

BUILDING PARTNERSHIPS: UNDERSTANDING THE WORLD BANK

**SOUTH WEST PACIFIC HYDROGRAPHIC COMMISSION
FEBRUARY 2023**



WORLD BANK GROUP

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

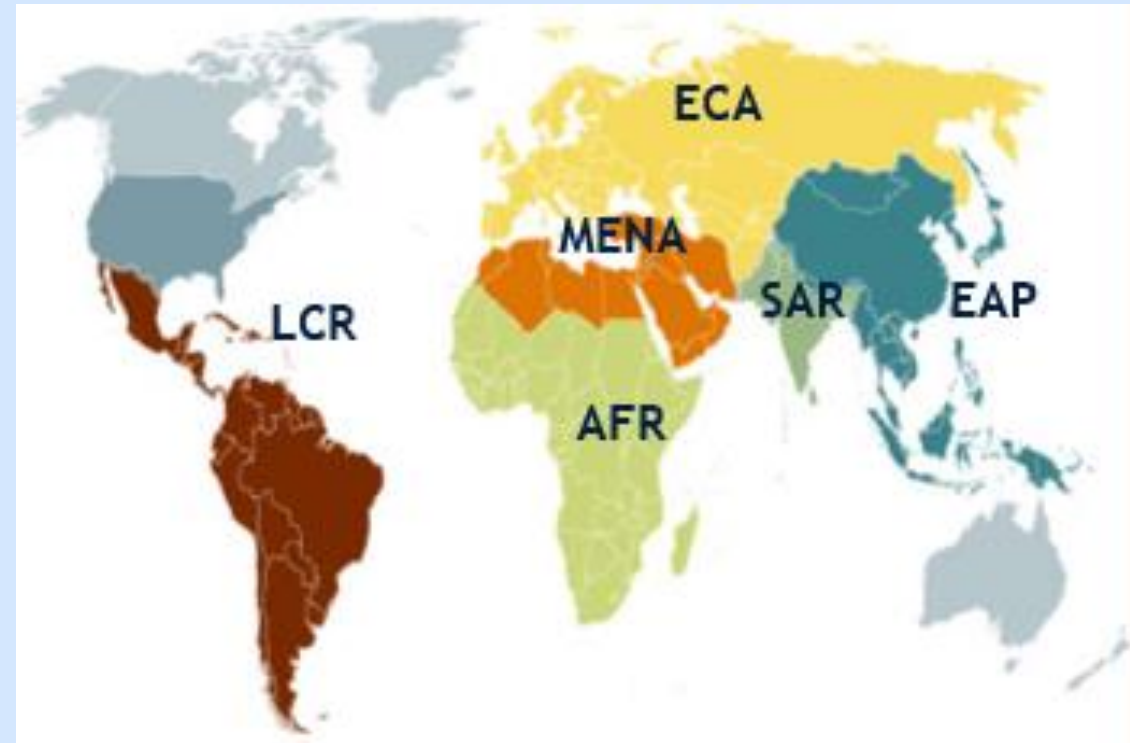
Six Regions: Regional VP and Directors

- 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



Country Partnership Strategy/Framework: defines investment priorities

The screenshot displays the World Bank website for Mongolia. The top navigation bar includes links for 'WHO WE ARE', 'WHAT WE DO', 'WHERE WE WORK' (which is underlined), 'UNDERSTANDING POVERTY', 'WORK WITH US', and a red 'COVID-19' button. The main header area features the text 'Where We Work / Mongolia' and 'This page in: English | Монгол'. The central content area is titled 'The World Bank in Mongolia' and contains 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 text are three tabs: 'Mongolia Home', 'Overview', and 'COVID-19'. The 'Overview' tab is active, showing sub-sections for 'Context', 'Strategy', and 'Results'. A 'RELATED' section on the right lists 'Performance and Learning Review (PLR)' and 'Mongolia Country Partnership Strategy, 2021-2025'. A small red dot is visible in the center of the page.

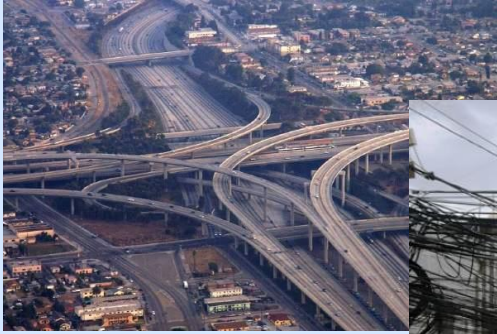
ing for dc.services.visualstudio.com... has transformed into a vibrant

Mongolia Country Partnership Strategy, 2021-2025

The World Bank Group

Work with Countries: Financing Geospatial Information and Infrastructure

Spatial Data Infrastructure: Investment Challenges



Transport



Energy

Well established business lines exist for traditional infrastructure

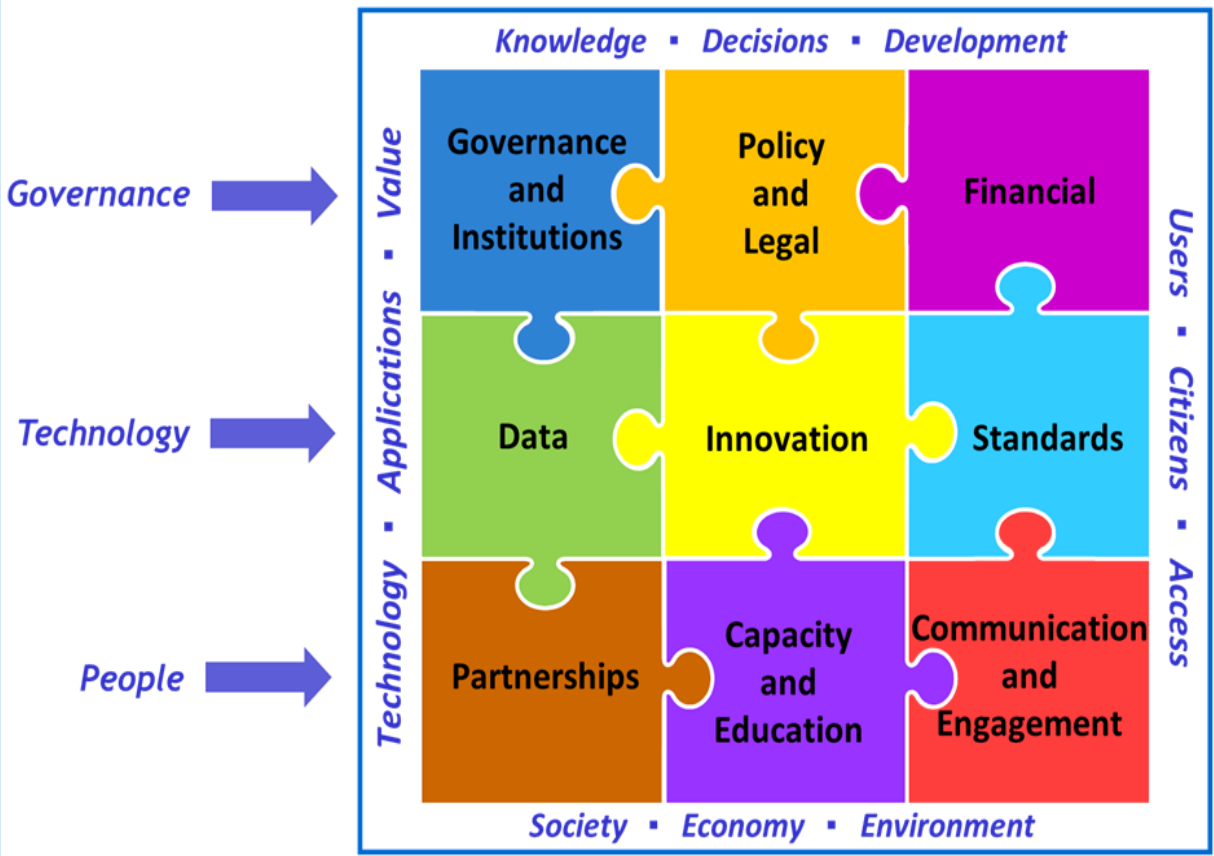
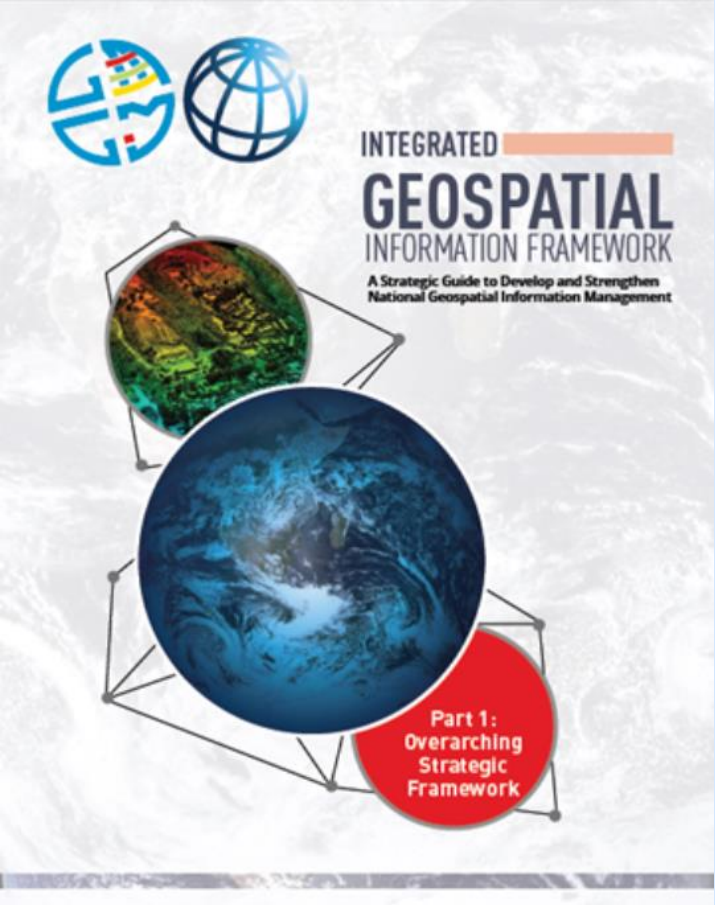


Data require a new infrastructure:
National Information Infrastructure
and Spatial Data Infrastructure (SDI)

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

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.



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

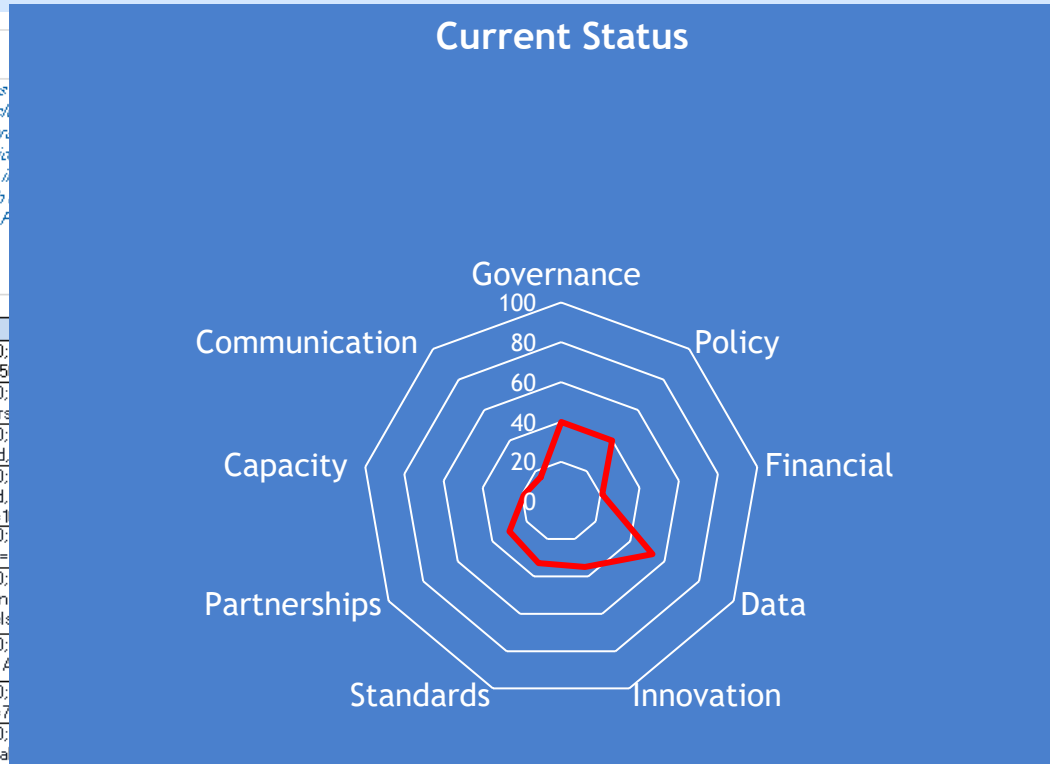
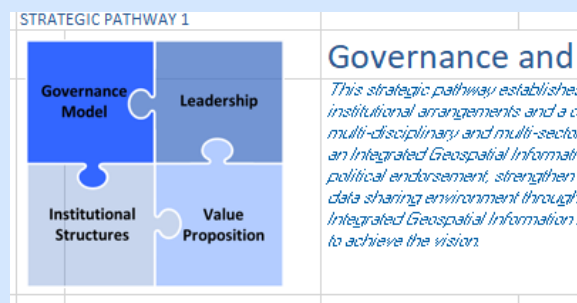
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Action Plan

World Bank Implementation Methodology



1. Diagnostic: National Report and Baseline Assessment



Indicator	Scoring Guide	Notes from Interview
1.1 Is there a NSDI "champion" in Government?	None=0; exists=50	
1.2 Is there a NSDI Coordinating body?	None=0; and pers=50	
1.3 Is the NSDI Coordinating body represented at senior / top level in government?	None=0; Defined=50	
1.4 Is the coordinating body supported by an active secretariat?	None=0; defined, Active=100	
1.5 Are there clear Terms of Reference (ToR) for the Coordinating Body?	None=0; drafted=50	
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=100	
1.7 Are there Working Groups supporting SDI development? e.g. technical, standards, legal, service development)?	None=0; up=75; 4=100	
1.8 Is there a user group / forum available for consultation and providing user feedback / requests?	None=0; Exists=75	
1.9 Does the national "champion" actively interact with the global and regional geospatial community?	None=0; Regional=75	
1.10 Are there linkages between the coordinating body and those developing the e-Government agenda?	None=0; need identified=25; being drafted=50; In place=75; Being used=100	

Guidance
Identify an early identifiable individual(s) actively promoting SDI, and report tangible outcomes towards the development and implementation of the SDI. Be cross sector, and across levels of Government. Could be designated or de facto.
Ensure someone from the co-ordinating body representing it at the top level of government, e.g. a cabinet level minister?
Ensure a secretariat has been defined, mandated, and is actively supporting the NSDI governance structure?
Ensure the Coordinating Body has been given clear ToR? ...and are they being supported to describe this.
Ensure the SDI is as inclusive as possible - how far it integrates across and across levels of government, and other sectors.
Ensure that standards are important, to provide technical input to support policy development.
Ensure that a User Group / Forum is a channel for feeding user feedback and requests to the SDI governance agencies.
Ensure that the "champion" interacts with the wider community to exchange information.

Indicator Scoring Guide Notes from Interview Score Guidance

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

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.



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

SECTORS	Transport Community Services	Land Mining	Environment Water	Law Tourism	Disaster Management Security	Government Administration	Energy Agriculture	Health 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		
Road Safety	Street Works	Census	State Land Cadastre	Business Registration	Energy Sourcing	Location-based Services	Agricultural Land Registry	
Ride-sharing Apps	Parking	Valuation	SmartCities	Community Services	eGovernment	Livestock Management	National Development Plan	
		Earthquake Monitoring	Retail Apps	Real Estate Apps	Disease Monitoring			
ACTIONS/INVESTMENTS	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

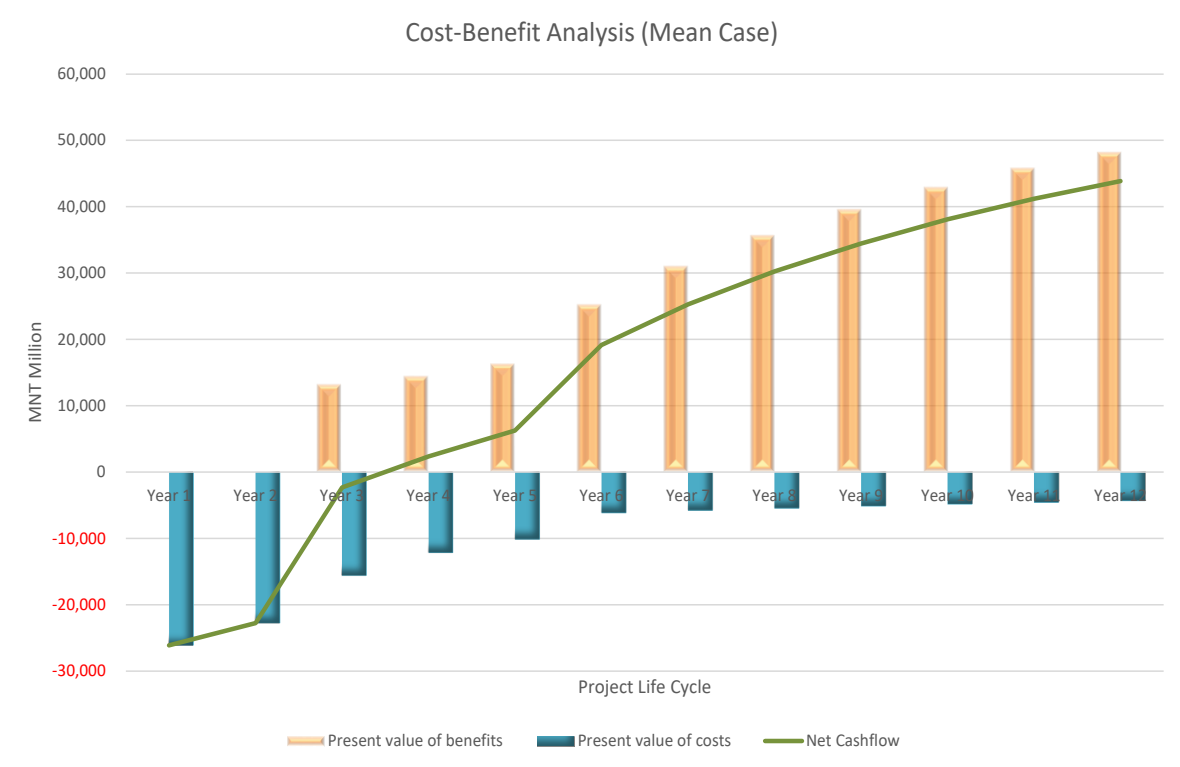
3. Socio-Economic Impact Assessment: Financing Justification

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%

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



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



New IGIF Projects and Partnerships using World Bank Methodology



Map Source: World Bank



Kartverket



Bundesamt für Kartographie und Geodäsie

NGI
Nationaal
Geografisch
Instituut



IGN
Institut
Géographique
National

States
of Jersey



consultingwhere
Maximising the value of location information



Strengthening Geospatial Information Management: Using the Integrated Geospatial Information Framework

Self-Paced Online Course

<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)



Virtual Knowledge Exchange on **Strengthening Geospatial Information Management**

Using the Integrated Geospatial Information Framework (IGIF) **October 04 - October 29, 2021**

Align Learning With Development Effectiveness



Templates



IGIF - Baseline
Assessment
Template



IGIF - Geospatial
Alignment to Policy
Drivers Template



IGIF - Socio-economic
Impact Assessment
Template



IGIF - Action Plan
Template



Open Learning Campus

ACCELERATING SOLUTIONS THROUGH LEARNING

<https://olc.worldbank.org/>

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

BUILDING PARTNERSHIPS

Philippines Case Study

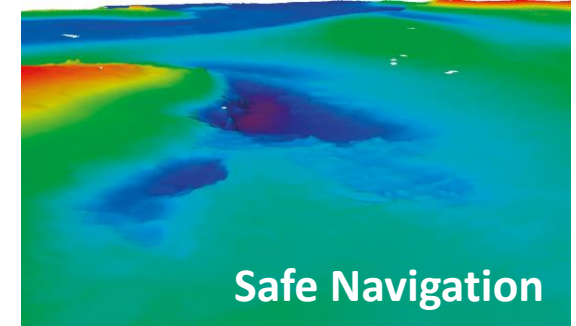
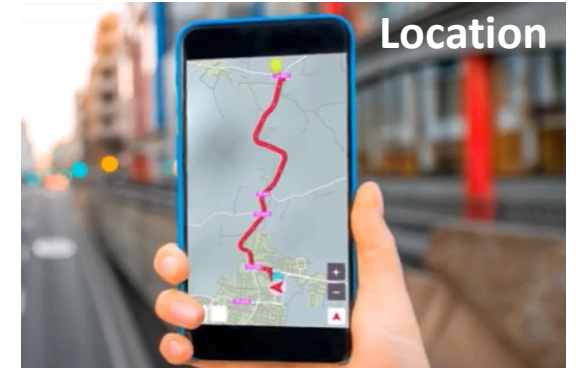
**SOUTH WEST PACIFIC HYDROGRAPHIC COMMISSION
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Andrew Coote
Geospatial Specialist



Integrated Land and Marine Management



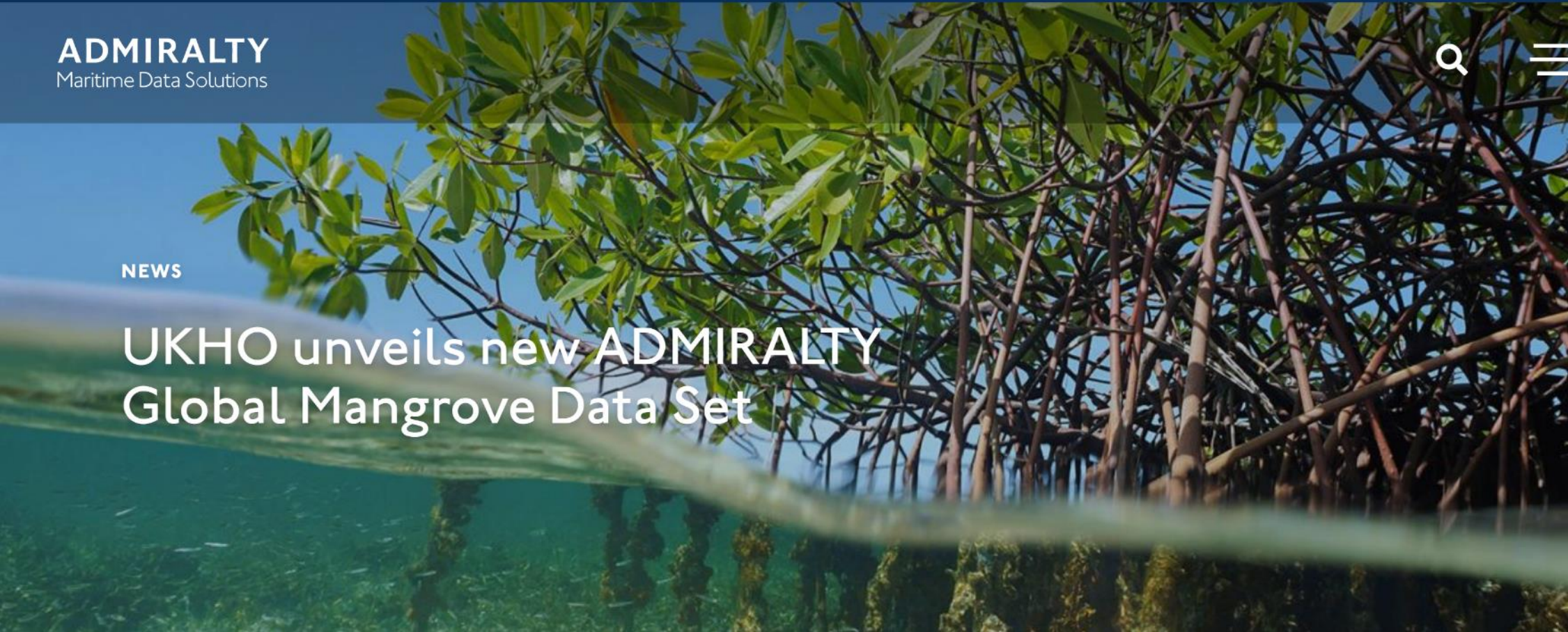


- Ability to integrate datasets is crucial
- Data integration delivers new insights
- Additional Application-specific Data Themes

Rights, Restrictions and Responsibilities on Land and Water



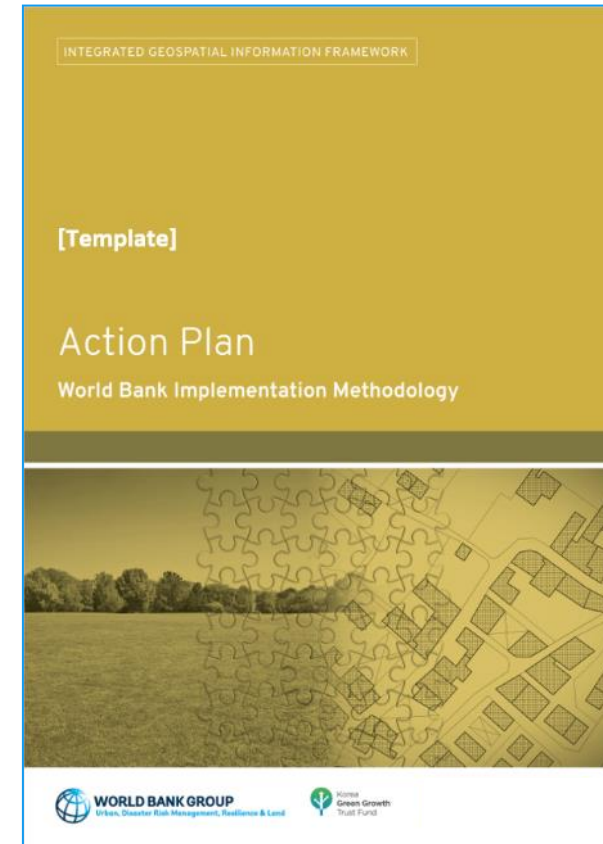
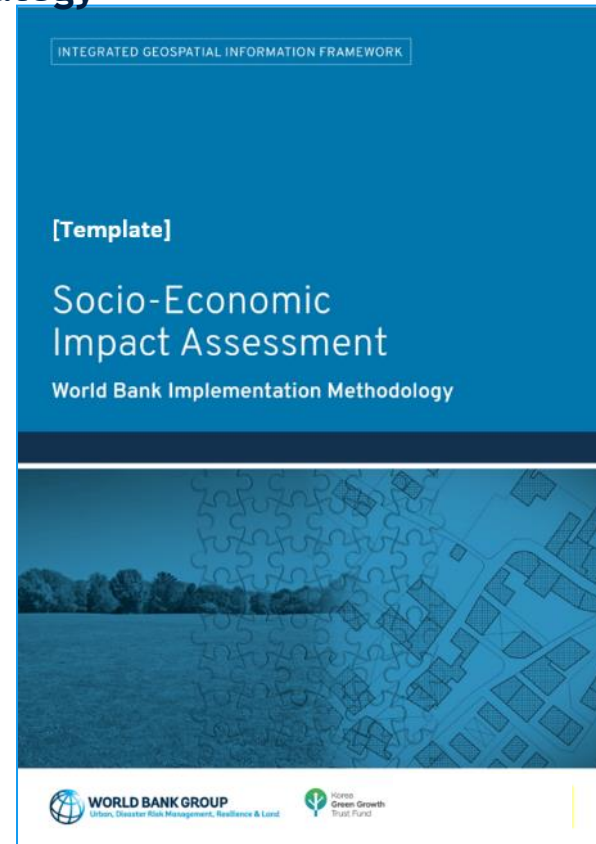
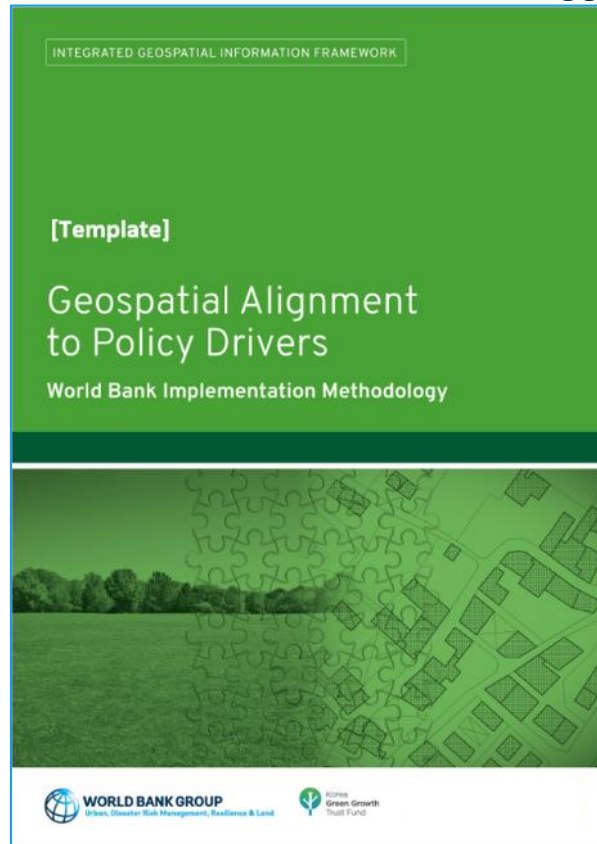
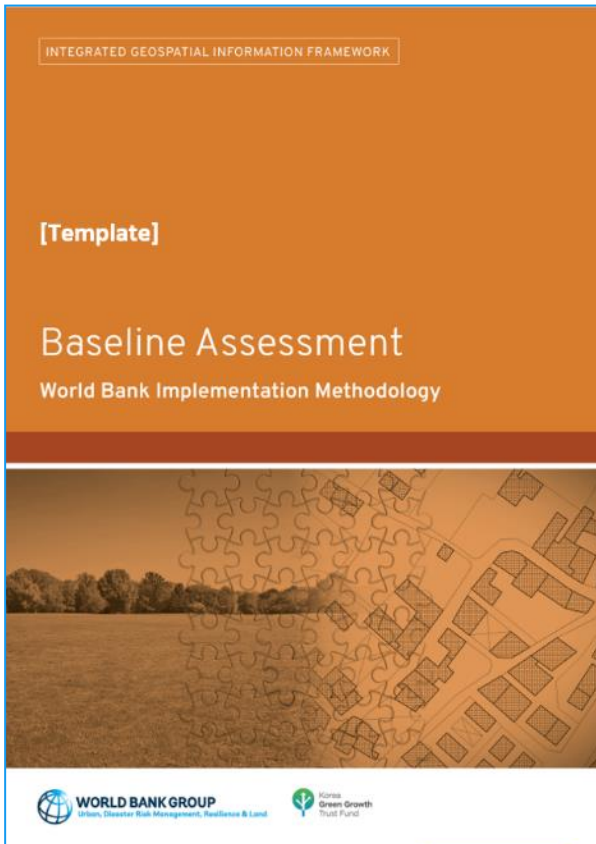
Data input comes from different agencies



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

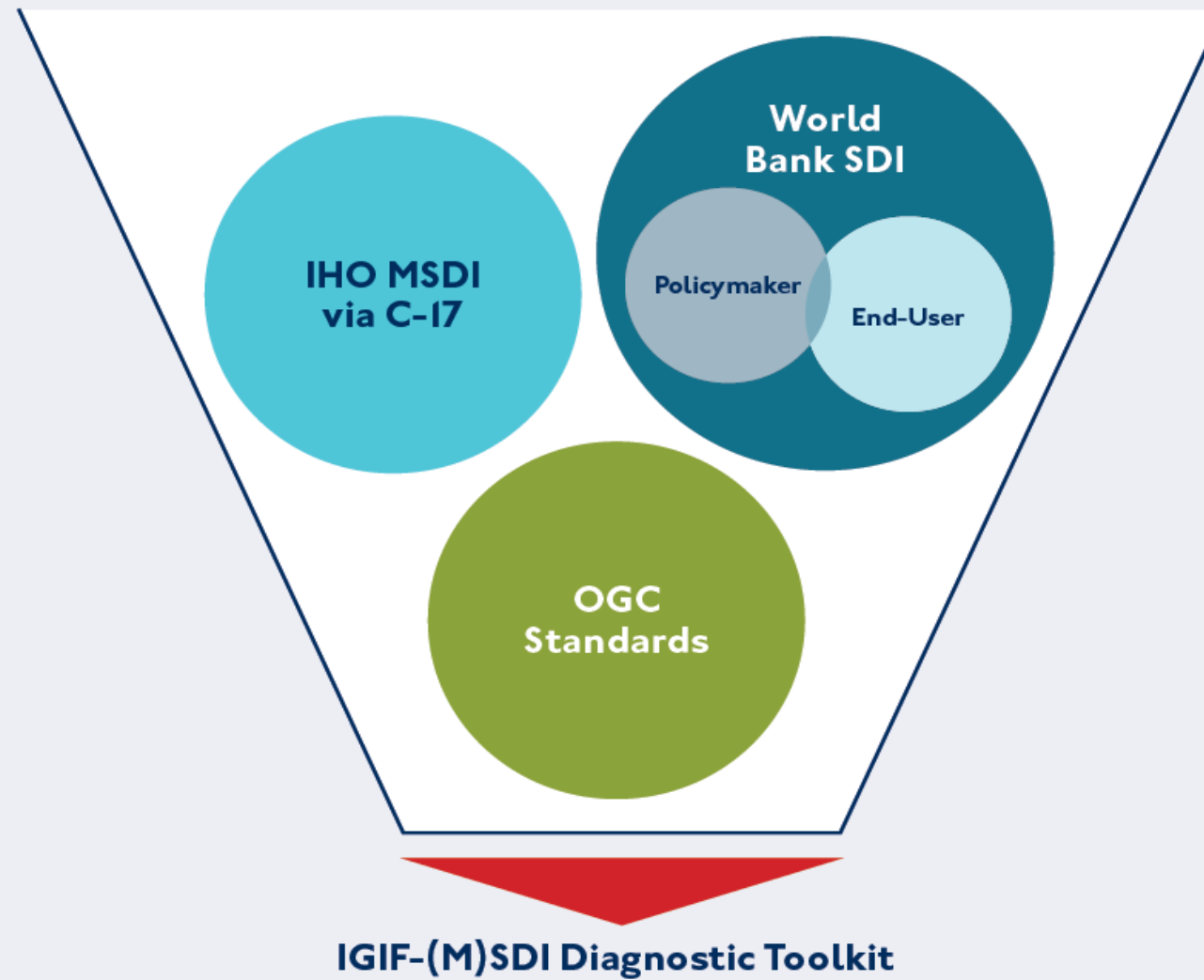
“Quick-Start Guide for undertaking an IGIF-aligned MSDI”

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

UKHO Data Strategy and Information Governance Lead



Components of the IGIF-(M)SDI Diagnostic Toolkit



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.

Quantifiable Benefits: Australia

35



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

37

Sea Change - Tai Timu Tai Pari
Hauraki Gulf Marine Spatial Plan

seasketch

take a tour ? help Andrew Coote

Data Layers Participate

Data Layers Basemap Legend & Ordering

Search layers by name or keyword

Administrative Boundaries

- Hauraki Gulf Marine Park Boundary
- Regional Council Boundaries
- Territorial Boundaries
- Place Names

Existing management

- Area Based Fishing Restrictions (MPI)
- Management Areas (Councils)
- Marine Protected Areas (DOC/MPI)
- Public Conservation Land (DOC)
- Ramsar Sites

Marine Environment

- Biodiversity
- Goods and Services
- Marine Habitats
- Physical Properties
- Swimming Water Quality

Uses and Activities

- Aquaculture
- Existing Consented Activities
- Fishing
- Heritage
- Military Zones
- Recreation and Tourism

Marine Cadastre (United States)

38

The screenshot displays the Marine Cadastre National Viewer interface. The main map shows the United States with labels for Chicago, New York, Mexico, Mexico City, and the Gulf of Mexico. A sidebar on the right contains a 'LAYERS' panel with the following items:

- ALL LAYERS
- ACTIVE LAYERS (2)
- Filter by tags
- Nearby Layers
- Sort by Active
- MATCHING LAYERS (203)
- 12NM Territorial Sea
- 2009 Vessel Traffic (AIS)
- 200NM EEZ and Maritime Boundaries
- 2010 Vessel Traffic (AIS)
- 2011 Vessel Traffic (AIS)
- 2015 Vessel Transit Counts: All Vessels
- 2016 Vessel Transit Counts: All Vessels
- 2017 Vessel Transit Counts: All Vessels

At the top of the interface, there is a navigation bar with the following options: DRAW, IDENTIFY, BASEMAP, and a search icon. The top right corner has a 'HIDE LAYERS' button. The bottom left corner shows a search bar and a coordinate display: 1:36,978,595.47, 33.64726, -80.33257.

MarineCadastre.gov

Data Maps Uses Tools News About

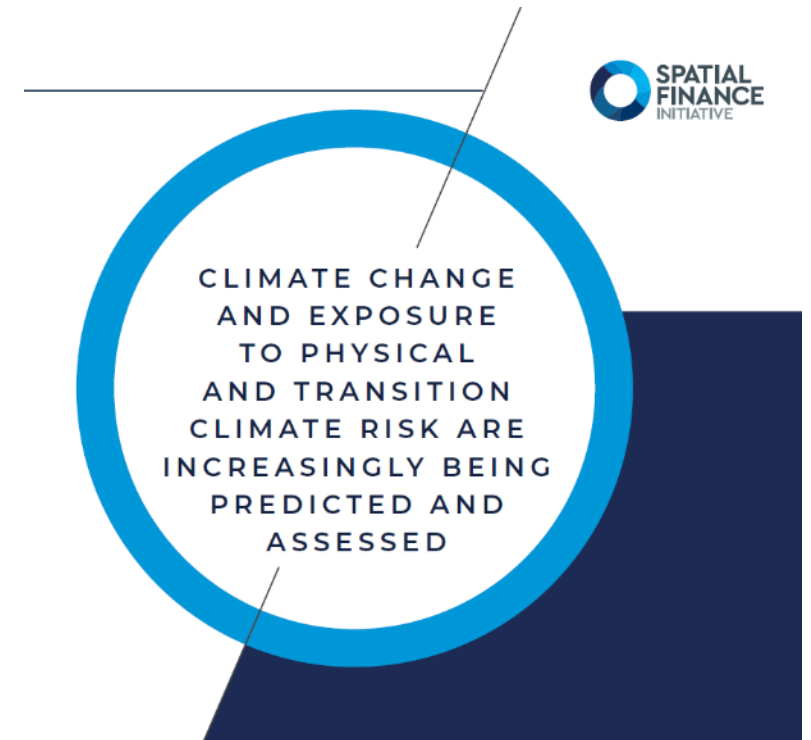
An Ocean of Information

A joint BOEM and NOAA initiative providing authoritative data to meet the needs of the offshore energy and marine planning communities.

Most Popular

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



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.

Present Integrated Marine and Land Maturity Assessment

Complete Geospatial Alignment to Policy Drivers

Prioritise Marine and Land Use Cases

Assess socio-economic Impacts (Cost-Benefit Analysis)

Define Action and Investment Plan