BUILDING PARTNERSHIPS: UNDERSTANDING THE WORLD BANK

SOUTH WEST PACIFIC HYDROGRAPHIC COMMISSION
FEBRUARY 2023

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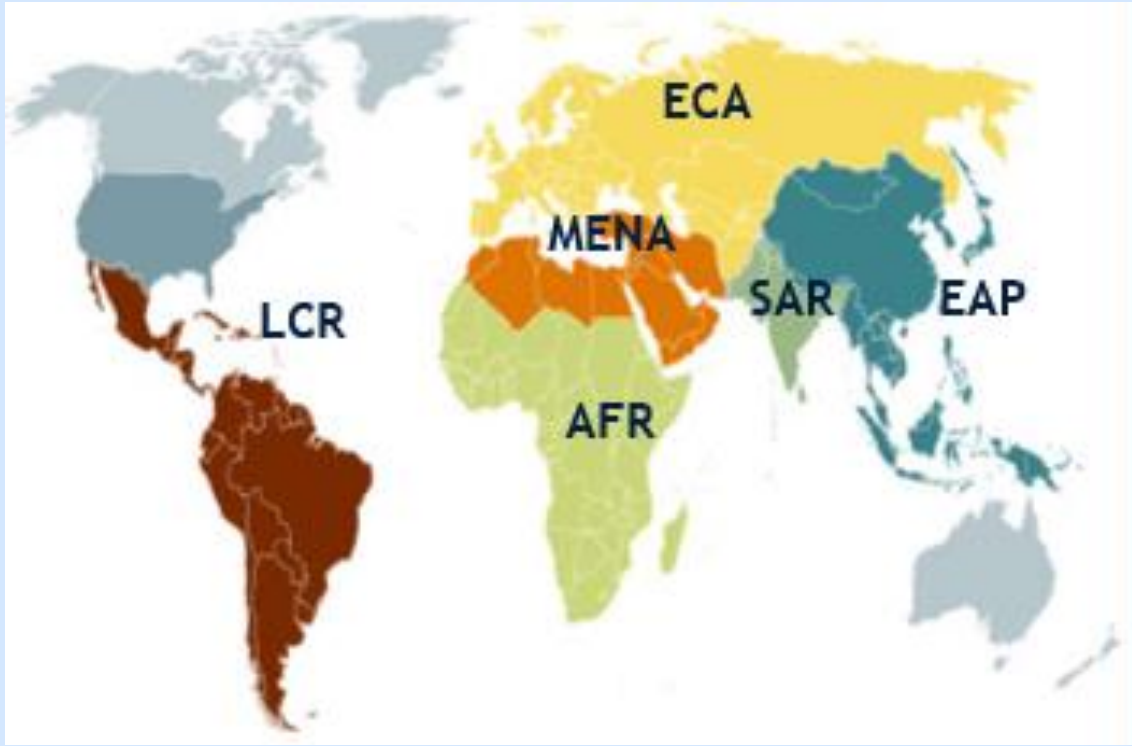
Kathrine Kelm
Senior Land Administration Specialist
Land and Geospatial Team
Urban, Disaster Risk Management, Resilience and Land Global Practice

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

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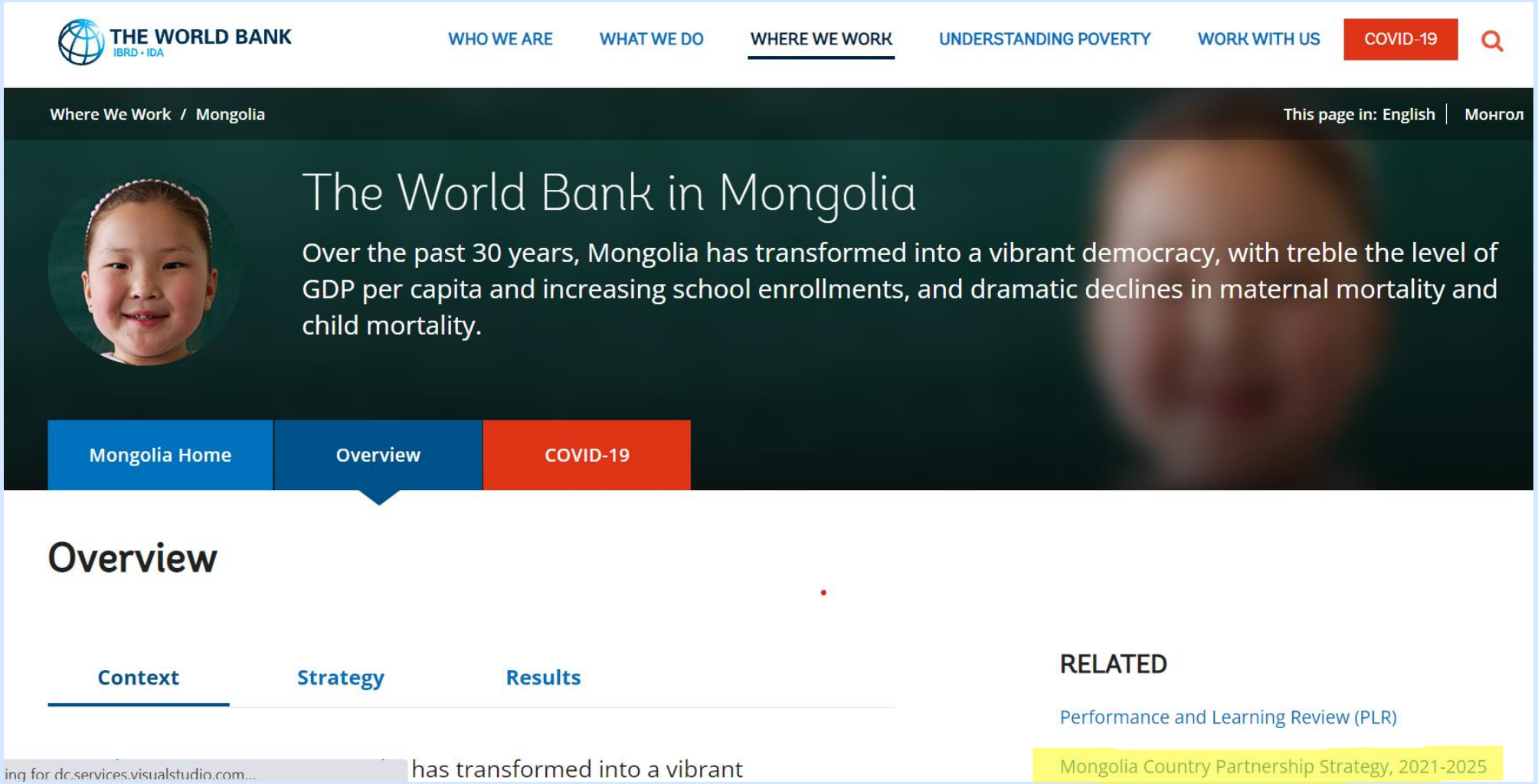
Country Partnership Strategy/Framework: defines investment priorities



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The World Bank Group

Work with Countries: Financing Geospatial Information and Infrastructure

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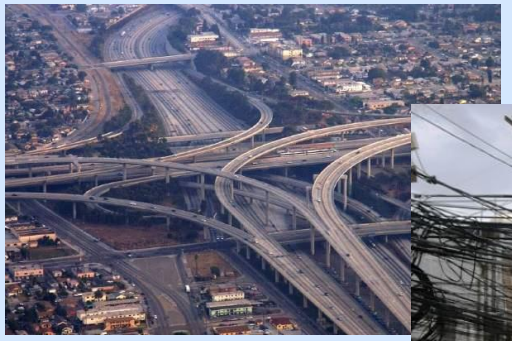
Spatial Data **Infrastructure**: Investment Challenges



Transport

Energy

Well established business lines exist for traditional infrastructure

Data require a new infrastructure: National Information Infrastructure and Spatial Data Infrastructure (SDI)

Significant financing is needed for SDIs globally

Clients note that convincing decision makers to invest in SDI and geospatial information management is a challenge

More evidence is needed to justify financing

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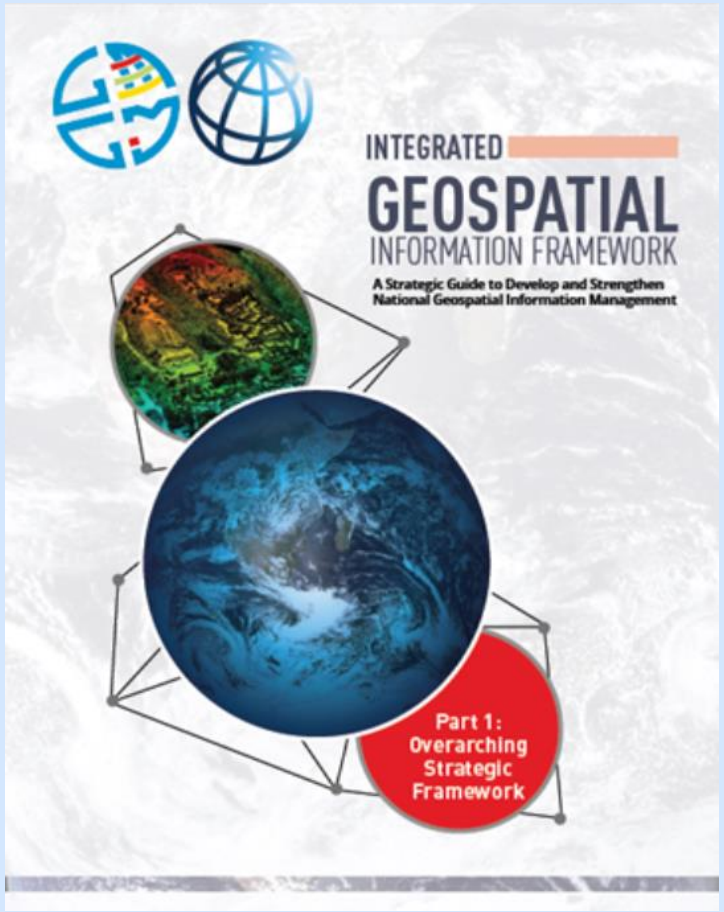
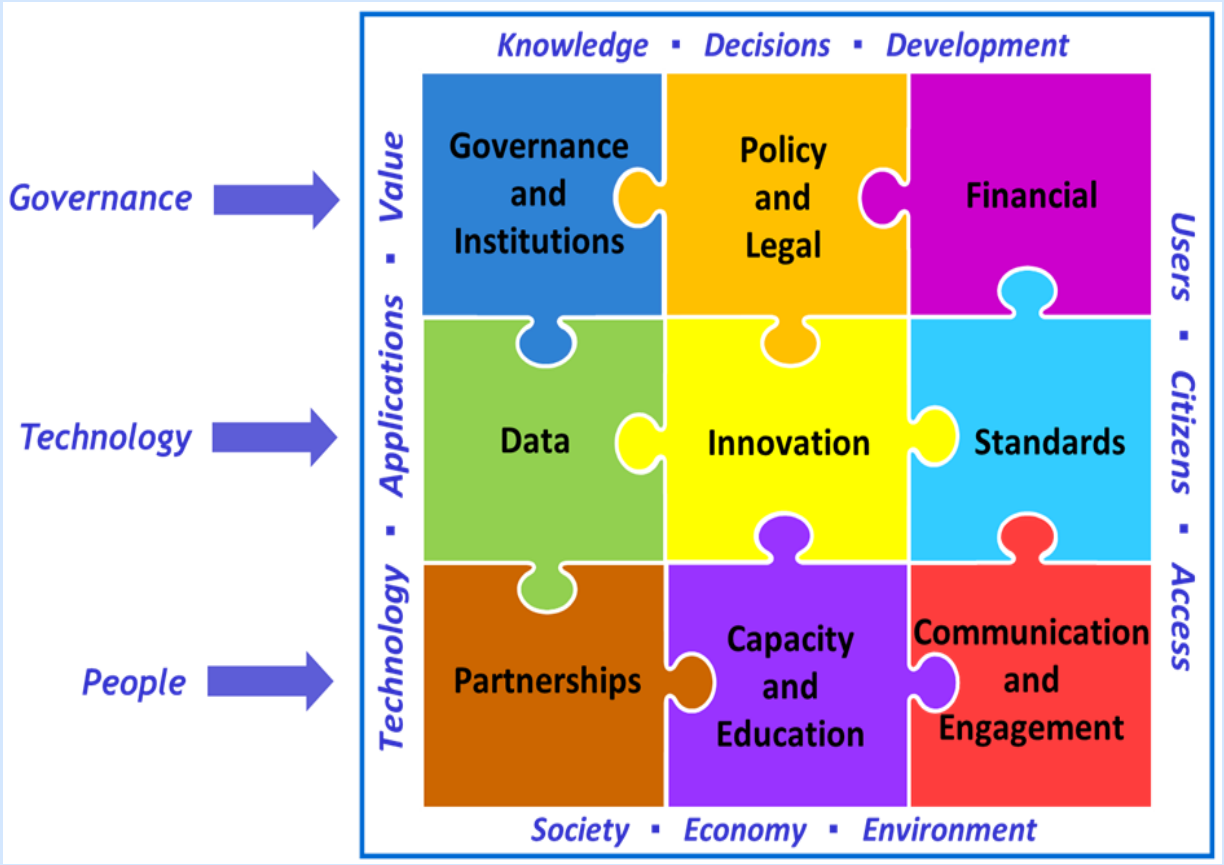
Integrated Geospatial Information Framework (IGIF)

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





http://ggim.un.org/meetings/GGIM-committee/8th-Session/documents/

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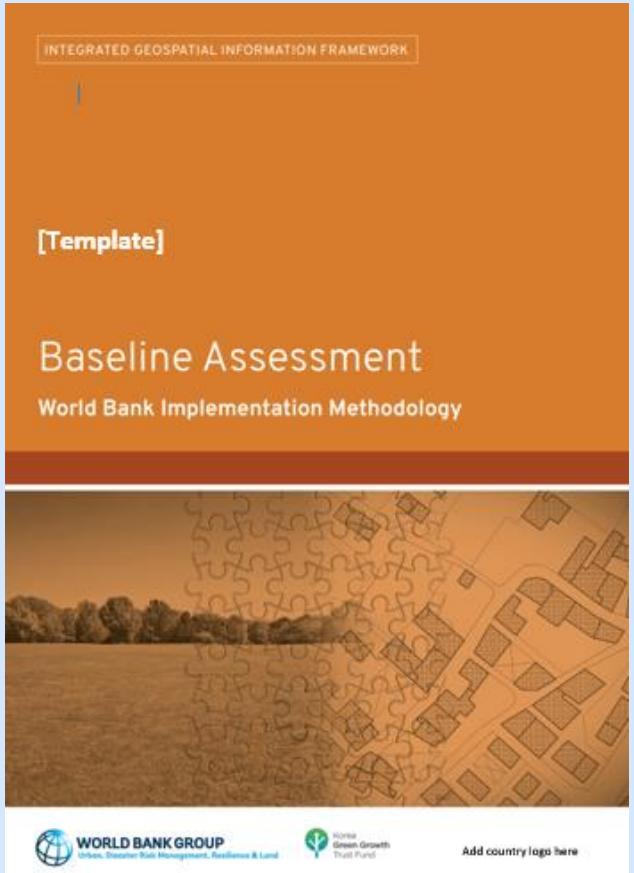
IGIF Country Level Implementation: Templates and Tools

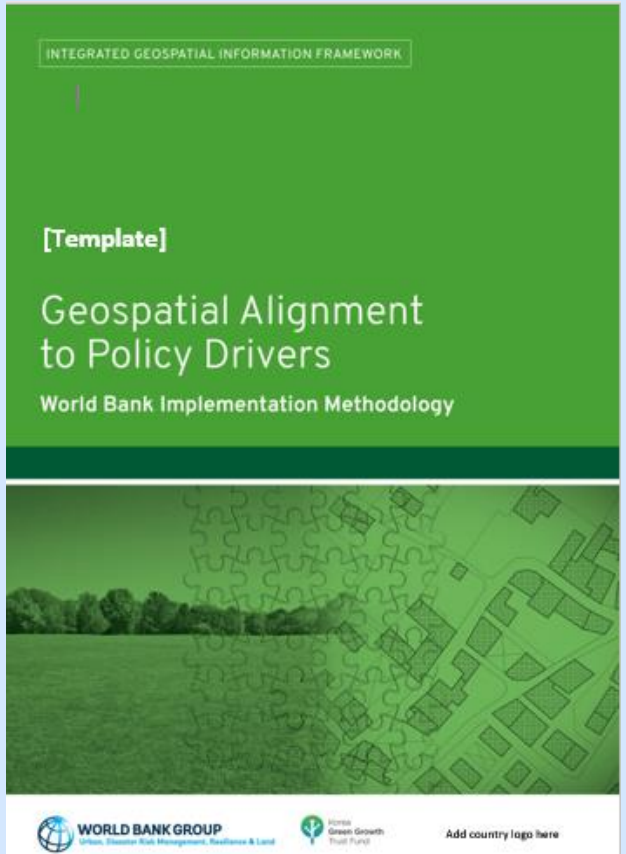
Open and Available on the World Bank Open Learning Campus website

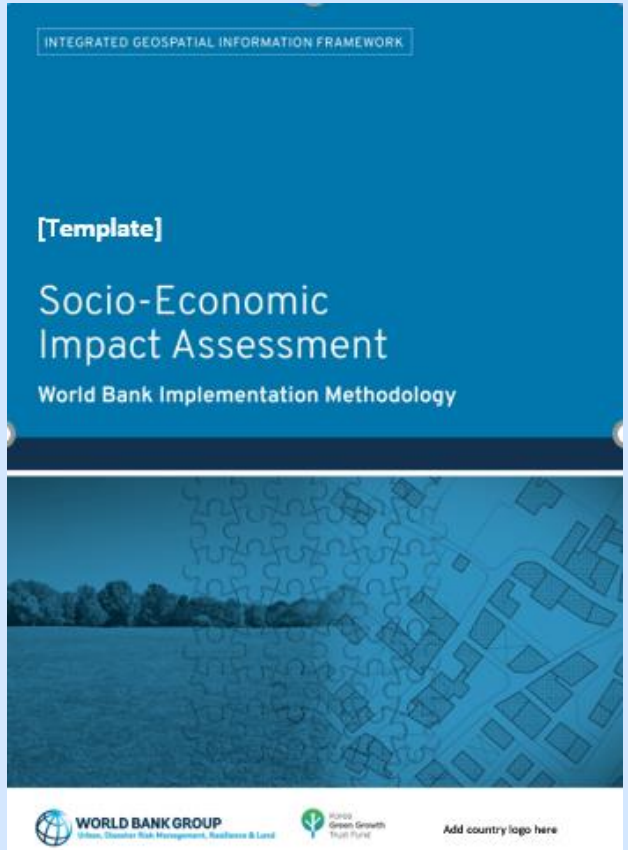
Diagnostic/Baseline Assessment

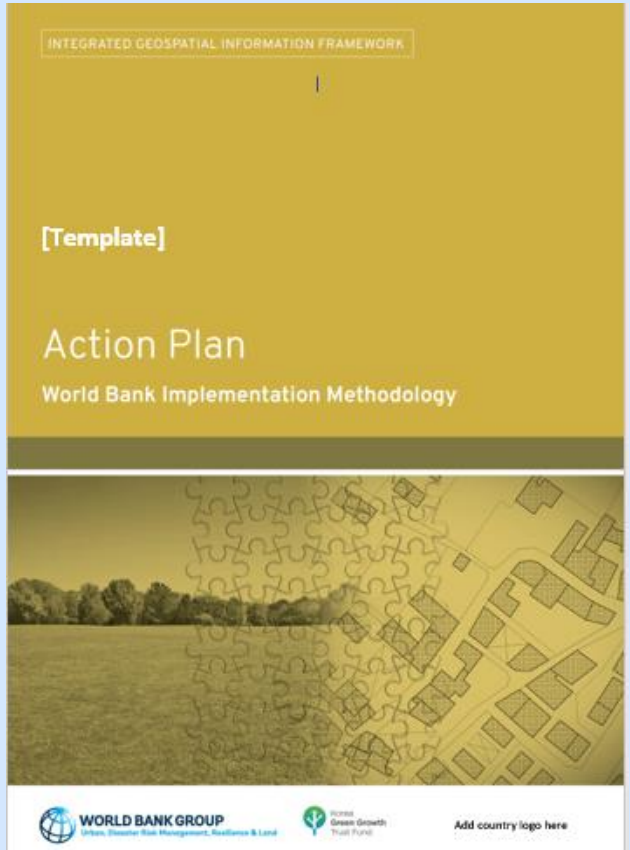
Business case
-Alignment to Policy/ Business Drivers
-Socio-Economic Impact Assessment

Action/Investment Plan

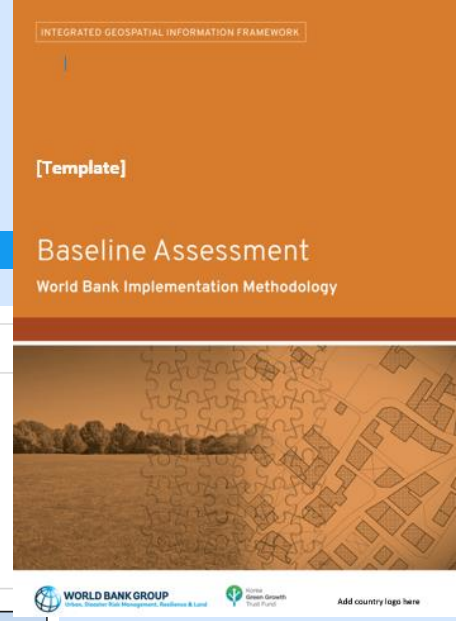




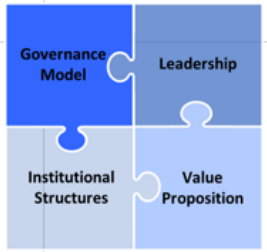




1. Diagnostic: National Report and Baseline Assessment

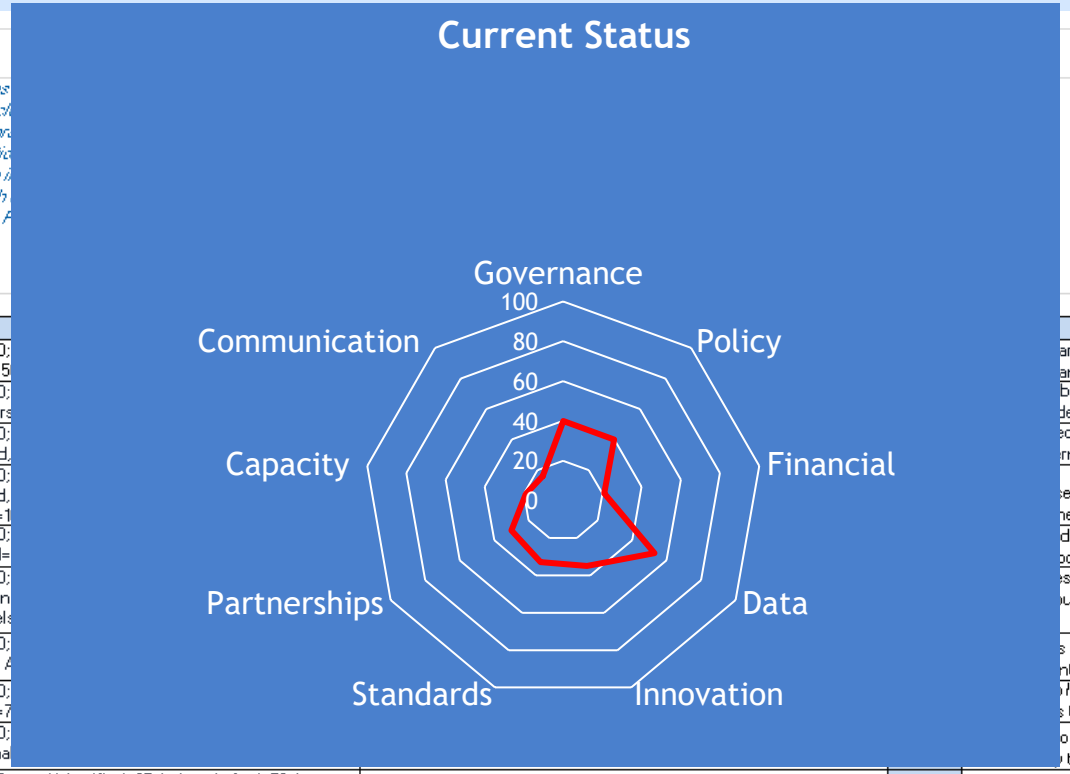


STRATEGIC PATHWAY 1



Governance and

This strategic pathway establishes institutional arrangements and a cl multi-disciplinary and multi-sector an Integrated Geospatial Informatio political endorsement, strengthen i data sharing environment through Integrated Geospatial Information F to achieve the vision



	Indicator				Guidance
1.1	Is there a NSDI "champion" in Government?	None=0; exists=5			arly identifiable individual(s) actively promoting SDI, angible outcomes towards the development and
1.2	Is there a NSDI Coordinating body?	None=0; and pers			be cross sector, and across levels of Government. Could designated or de facto.
1.3	Is the NSDI Coordinating body represented at senior / top level in government?	None=0; Defined,			one from the co-ordinating body representing it at the top rnment .e.g. a cabinet level minister?
1.4	Is the coordinating body supported by an active secretariat?	None=0; defined, Active=1			ecretariat been defined, mandated, and is actively he NSDI governance structure?
1.5	Are there clear Terms of Reference (ToR) for the Coordinating Body?	None=0; drafted=			dinating Body been given clear ToR? ...and are they being ort to describe this.
1.6	Does the coordinating body actively reach out to all levels of government (including local government) and other stakeholders (private sector, NGOs, volunteering sector)?	None=0; (ToR) in All levels			s how inclusive the SDI is - how far it integrates across and us levels of government, and other sectors.
1.7	Are there Working Groups supporting SDI development? e.g. technical, standards, legal, service development)?	None=0; up=75; A			s are important, to provide technical input to support policy ntation.
1.8	Is there a user group / forum available for consultation and providing user feedback / requests?	None=0; Exists=7			/ forum is a channel for feeding user feedback and s to the SDI governance agencies.
1.9	Does the national "champion" actively interact with the global and regional geospatial community?	None=0; Regiona			o which the "champion" interacts with the wider to exchange information.
1.10	Are there linkages between the coodinating body and those developing the e-Government agenda?	None=0; need identified=25; being drafted=50; In place=75; Being used=100		0	This is important for assessing how joined up the intitutions are in terms of co-ordinating policy development
				0	

Indicator **Scoring Guide** **Notes from Interview** **Score** **Guidance**

Basis for Stakeholder Meeting: introduce IGIF, validate baseline results and initiate/enhance coordination

Food and Agriculture Organization of the United Nations

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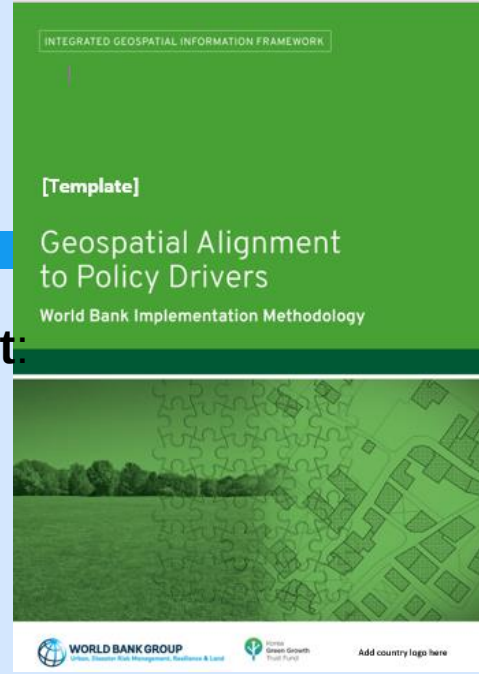
2. Strategic Alignment to Policy and Business Drivers



More than 60 specific use cases were identified in the **Mongolia Geospatial Alignment Report**:

- **eGovernance:** leverages digitalization opportunities to make the state more efficient and reduce burden on citizens
- **Health:** supports epidemiological studies, social research and health care, and managing the outbreaks of disease
- **Mining:** supports the largest sector of the economy by facilitating export activities and the growth of raw materials processed in-country through exploration.
- **Land Administration:** enables integrated state land management, valuation/taxation and land use planning.
- **National/Sectoral Development Planning:** holistic approach balancing economic diversification and social needs
- **Transport:** supports road network planning and intelligent transport systems
- **Disaster and Emergency Management:** improves planning and response to all types of incidents
- **Agriculture:** matches the need to improve food security whilst avoiding over-exploitation of the fragile ecosystem.
- **Environment and Tourism:** supports the protection of the environment and is used to attract more visitors.

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3. Socio-Economic Impact and Benefits: Sectors, Use Cases, Actions

SECTORS

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

USE CASES

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

ACTIONS/INVESTMEMTS

Positioning
e.g. GNSS Network

Imagery Acquisition
e.g. Satellite Imagery

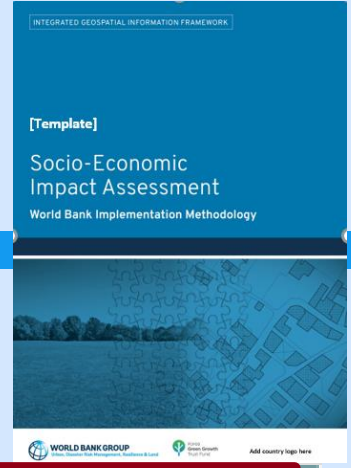
Data Capture
e.g. State Land Cadastre

Data Integration
e.g. Street Address

Data Sharing
Geoportal/Policy

Business Intelligence
e.g. AI and Machine-learning Applications

3. Socio-Economic Impact and Benefits: Mongolia example

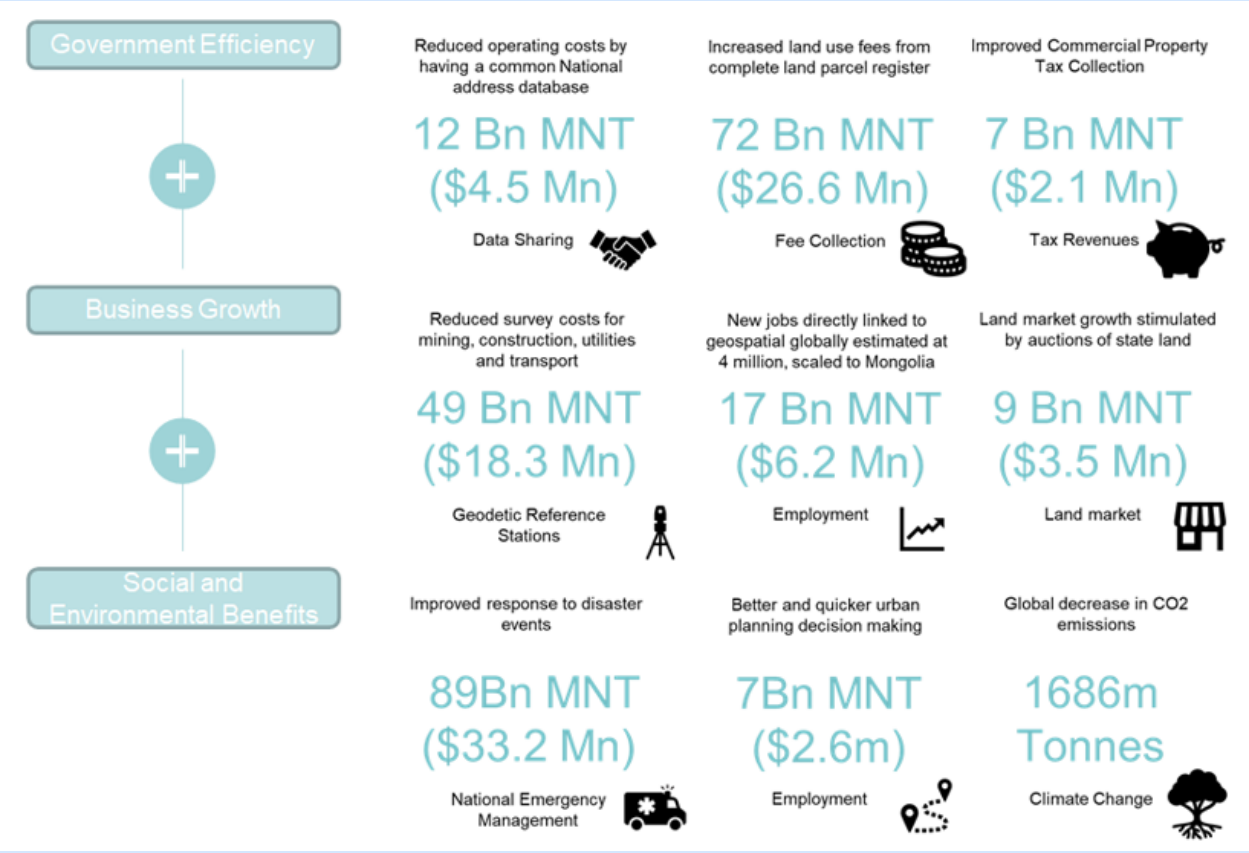


Across Public and Private Sectors

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	26.6
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	26.6
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

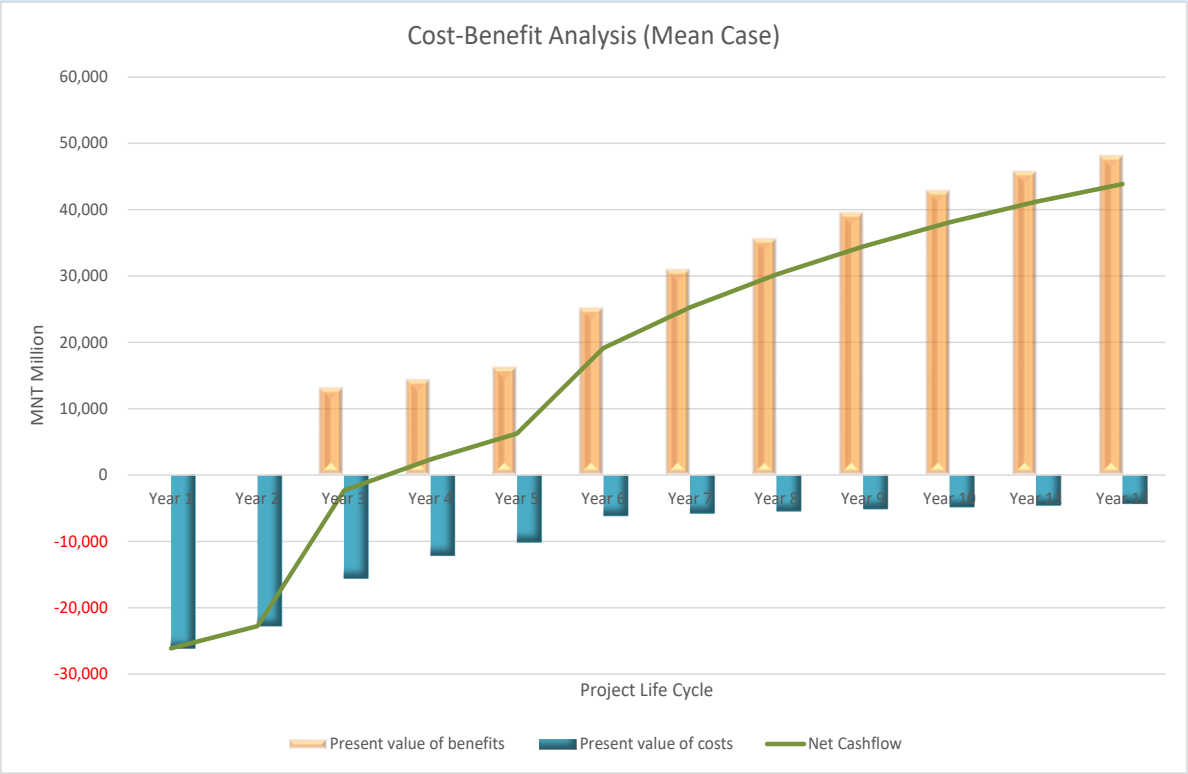
3. Socio-Economic Impact Assessment: Financing Justification

Return on Investment: 250%
Net Present Value: US$ 66,1 million

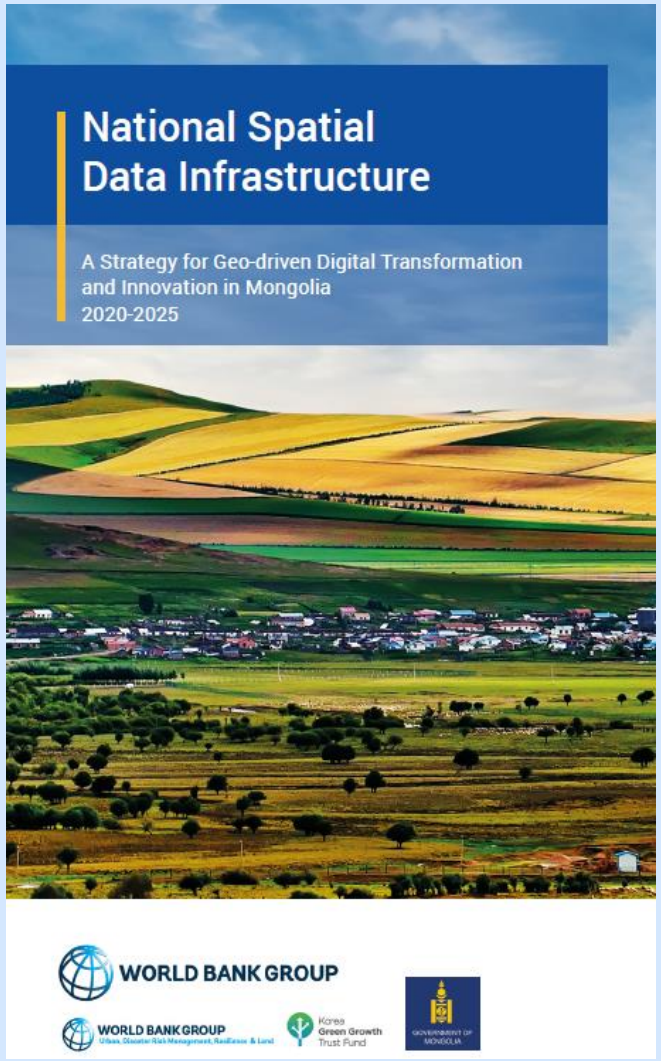


World Bank Infrastructure Project Model:

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



4. IGIF Action/Investment Plan: Mongolia Example

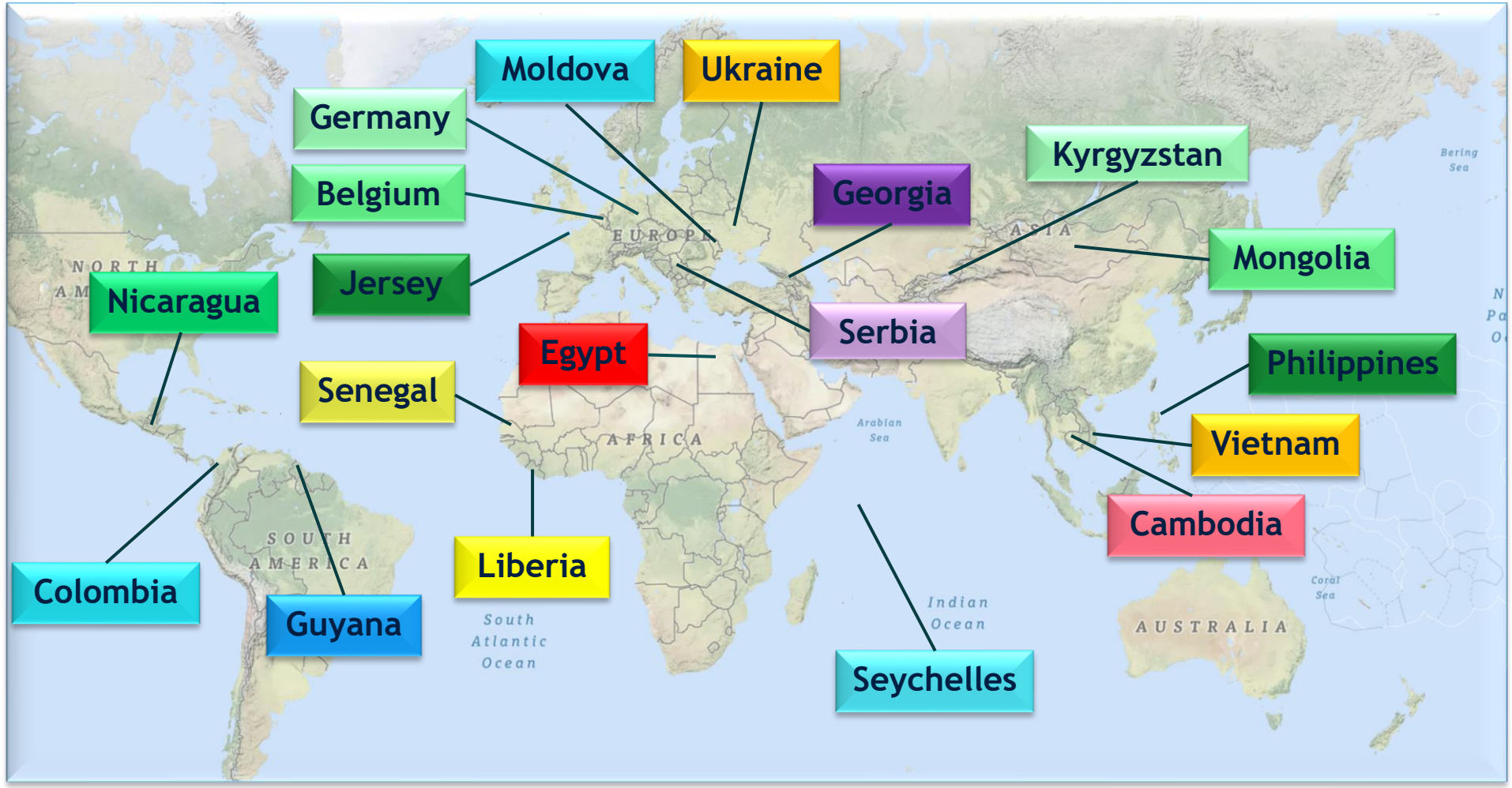


Vision: Geo-driven eGovernment and innovation that empowers efficient and effective use of geospatial information towards national sustainable development and economic growth.

Potential financing through the new WB- financed Digital Development Project

IGIF Implementation Guide

New IGIF Projects and Partnerships using World Bank Methodology



Map 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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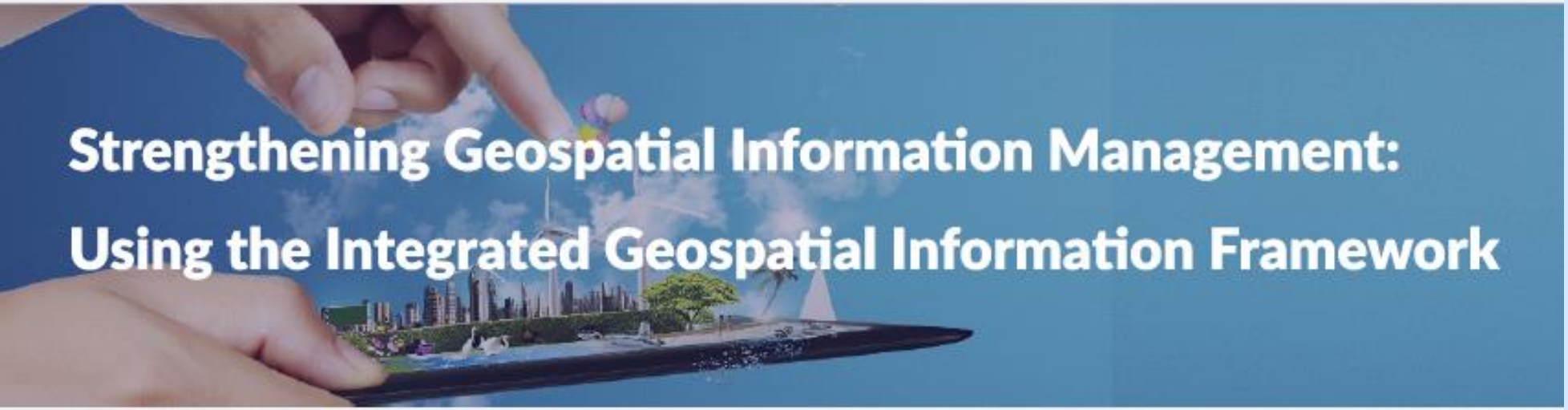
Open Learning Campus

Ministry of Economy and Finance



Strengthening Geospatial Information Management: Using the Integrated Geospatial Information Framework

Self-Paced Online Course

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ACCELERATING SOLUTIONS THROUGH LEARNING

https://olc.worldbank.org/

MODULES

Module 1: The Value of Geospatial Information

Module 2: Introducing the Framework

Module 3: Solving the Puzzle: Understanding the Implementation Guide

Module 4: Creating a Country-level Action Plan

Module 5: The Socio-economic Benefits Assessment (Coming Soon)

Thank you!

kkelm@worldbank.org

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https://olc.worldbank.org/

https://d3gzc8yfvw5zzm.cloudfront.net/Geospatial/Template/index.html

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BUILDING PARTNERSHIPS
Philippines Case Study

SOUTH WEST PACIFIC HYDROGRAPHIC COMMISSION
FEBRUARY 2023

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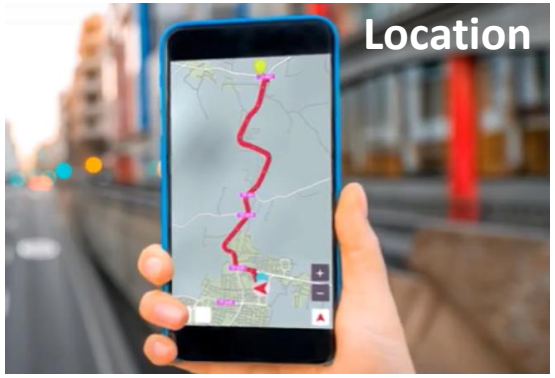
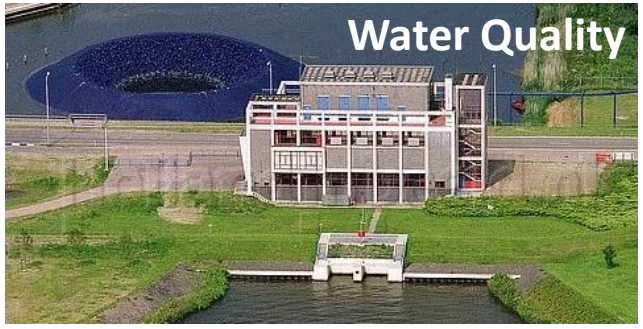
Andrew Coote

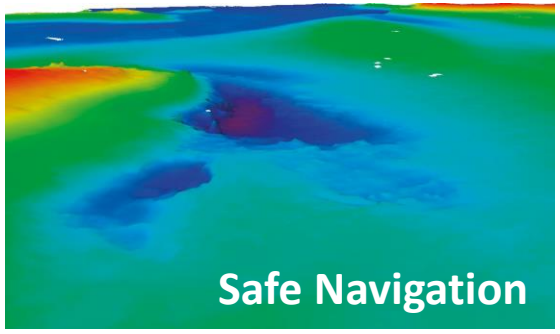
Geospatial Specialist

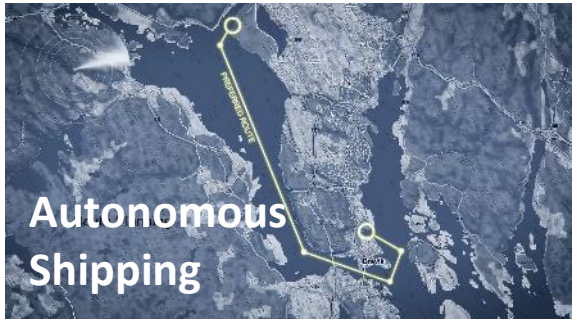
ConsultingWhere
Maximising the value of location information

Integrated Land and Marine Management









Fundamental Data

Global Geodetic Reference Frame

Geographical Names

Addresses

Functional Areas

Buildings and Settlements

Land Parcels

Transport Networks

Elevation and Depth

Population Distribution

Land Cover and Land Use

Geology and Soils

Physical Infrastructure

Water

Orthoimagery

The UN-GGIM Fundamental Data Themes (arcgis.com)

Climate Change Action

- **Ability to integrate datasets is crucial**
- **Data integration delivers new insights**
- **Additional Application-specific Data Themes**

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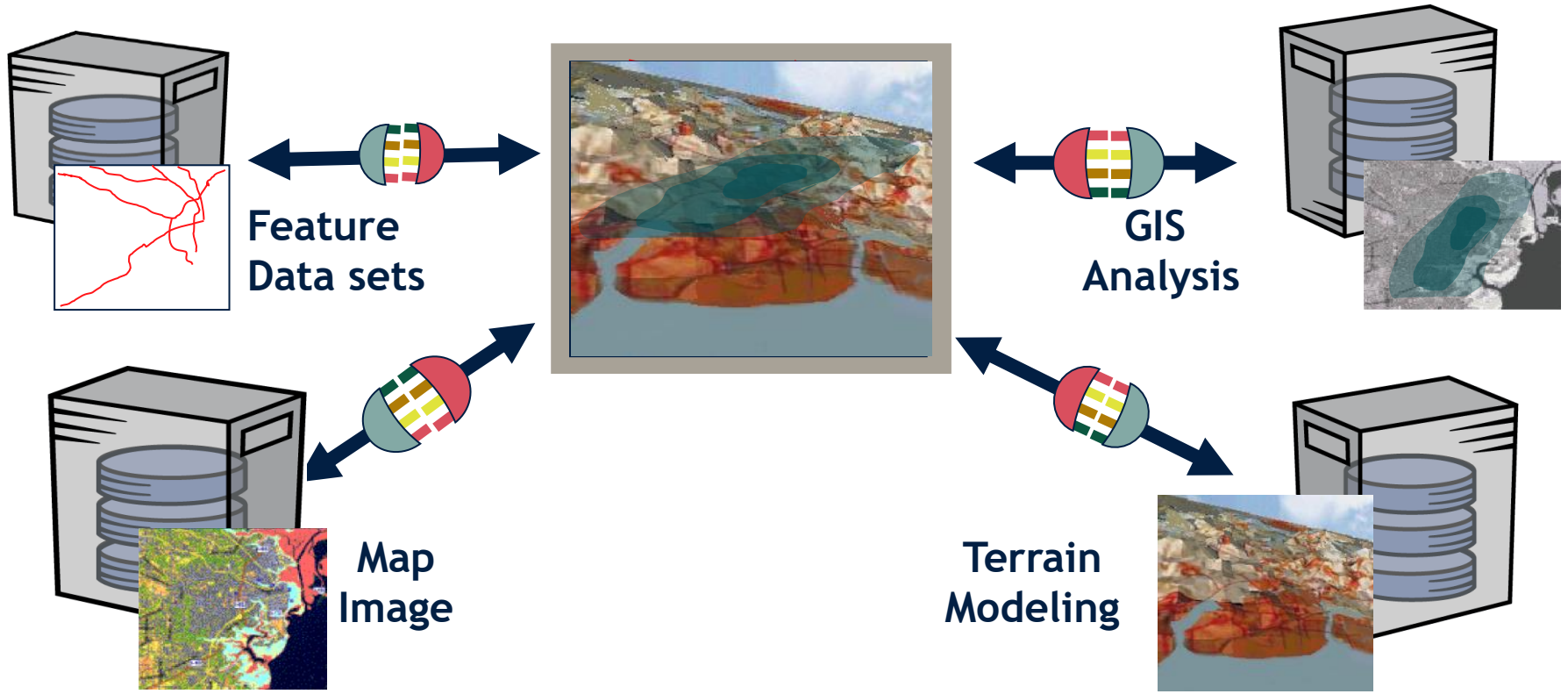
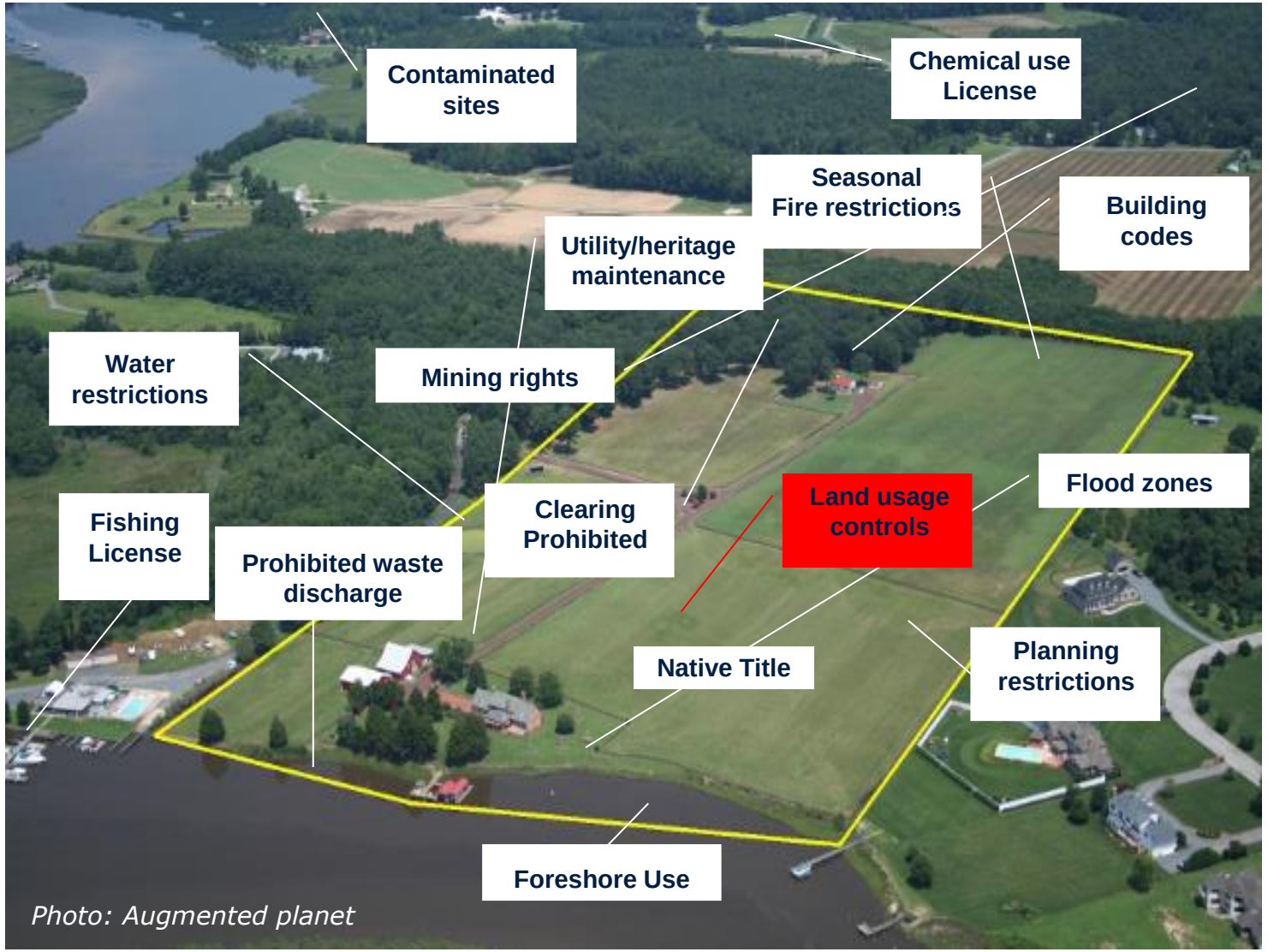
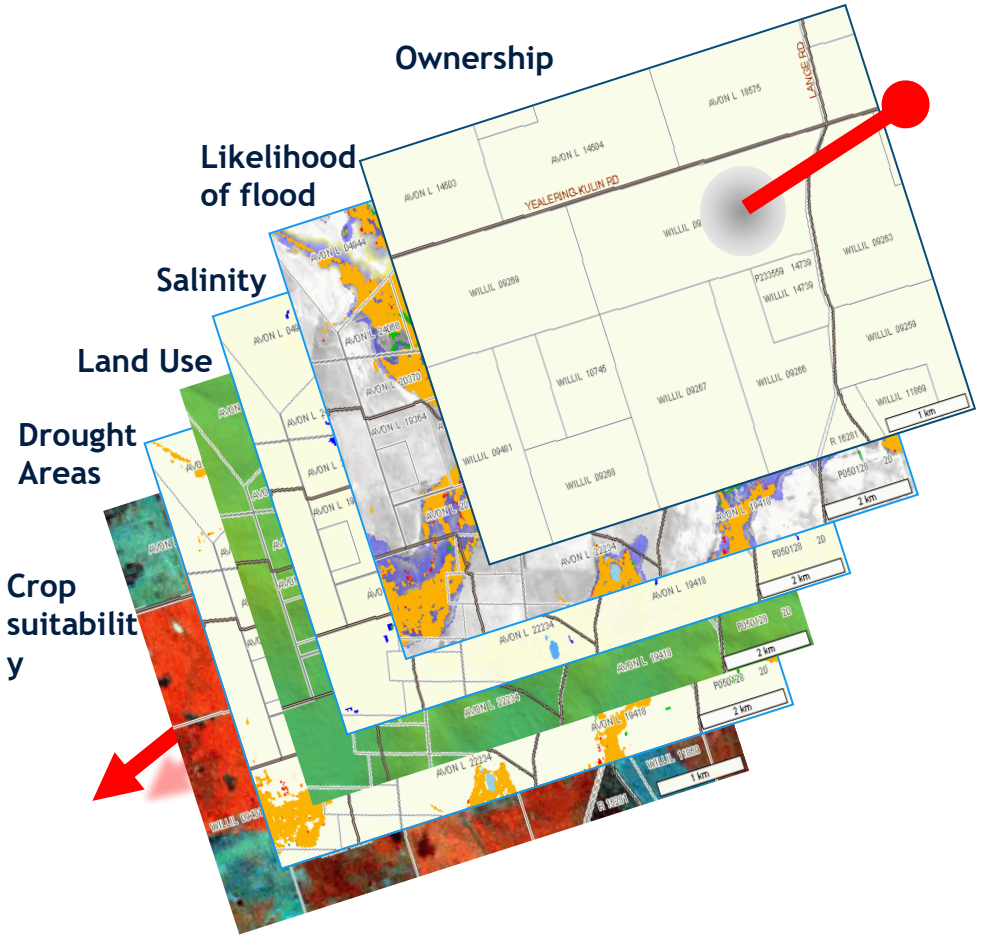
Data Access, Integration and Governance is Crucial

Spatial Data Infrastructures are designed to enable collaboration, data sharing, government efficiencies and reduced duplication of effort



Rights, Restrictions and Responsibilities on Land and Water





Data input comes from different agencies

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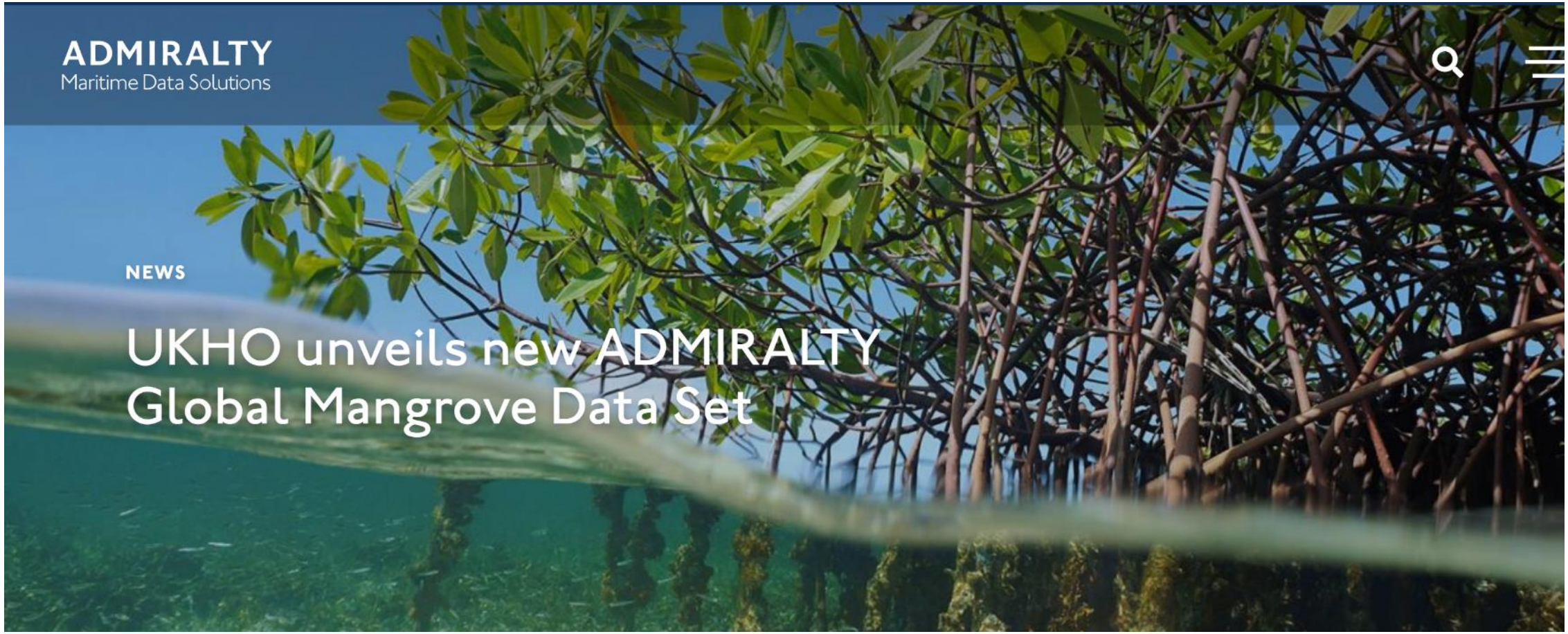
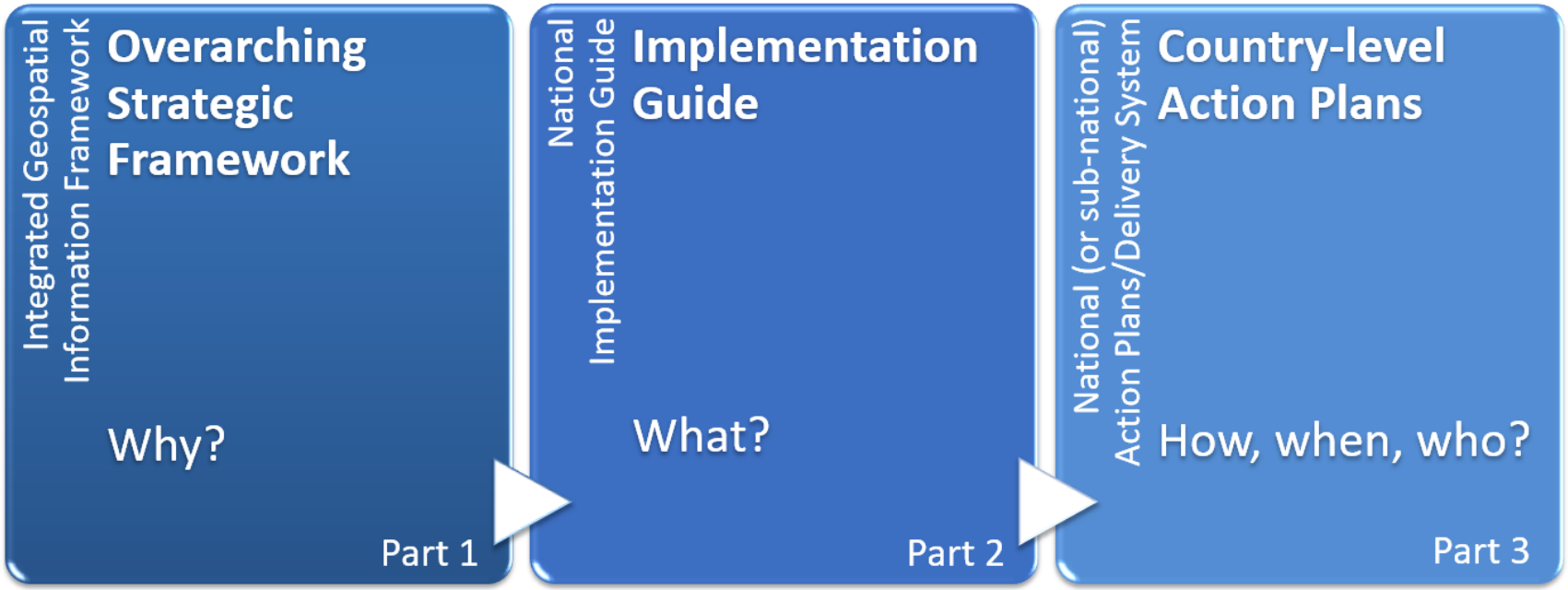
Opportunity to Integrate Global Datasets



IGIF Components



- **Part 1: Overarching Strategic Framework – WHY geospatial information needs to be strengthened.**
- **Part 2: Implementation Guide – WHAT types of actions can be undertaken to strengthen geospatial information management**
- **Part 3: Country-level Action Plan – HOW the actions will be carried out, WHEN and by WHOM.**

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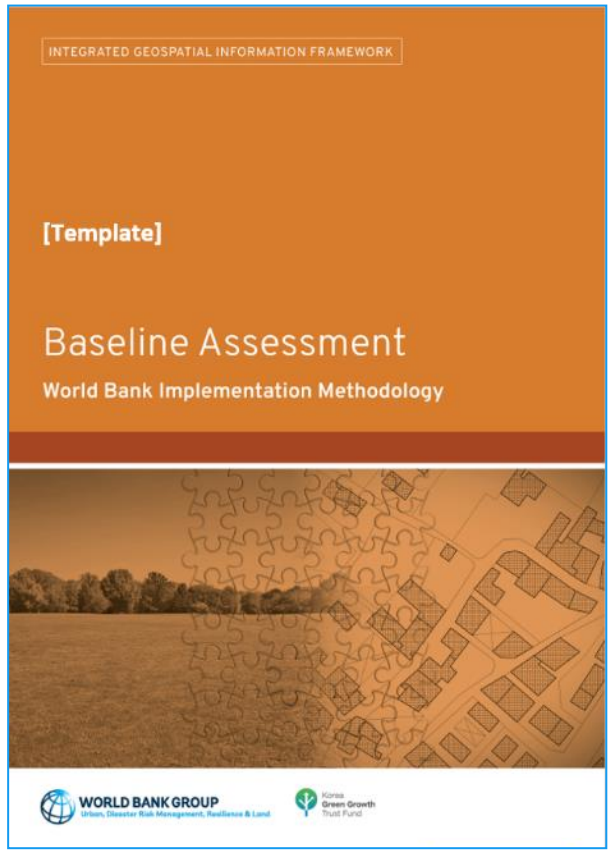
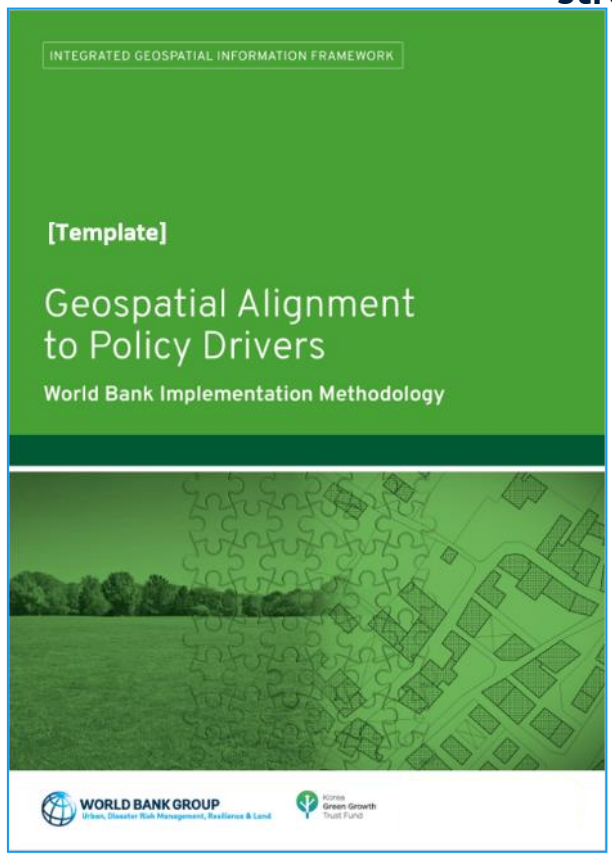
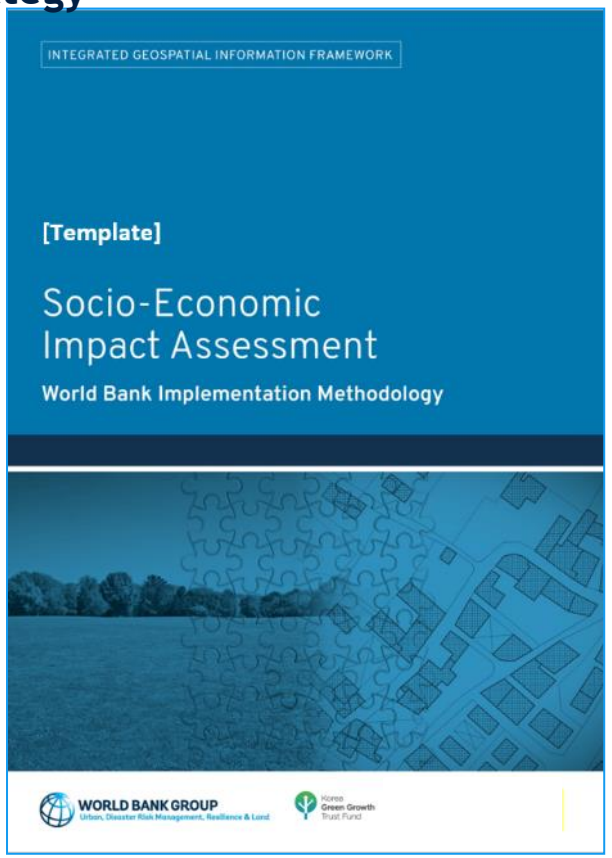
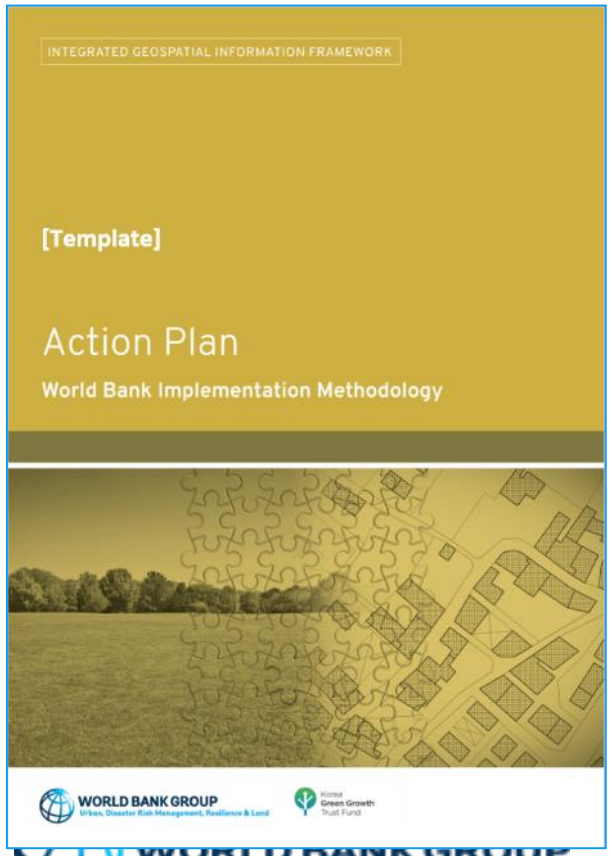
IGIF Methodology

Diagnostic Tool Baseline Assessment → **Socio-economic Impact Assessment aligned to government policy and strategy** → **Action and Investment Plan**









UK Hydrographic Office

Open Geospatial Consortium

IGIF-MSDI Maturity Roadmap

“Quick-Start Guide for undertaking an IGIF-aligned MSDI”

EUR ING **Dr Gerald J Wong** MPhys MBA EngD MIET MInstP CEng CPhys

UKHO Data Strategy and Information Governance Lead

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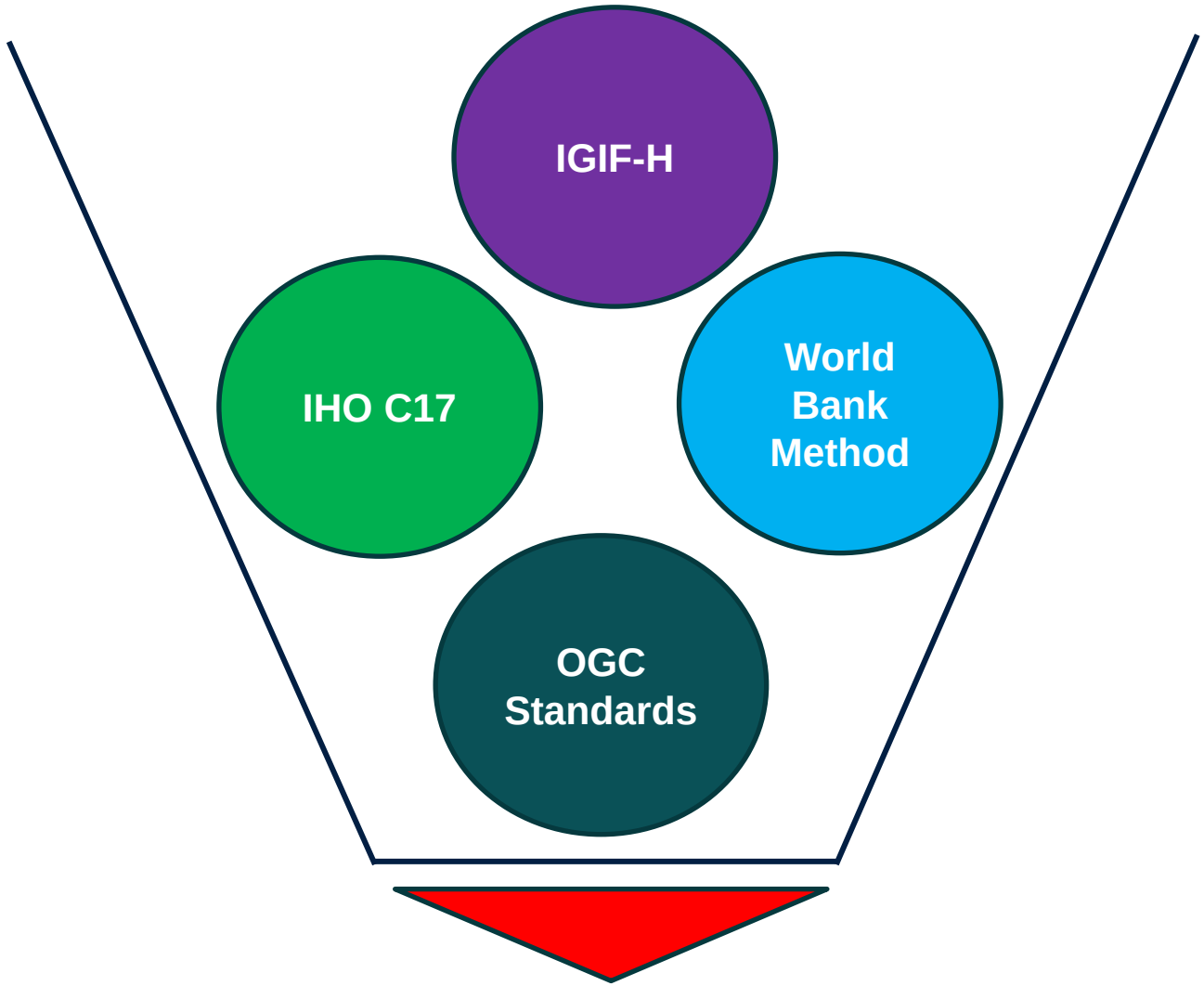
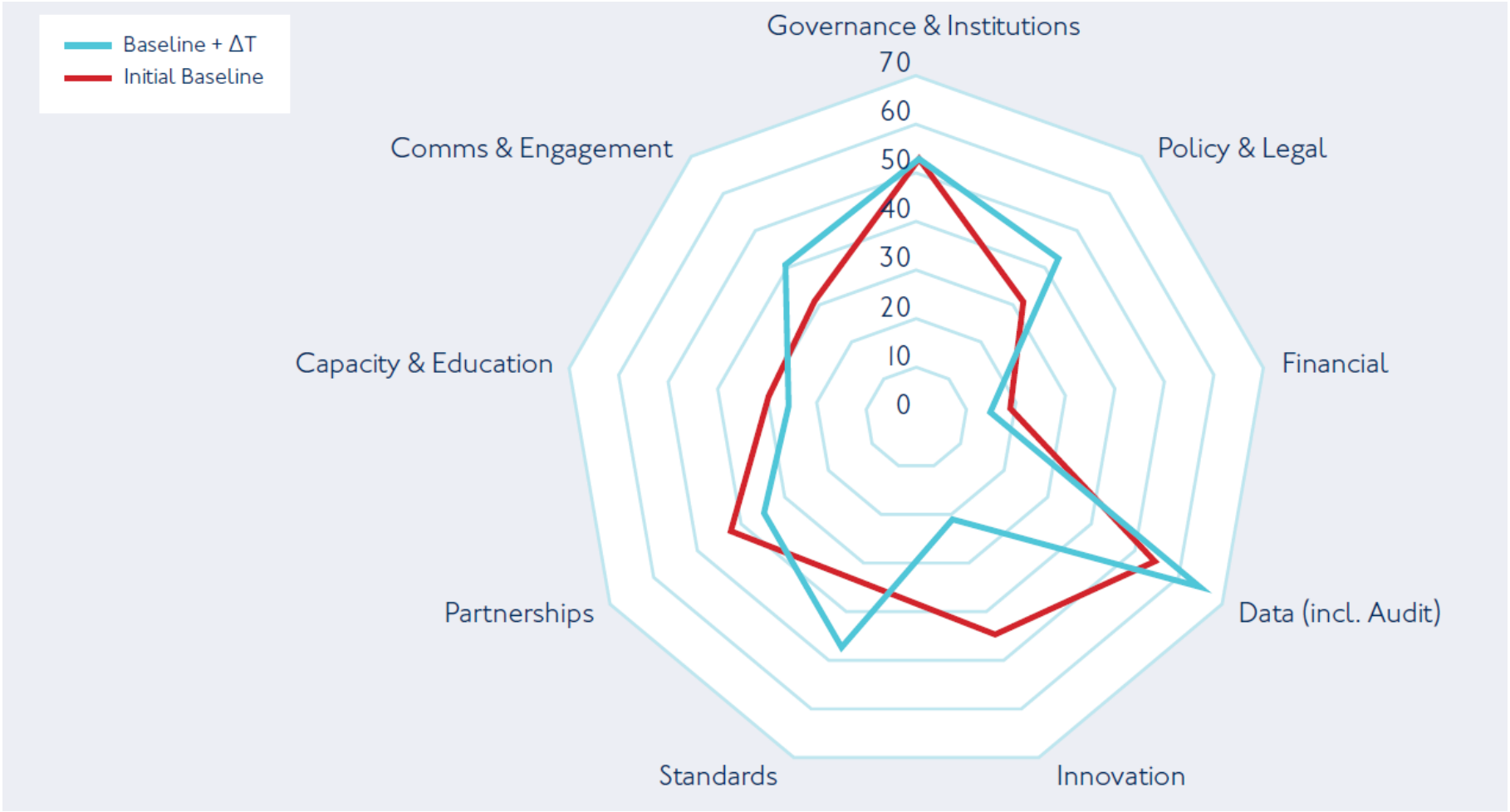
Building Integration on Existing Good Practice



Results: IGIF MSDI Maturity Assessment (Illustrative)



Philippines: Marine Use Cases (Work in Progress)

- Climate Change Adaptation and Mitigation
- Safe Navigation
- Marine Cadastre
- Ecosystem Services
- Ports and Piers
- Fisheries and Aquaculture
- Reclamation
- Coastal and Marine Tourism
- Wind and Ocean Energy
- Permitting
- Oil and Gas Exploration
- Aggregates extraction
- Dredging
- Search and Rescue
- Insurance
- Maritime Transport
- Marine Sciences
- Pollution studies
- Marine Design & Construction
- Defence

Over 50 use cases so far documented.

Quantified Benefits: Marine Charting ROI Meta-Analysis

In the context of international studies that use cost-benefit analysis to estimate the economic effects of marine spatial data infrastructure.

Cost benefit ratios for investing in MSDIs range between 1:2 and 1:18.

Benefits arise from efficiency of data collection, improved risk assessment for navigation, more effective marine spatial planning,

Supporting of marine science, reduced mineral exploration costs and disaster management. The research provides evidence for investing

In the context of MSDI in New Zealand is stimulating debate on the varying methods underpinning economic studies in the marine geospatial context.

Quantifiable Benefits: Australia

OIL EXPLORATION

Selection of areas of interest for exploration and the construction of oil and gas extraction infrastructure.

$740 Million Value-add

AQUACULTURE

Establishment of fishing locations and fish farms

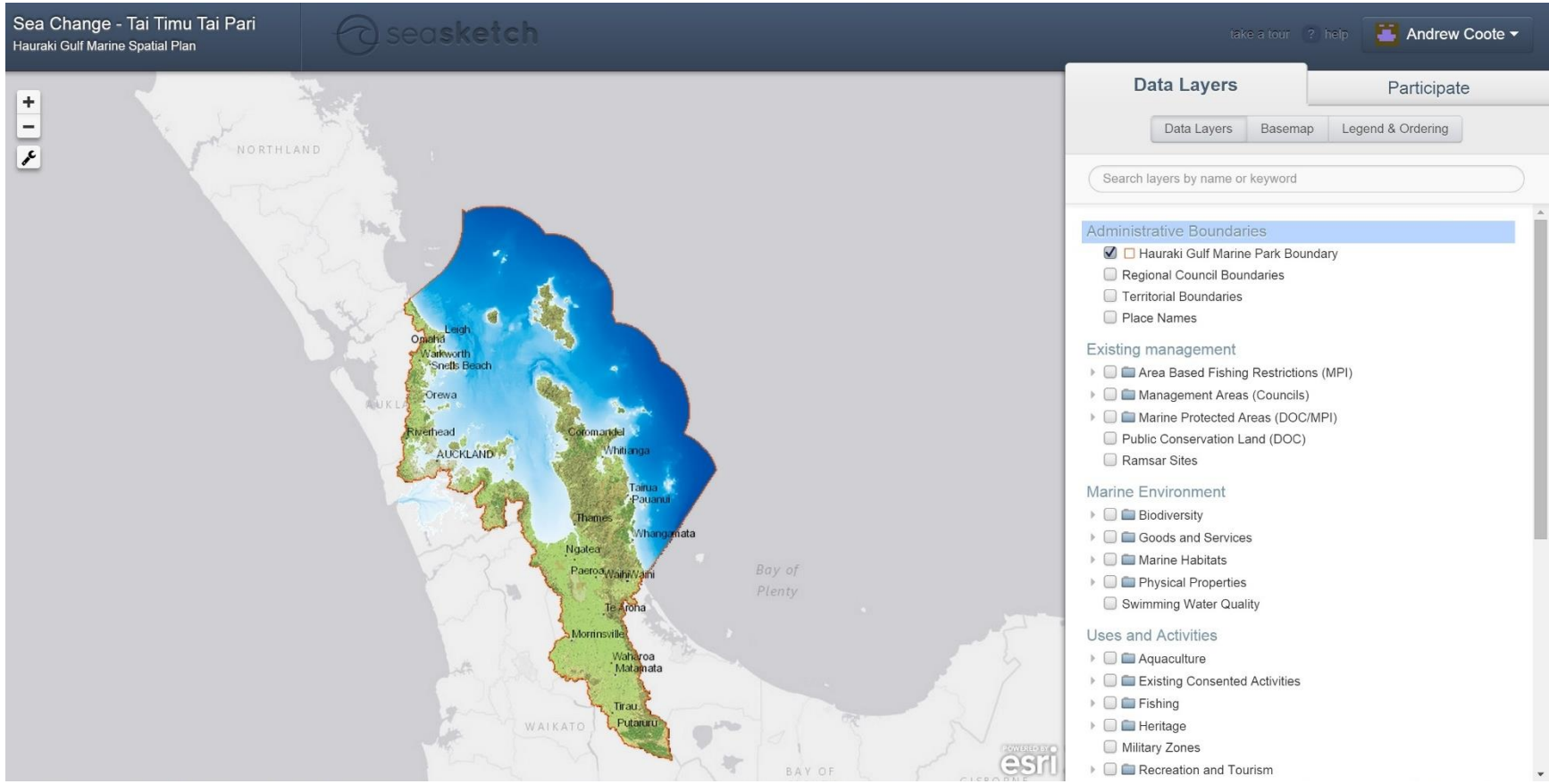
$840 Million Value-add

COMMERCIAL FISHING

Minimize damage to seabed habitats and fishing equipment.

$1.5 Billion Value-add

Hauraki Gulf (New Zealand) – A Marine SDI



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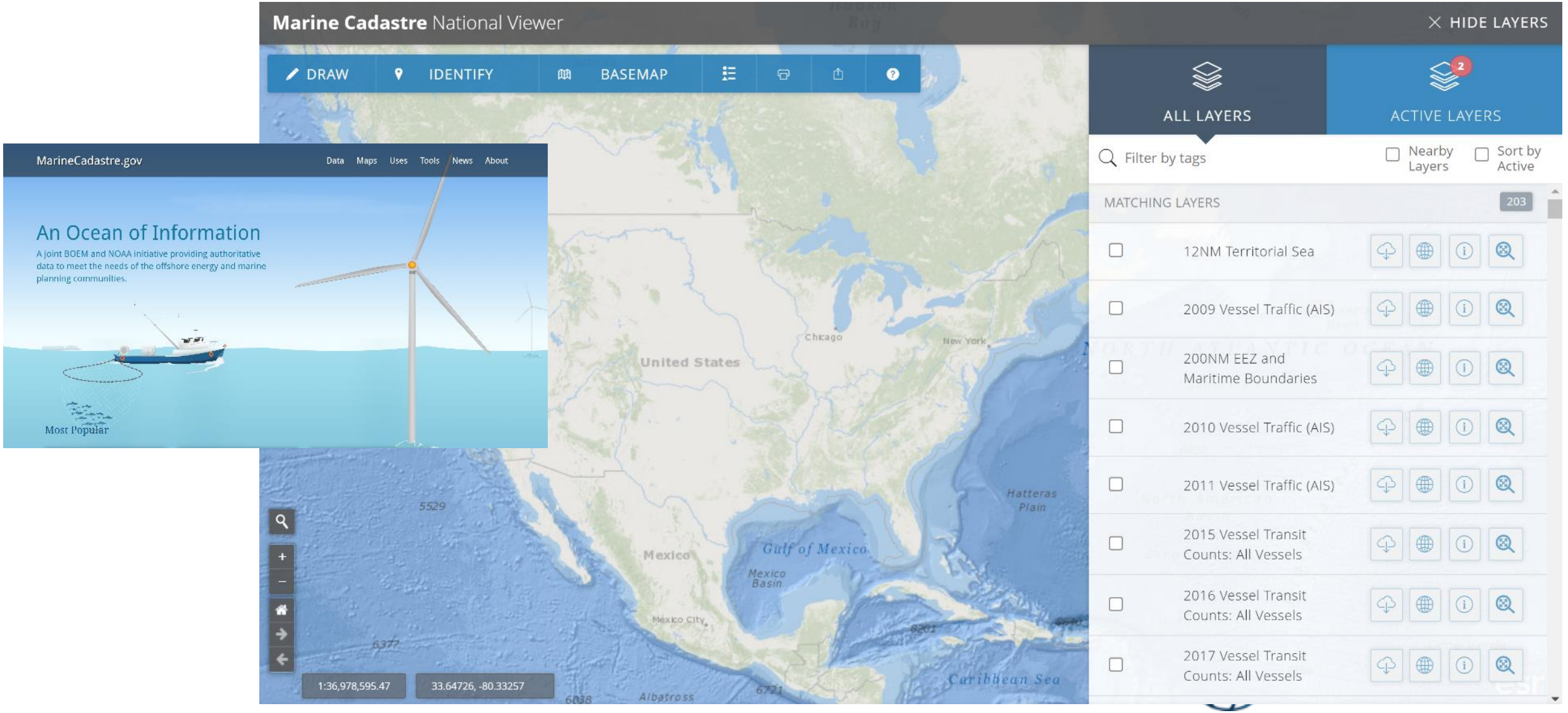
Marine Cadastre (United States)



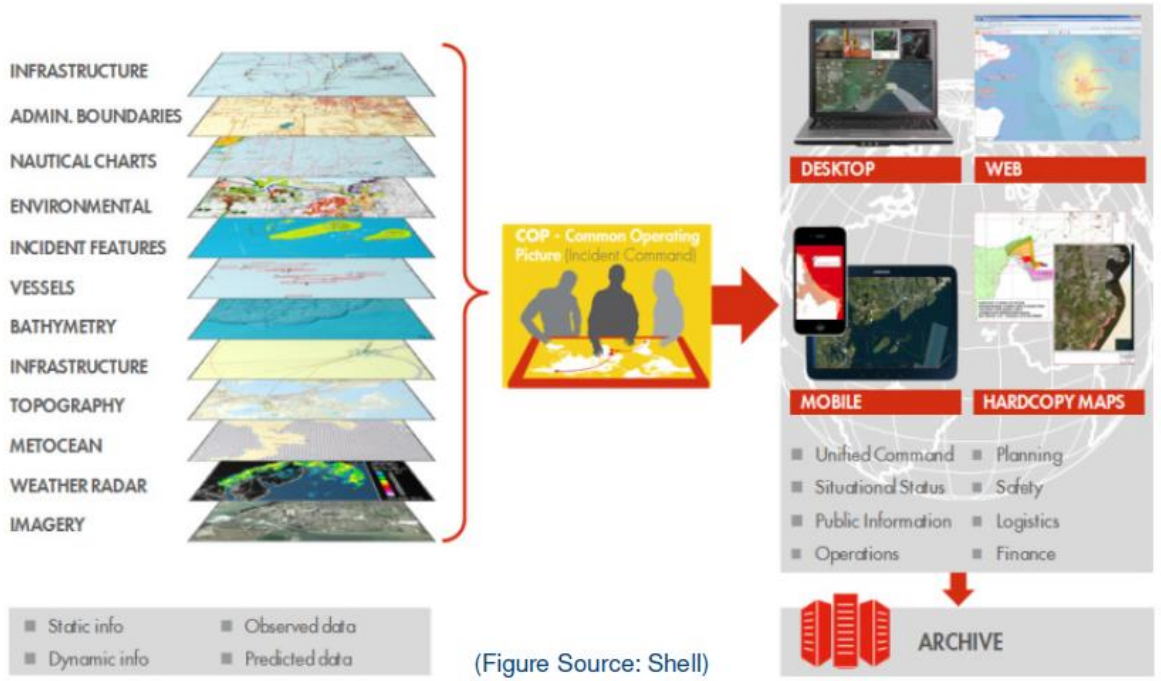
Oil Spill Response

Future Products and Services

caris

Interoperability and data harmonization is key to putting hydrographic data to work and realizing greater value from it

e.g. Common Operating Picture for Oil Spill Response



(Figure Source: Shell)

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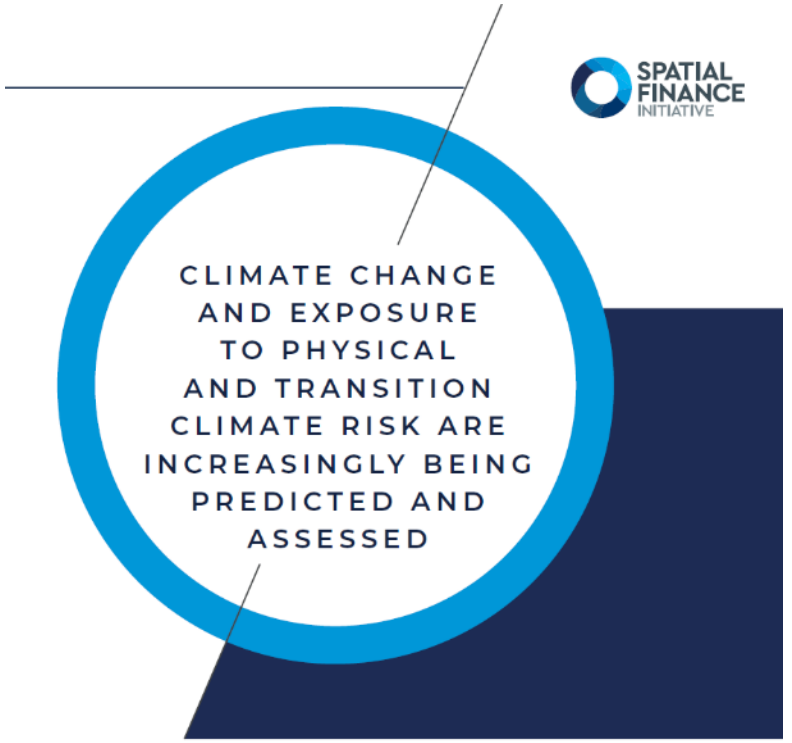
Spatial Financing

Future implications of climate change are already costing banks money.

- Farm loans not being repaid due to poor crop yields caused by extremely dry weather
- Manufacturing debtors shutting down water-heavy productions because of unexpected water shortages,
- Plastic producers losing significant amounts of business due to new legislation on plastic pollution
- Debtors based in regions that are regularly overwhelmed by extreme weather events
- Debtors receiving huge environmental fines from authorities for unclean production practices and waste pollution



Next Steps (Estimated)

Present Integrated Marine and Land Maturity Assessment (March)

Complete Geospatial Alignment to Policy Drivers (April)

Prioritise Marine and Land Use Cases (April)

Assess socio-economic Impacts - Cost-Benefit Analysis (May)

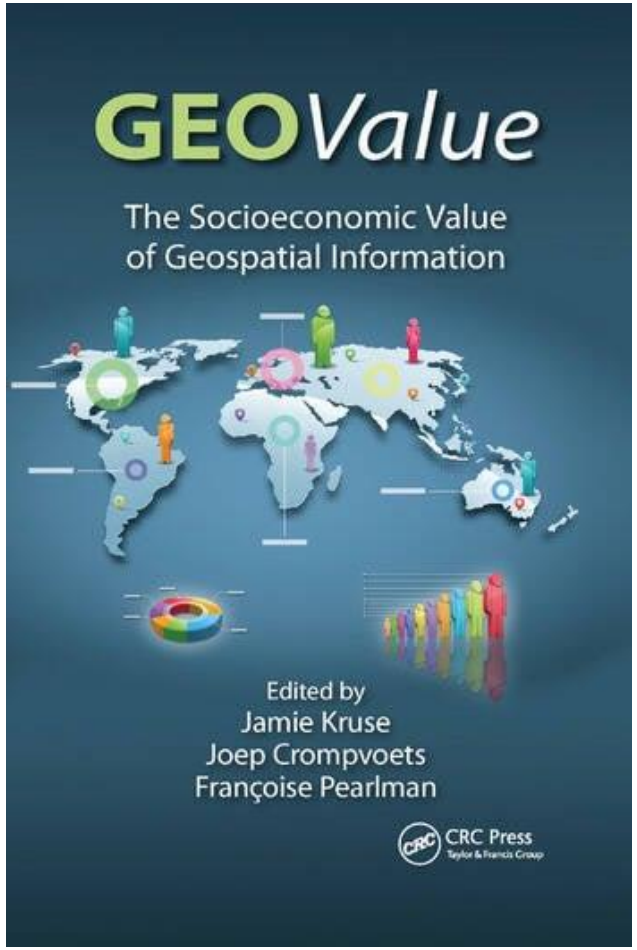
Define Action and Investment Plan (June)

ADDITIONAL RESOURCES

GeoValue Book

Collection of Reference papers

Second edition planned



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Licensing Value Proposition

Aerial Imagery overlaid by:

Environmental Compliance Certificates – yellow pins

Identifies properties with (green) and without (red) valid ECCs and uncertainties (yellow)

Monetise in permit fees and fines.

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