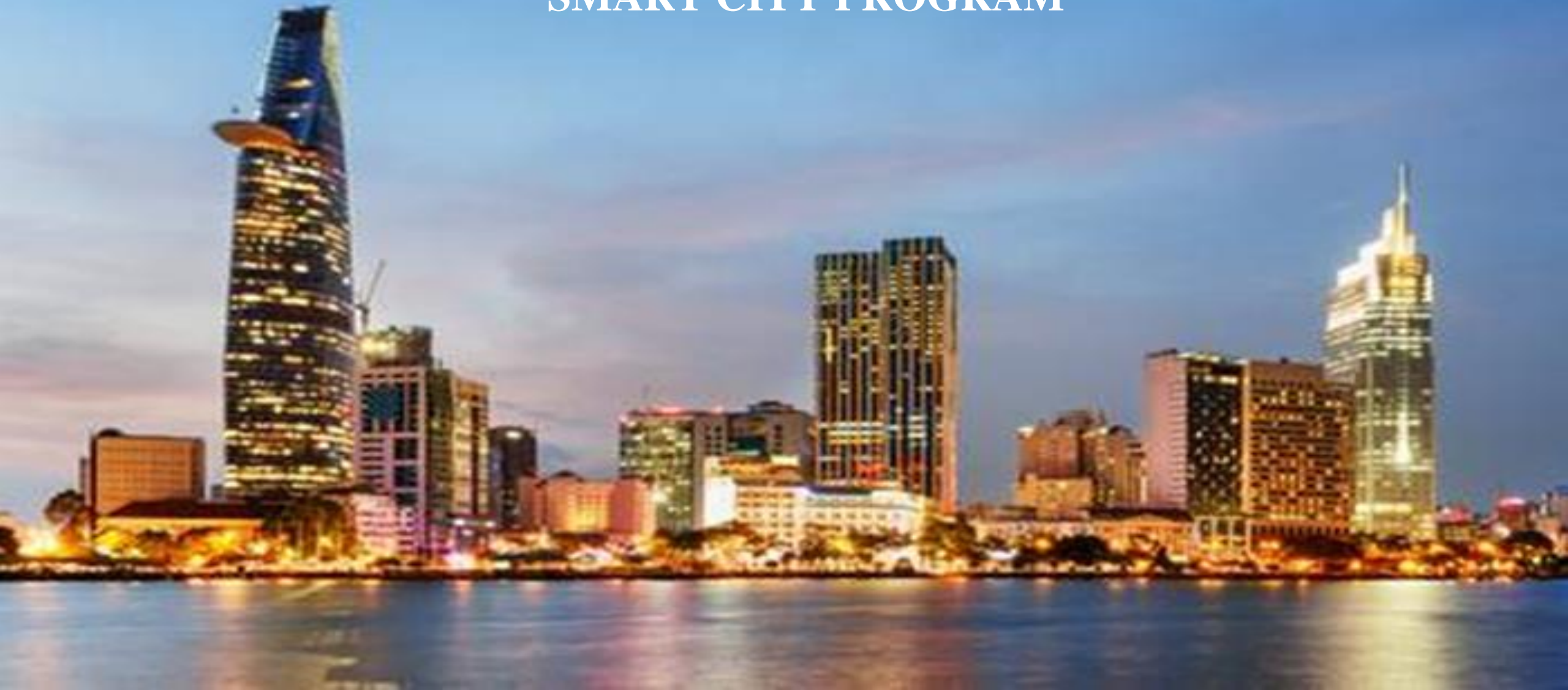
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Vietnam- National, Local and Sectoral Engagement 2018-2022



- **2018-2019: IGIF Diagnostic Tool was conducted to evaluate the current status of Vietnam's Geospatial Information Management (GIM)**
- **\$120m investment project- digital transformation of land sector information and services**
- **Technical Assistance for Land Policy Reform**
- **Expanding support for Sub-national programs**

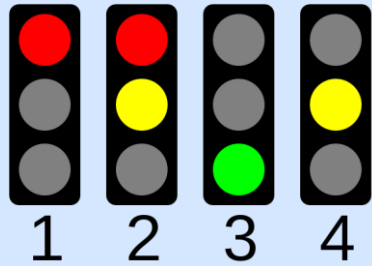
IGIFFROM NATIONAL TO SUB-NATIONAL
**HO CHI MINH CITY – DIGITAL DEVELOPMENT AND
SMART CITY PROGRAM**



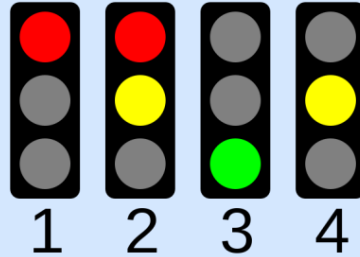
HO CHI MINH CITY: ASSESSMENT FRAMEWORK

LINKING DIGITAL GOVERNMENT + OPEN DATA + MUNICIPAL SDI INFRASTRUCTURE

DIGITAL GOVERNMENT



OPEN DATA

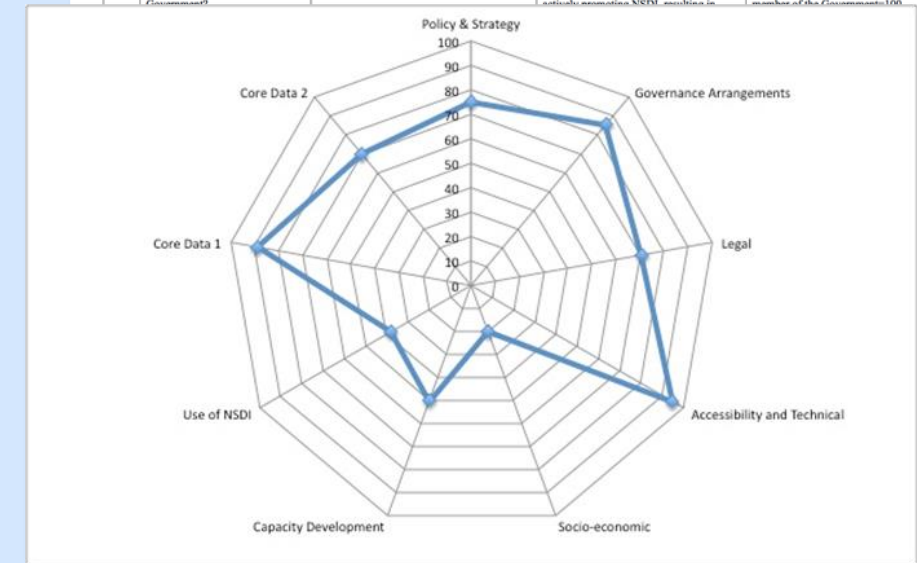


MUNICIPAL SDI

NSDI Diagnostic Tool Template: Guide to Scoring Indicators

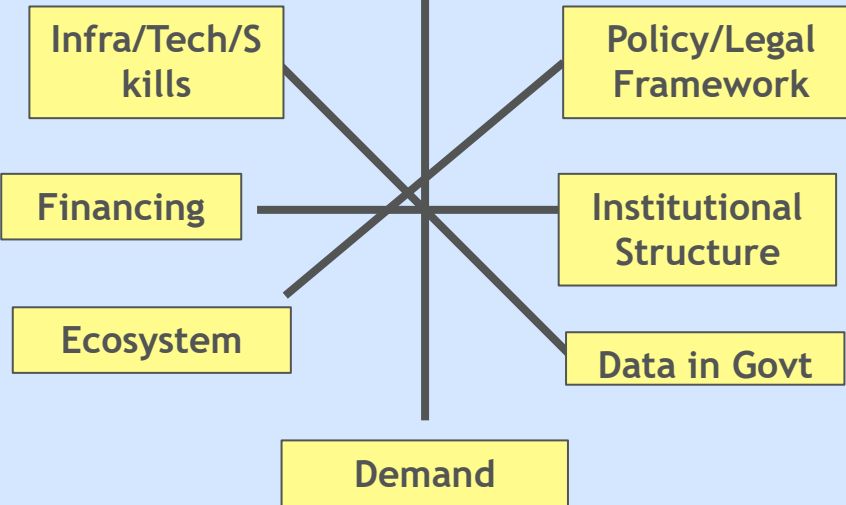
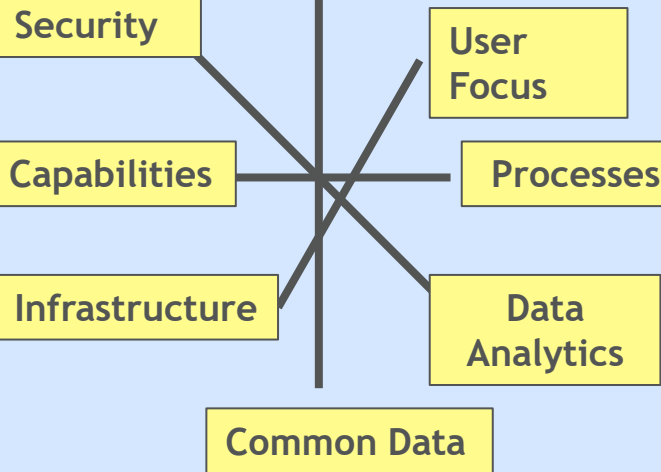
No	Indicator	Scoring guide	Comments	Score and notes
1.1	Does a NSDI policy and/or strategy exist, and is it "signed off" by government?	None / not discussed=0; Planned /being drafted=25; Draft exists=50; Under Review=75; Exists and signed off=100	Policy should include vision / mission statements and road map.	Yes=100
1.2	Is there a NSDI policy and/or strategy Monitoring and Evaluation Framework / Mechanism set up?	None=0; Being drafted=25; Draft exists=50; Under Review=75; Exists and is being implemented=100	Is there a way of checking to see if the policy, if it exists, is achieving its objectives?	Yes=100
1.3	Is the NSDI aligned to high-level Government information policies (e.g. e-Government, Open Data, Statistics)?	No=0; Aligned to some=50; Yes, fully integrated/harmonised=100	When the NSDI policy is designed was it done with overall Government policy in mind? – i.e. is it designed to support Gov' policy – in planning, implementation etc	Yes=100
1.4	Is there a NSDI Engagement strategy?	None=0; Being drafted=25; Draft exists=50; Exists and being implemented=100	Or a communication plan? including stakeholder analysis, segmentation and targeted activities.	Yes=100
1.5	Is there a policy to make geospatial (and other) data accessible through "Open Data"?	None=0; Being drafted=25; Draft exists=50; Under Review=75; Exists and is being implemented=100	Is there an Open Data policy, and does this recognise and include NSDI?	Yes=100

No	Indicator	Scoring guide	Comments	Score and notes
2.1	Is there a NSDI "champion" in Government?	None=0; Exists=50; Exists and active=100	Is there a clearly identifiable individual(s) actively promoting NSDI activities in Government?	General Director of ALRC is also a member of the Government=100



Leadership

Leadership












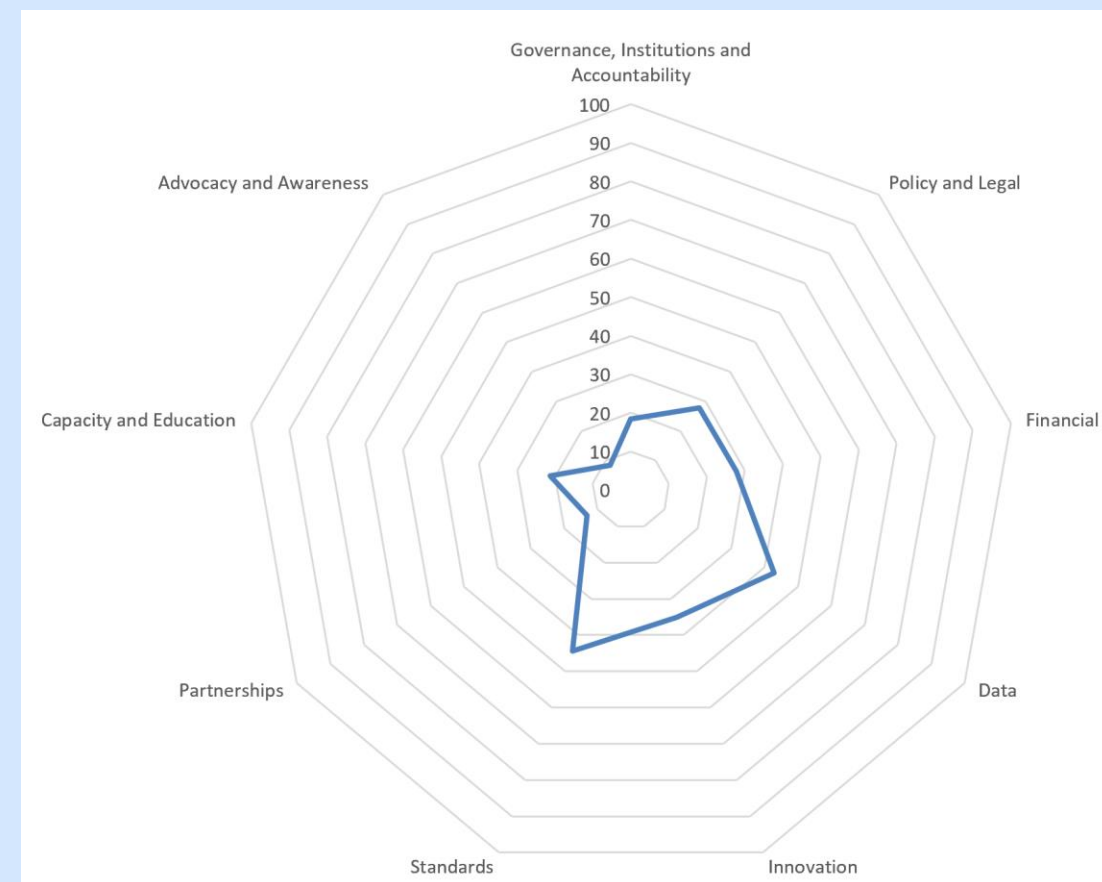
IGIF Sectoral Level Focus : National Land Policy Reform 2022-2023

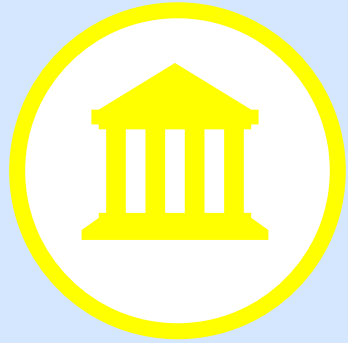


- New Land Policy Directive requires a fully centralized, digital Land Information System and National Land Database by 2025; New Land Law to be approved in 2023.
- Current World Bank financing covers approx. 30% of the country... other 60%??
- The WB team supporting the client to prepare a National Land Information System Action/Investment plan:
 - To Complete the NLIS
 - To adopt a sustainable business model for the future (PPP, self-financing, national investment, decentralized investment)

Framework for Effective Land Administration: Nine Strategic Pathways

FELA Goals	FELA Requirements	FELA Pathways
Transparency and accountability increased	Accountable and transparent governance	Governance, Institutions and Accountability* 
Gender-responsive and inclusive of vulnerable groups	Inclusive and recognizes all forms of tenure	Policy and Legal 
Affordable investments and economic return assured	Affordable with sustainable business models	Financial 
Reliable data and service quality attained	Data maintained, secure and not duplicated	Data 
Responsible and innovation oriented	Upgradable systems and approaches	Innovation 
Interoperability and integration supported	Considers internationally agreed standards	Standards 
Cooperation, partnerships, and participation leveraged	Strengthens partnerships and supports collaboration	Partnerships 
Capacity, capability, knowledge transfer and exchange attained	Facilitates capacity development and knowledge transfer and exchange	Capacity and Education 
National engagement and communication enhanced	Advocates for effective land administration	Advocacy and Awareness* 





- **Governance, Institutions and Accountability**: to understand: (i) the existing leadership and level of commitment to the NLIS; (ii) the governance models (roles and responsibilities) currently in place and the various institutional arrangements that need to be considered for the ongoing NLIS operations; (iii) the value proposition of the NLIS to stakeholders and their strategic needs and use cases moving forward; and (iv) the accountability and authorization processes that need to be considered to achieve high-level endorsement for their (the stakeholder's) participation in the NLIS.



- **Policy and Legal**: to understand: (i) the existing policy and legal environment associated with the existing NLIS infrastructure; (ii) the policy gaps and legal interoperability issues that need to be addressed to enable data sharing; (iii) the existing institutional mandates and their impact on the effective, efficient and secure management of the future NLIS; and (iv) the scalability and adaptability of the existing legal and policy framework in respect to emerging land information technologies and innovations.



- **Financial**: to understand: (i) the current NLIS business and operating models in place across Vietnam from national to provincial level; (ii) the current investment process and how benefits, both financial and non-financial, are monitored; (iii) the NLIS use cases and how they make for a compelling business case for a MPLIS; (iv) the avenues available to achieving a financially sustainable NLIS including the market for land information services; (v) the policies that will either support or negatively impact on the future business operating environment.



- **Data**: to understand: (i) how LIS data is currently collected and managed and how it can be integrated within the future NLIS; (ii) the level of accuracy, currency, completeness of existing records and data pertaining to the LIS infrastructure; (iii) how the data is organized, planned, acquired, integrated, curated, published and archived, (iv) the primary users of the data (e.g., land administration agencies), how they consume data and use LIS services, and if they on-supply data in the same or different format.



- **Innovation**: to understand: (i) the level of technology maturity in LIS infrastructures at a national and provincial level with a view to gauging where innovation, process improvement and/or leapfrog opportunities need to occur; (ii) existing and planned projects involving LIS infrastructure; (iii) appetite for MPLIS infrastructure and national leadership and coordination through MONRE; and (v) existing support networks and systems that are stimulating innovation.



- **Standards**: to understand: (i) existing schema and specifications for digital data associated with the LIS infrastructure; (ii) the existing standards used for IT infrastructure and level of compliance; (iii) the level of interoperability of current software systems and data; (iv) whether a community of practice on standards exists, and how this community can be leveraged at the national level.



- **Partnerships:** to understand: (i) the existing LIS partnerships in place and the agreements used to establish these partnerships, (ii) the appetite for building new partnerships including collaborations between government agencies and with provinces, public-private-partnerships, regional cooperation, and research and development with academic sector etc.; and (iii) the level of international engagement and participation anticipated in MPLIS program, as well as the alignment of the UN-GGIM Framework for Land Administration (FELA).

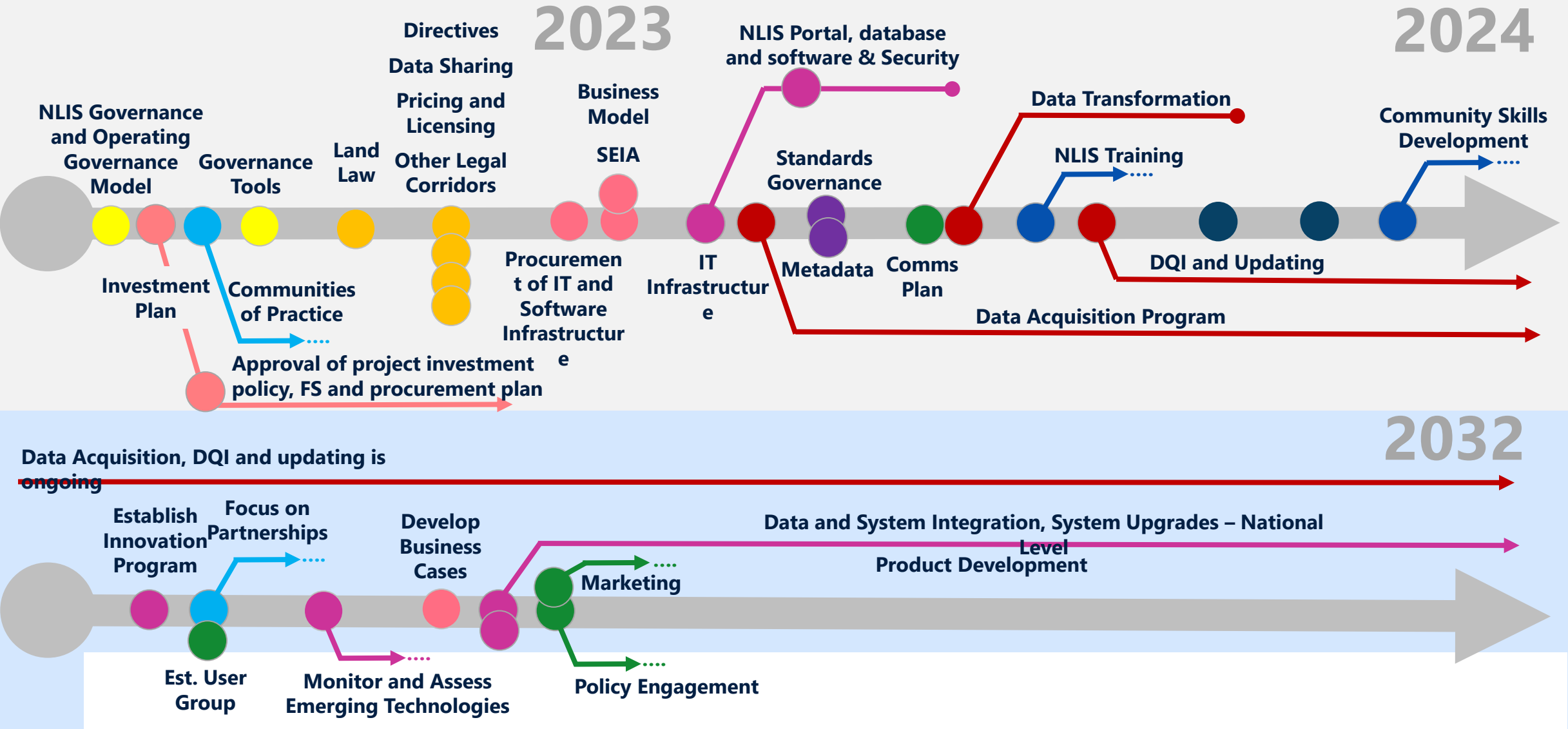


- **Capacity and Education:** to understand: (i) the level of LIS understanding; (ii) the current secondary and tertiary education opportunities in LIS and related geospatial science; (iii) the level of LIS competency within each stakeholder organization; (iv) the capacity gaps as seen by the stakeholders themselves; and (v) the level of entrepreneurship in the government and private sector - where LIS services are available.



- **Advocacy and Awareness:** to understand: (i) the existing communication methods and plans in place to raise awareness of the MPLIS – its value and application; (ii) the types of existing advocacy and outreach programs; and (iii) the current synergies and levels of trust between stakeholders – particularly between government (at all levels), private sector, academia and the user community.

Action Plan and Implementation Schedule- to guide financing and investment plan



Financing IGIF Implementation: World Bank Project Cycle

Easiest and 'immediate': Add in to or Guide existing projects

- Land Administration: **Colombia, Moldova, Guyana, Serbia**
- Disaster Risk Management: **Seychelles**

Projects in the Pipeline (12-24 months)

- Georgia: Irrigation and Land Administration \$100+m
- Nicaragua: land administration
- Liberia (analytics under existing land project; new financing under urban project)
- Mongolia: Digital Development project – IGIF reference in Project Appraisal Document

New Financing: 18+ months

- Most projects start with analytics (IGIF tools/Templates provide basis)
- Senegal

Thank you!

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Integrated
Geospatial
Information Framework

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Socio-economic Impact
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