






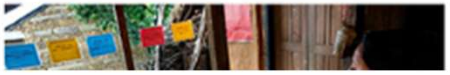
SUSTAINABLE DEVELOPMENT GOALS


Expert Consultation and Meeting on Enhancing Geospatial Information Management Arrangements and Accelerating the Implementation of the Sustainable Development Goals together with the Sub-regional Workshop on United Nations Integrated Geospatial Information Framework for Central Asia, South Asia and neighboring countries

Country-led Approach for implementing the United Nations Integrated Geospatial Information Framework

DECADE OF ACTION

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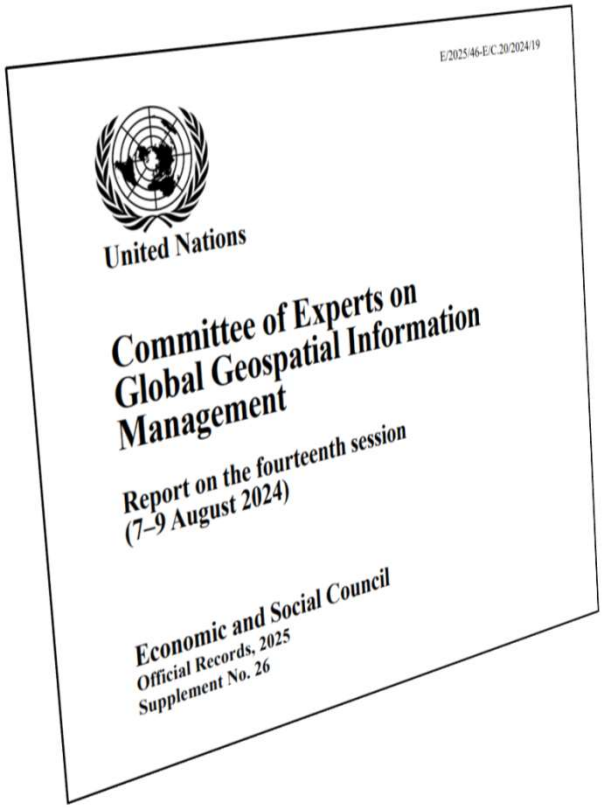
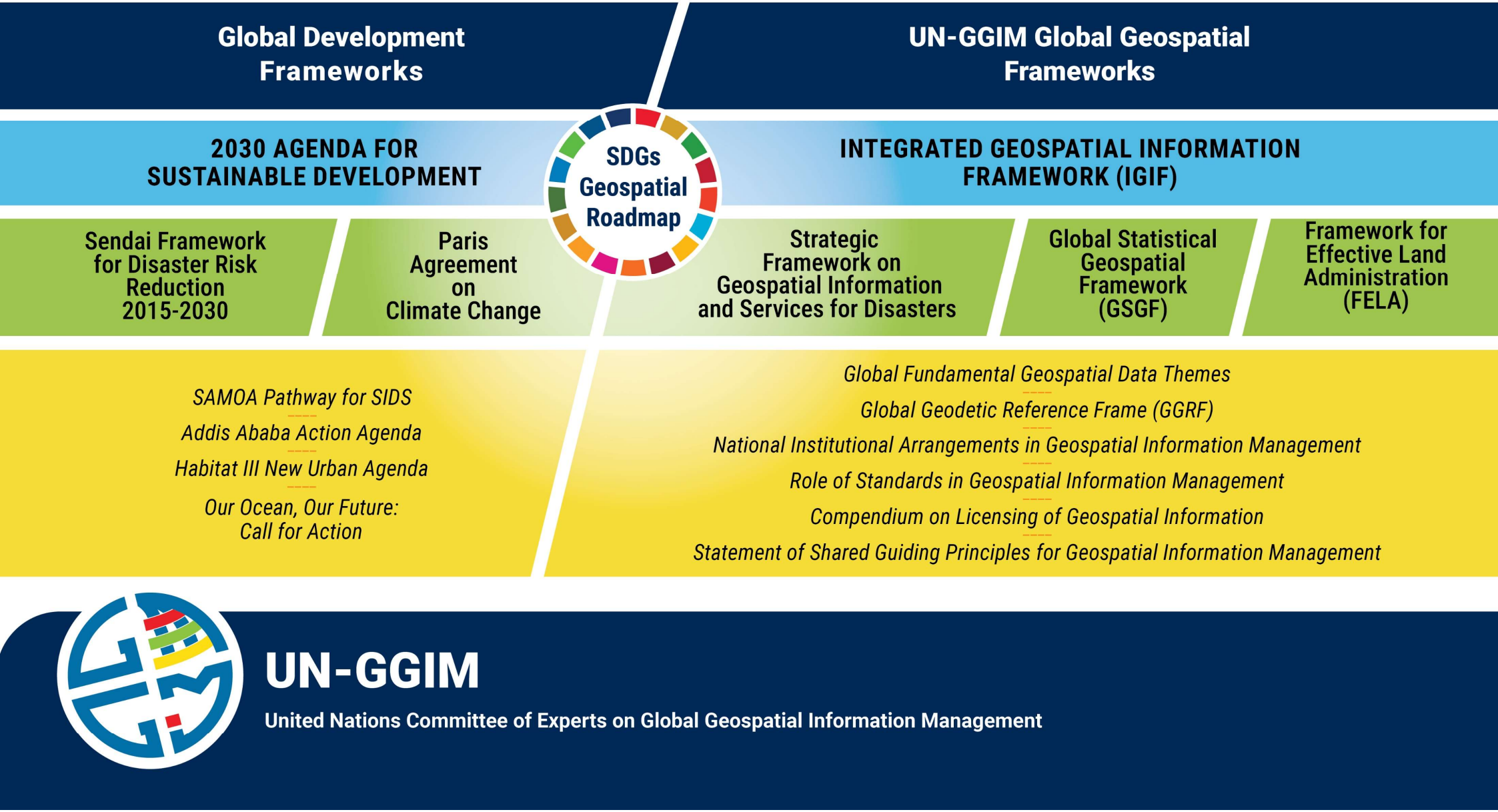
UN-IGIF
INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK



Decision 14/105
United Nations Integrated Geospatial Information Framework

The Committee of Experts on Global Geospatial Information Management:

(f) Welcomed offers from some Member States to support the adoption and operationalization of the Framework across Member States, noting that the Framework was a broad work item within the programme of work of the Committee of Experts and that strategic and effective implementing partnerships and collaboration arrangements would be beneficial, **affirmed the benefits of partnership and collaboration**, and welcomed and appreciated the tangible contributions of the SDG Data Alliance and its donors for their active support and involvement with a number of Member States to implement the Framework and to share their implementation experiences, and urged the United Nations Global Geospatial Knowledge and Innovation Centre to intensify its support to Member States **to ensure the sustained adoption of geospatial information management capabilitie**s and the operationalization of the Framework **in accordance with national circumstances**;



UN-GGIM

United Nations Committee of Experts on Global Geospatial Information Management

GLOBAL DEVELOPMENT FRAMEWORKS

2030 AGENDA FOR SUSTAINABLE DEVELPMENT

Paris Agreement on Climate Change

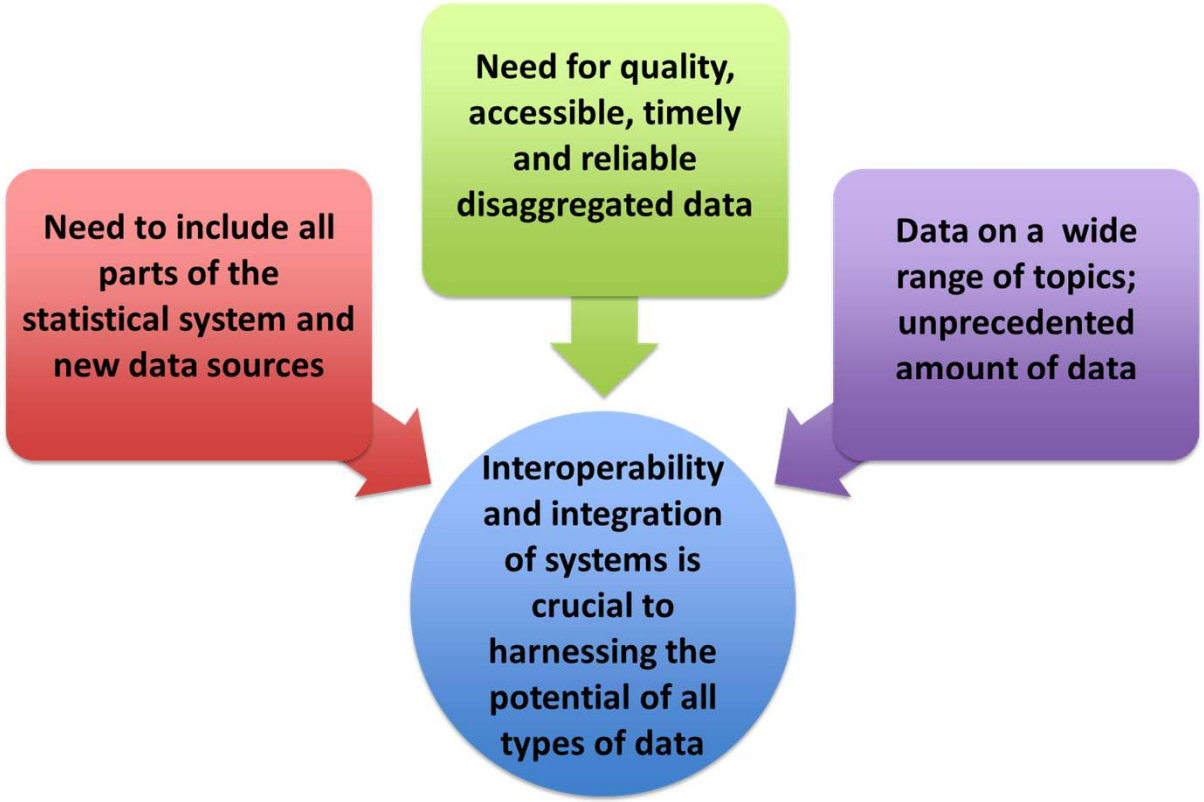
Sendai Framework for Disaster Risk Reduction 2015-2030

ABAS Declaration for Resilient Prosperity

Addis Ababa Action Agenda

Habitat III New Urban Agenda

Our Ocean, Our Future: Call for Action



Interoperability and Integration

Statistics

Geospatial

Observations

Other Data

GLOBAL GEOSPATIAL FRAMEWORKS

INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK (UN-IGIF)

- Strategic Framework on Geospatial Information & Services for Disasters
- Global Statistical Geospatial Framework
- Framework for Effective Land Administration
- Operational Framework for Integrated Marine Geospatial Information Management

Global Fundamental Geospatial Data Themes

Global Geodetic Reference Frame

National Institutional Arrangements in Geospatial Information Management

Compendium on Licensing of Geospatial Information

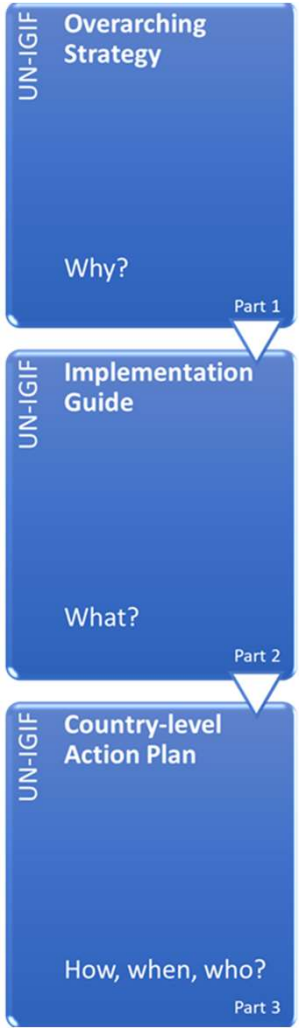
Statement of Shared Guiding Principles for Geospatial Information Management

Future trends in Geospatial Information Management

Geospatial information for sustainable development

UN·IGIF
INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

Three interconnected parts



Part 1: Overarching Strategy
https://ggim.un.org/UN-IGIF/part1.cshtml

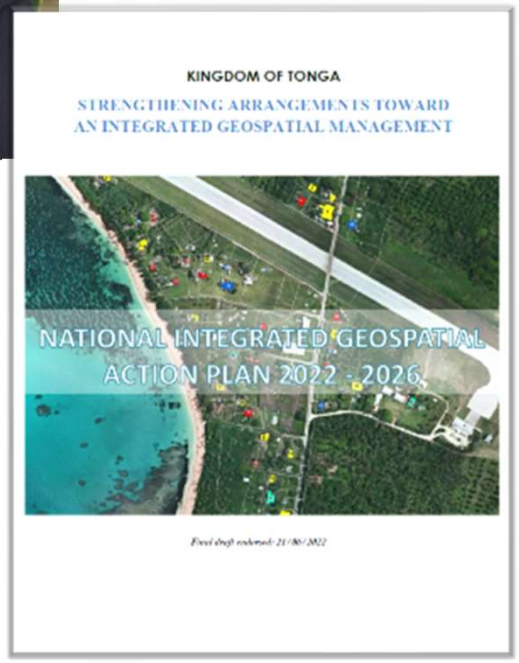
Part 2: Implementation Guide
https://ggim.un.org/UN-IGIF/part2.cshtml
https://ggim.un.org/UN-IGIF/documents/Solving_the_Puzzle_FINAL_17Mar2023.pdf

Part 3: Country-level Action Plan
https://ggim.un.org/UN-IGIF/part3.cshtml

https://ggim.un.org/UN-IGIF/

"Today is a digital era; **geospatial information** is a digital fuel for government and services. Data from many sources. We need to **act with knowledge and evidence**."

Hon. Samiu Vaipulu
Deputy Prime Minister
Kingdom of Tonga
September 2023



"The implementation of this **Action Plan** will provide Tonga with a truly **national** collaborative approach to improving the management and **use of this valuable digital asset**. Strengthen government at all levels and strengthen industry."

Part 3: Country-level Action Plan | National CAPs | Resource materials

- UN-IGIF presentation template
- Logos (as .zip)
- UN-IGIF Decision maker brochure
- UN-IGIF Quick reference Guide
- UN-IGIF Funding Guide
- UN-IGIF Funding flyer
- UN-IGIF Case study
- Report-Global survey on the use and implementation of the UN-IGIF

UN·IGIF
INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

UNITED NATIONS INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

FUNDING GUIDE

UN-IGIF Decision Maker Brochure

Advancing National Sustainable Development with Geospatial Information

UN-IGIF
INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

FROM DATA TO INSIGHT

In today's rapidly changing world, government leaders are responsible for addressing society's most critical and urgent issues, including climate change, land management, and public health delivery. They must make quick decisions on complex issues, with outcomes that profoundly impact the lives of citizens. Effective decision-making in this context requires not just data, but actionable insights. Governments must capture and integrate data, add context and visualization, and deliver it in real-time to decision-makers to achieve the actionable insights needed for sustainable social, economic, and environmental development.

THE POWER OF LOCATION DATA

At the heart of today's most urgent challenges lies a common factor: **location.** Whether it's managing natural hazards, optimizing agricultural output, or planning urban development—understanding the location context is crucial.

This geospatial information provides a unique perspective through which government leaders can view and address national priorities and issues. It can take a range of different forms from foundational data such as geological, topographic, cadastral, and hydrographic mapping that provides the critical contextual information, on top of which dynamic near-real-time data such as that provided from satellites, mobile phones, and sensors can be overlaid and understood.

By integrating geospatial information with statistical and other data from across sectors, such as public health, energy, transportation, and more, leaders can gain a comprehensive understanding of the challenges and opportunities facing their communities.

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THE KEY ROLE OF THE UNITED NATIONS INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK (UN-IGIF)

Recognizing that countries need support in advancing the full potential of geospatial information and its application, the United Nations and the World Bank developed the Integrated Geospatial Information Framework (UN-IGIF). This framework provides a comprehensive and adaptable guide for enhancing geospatial capabilities, which is crucial for addressing national sustainable development priorities.

The UN-IGIF provides tools to support effective land administration, statistical data management, disaster management, climate resilience, digital transformation, and more. It is built upon and implemented through nine strategic pathways across three key areas: Governance, Technology, and People.

GOVERNANCE- Assisting countries to develop robust geospatial policies, governance structures, legal frameworks, and approaches to identify sustainable funding mechanisms to enable effective geospatial information management.

TECHNOLOGY - Promoting the use of common standards, interoperable systems, and innovative technologies to facilitate seamless data exchange across sectors and organizations, enhancing the efficiency and accuracy of data integration, analysis, and dissemination.

PEOPLE - Emphasizing the importance of engaging stakeholders and building the skills and expertise of the workforce, the UN-IGIF provides resources and guidance for effective communication and collaboration with local communities, government agencies, and other stakeholders who have a critical role in managing geospatial data in the collective pursuit of meeting national development goals.

KEY BENEFITS OF UN-IGIF

The nine strategic pathways provide crucial support for national development. By adopting the UN-IGIF, countries can leverage the full potential of geospatial data, facilitate informed decision-making, foster collaboration, and drive sustainable growth. The benefits of UN-IGIF are wide-ranging, enhancing government, the economy, and society:

Government: Improves policy and decision making, planning, innovation, service delivery, emergency response, and efficiencies across multiple agencies. Enhances management of land and water resources, infrastructure, climate, healthcare, transportation, security, and national development, leading to more effective, resilient, and responsive governance.

Economy: Boosts productivity, fosters innovative new products and services, improves transport and logistics, enables efficient resource management, drives economic growth, sparks innovation and technology advancements, and enhances profits, leading to a dynamic and thriving economy.

Society: Improves access to services, public health outcomes, standards of living, community development, environmental conservation, public safety, education, disaster preparedness, and social equity, fostering a more inclusive and resilient society.

Leaders are encouraged to leverage this powerful tool to navigate national challenges and steer their countries toward a more prosperous future.

A STRONG RETURN ON INVESTMENT

Investing in geospatial information and infrastructure is an economically wise decision that has significant direct financial benefits. Many studies, including those by the World Bank, have shown significant returns on investment (ROI) of up to 250%. For example, improved disaster preparedness helps to minimize recovery costs, while effective land administration can boost revenues.

Investing in geospatial information and infrastructure also provides many indirect benefits. It enhances the efficiency and effectiveness of citizen services, optimizes resource allocation and deployment, resulting in raised living standards. It improves environmental impact measurement and modeling, and enhances the sustainable use and management of natural resources. When both direct and indirect economic benefits are considered, the UK Public Sector Geospatial Agreement demonstrated a very impressive 8:1 benefit-cost ratio.

However, without planned and coordinated data capture and sharing, geospatial data can become more costly for governments. Various departments and ministries might already be collecting location data for cadastral, defence, land administration, emergency managment, or disaster response. If geospatial data and supporting technologies are not effectively shared between departments, it can lead to cost duplication and the inefficient use of resources.

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The nine strategic pathways of the UN-IGIF

GETTING STARTED

To help you get started, the UN-IGIF provides guidance to build and strengthen geospatial information management through three key components:

1. Overarching Strategy: Sets the context for why geospatial information management is critical for sustainable social, economic, and environmental development.

2. Implementation Guide: Offers detailed guidance, standards, and recommended actions to implement the UN-IGIF to strengthen national geospatial capabilities.

3. Country Level Action Plan: Includes a recommended process and resource materials to help countries evaluate their current situation and develop specific plans tailored to their national priorities.

The early stages require minimal investment and enable the creation of a costed action plan or budget to focus the allocation of future resources. A costed action plan can also attract additional support and funding from philanthropic organizations, the World Bank, and other groups that help nations build geospatial capabilities to support digital transformation, disaster response, land administration, climate resilience, and other critical priorities. Given the broad benefits of the UN-IGIF, implementation can be funded as part of almost any national development program.

Many UN Member States are already using the UN-IGIF to strengthen geospatial capabilities and support national development, making it a tried-and tested approach.

To get started, visit **https://ggim.un.org/ UN-IGIF/** to review the UN-IGIF materials and determine how your country can start the process today. By utilizing the UN-IGIF to improve geospatial information management and infrastructure, you will be better positioned to deliver the change your nation needs to improve people's lives, protect the environment for future generations, and deliver sustainable economic prosperity for all.

UN·IGIF
INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

Quick Reference Guide: UN-IGIF Nine Strategic Pathways

	DESCRIPTION AND OBJECTIVE	ELEMENTS OF THE STRATEGIC PATHWAY	POTENTIAL TOOLS AND METHODOLOGIES	KEY ACTIONS TO STRENGTHEN GEOSPATIAL INFORMATION MANAGEMENT	OUTCOMES	RELATED PATHWAYS	POSSIBLE DELIVERABLES
1 Governance and Institutions	**DESCRIPTION:** Establishes the leadership, governance model, institutional arrangements and a clear value proposition to strengthen multi-disciplinary and multisectoral participation in, and a commitment to, achieving the UN-IGIF. **OBJECTIVE:** Attain political endorsement, strengthen institutional mandates and build a cooperative data sharing environment through a shared vision and understanding of the value of the UN-IGIF, and the roles and responsibilities to achieve the vision.	• Governance Model • Leadership • Value Proposition • Institutional Arrangements	• Steering Committee Charter Example • Strategic Alignment Template • Guidance for Vision, Mission, and Goal Statements • Country-level Action Plan Template • Monitoring and Evaluation Template • Success Indicators Example	**FORMING LEADERSHIP:** Governing Body, Geospatial Coordination Unit(s), Specialist Working Groups **ESTABLISHING ACCOUNTABILITY:** Governance Model **DEFINING VALUE:** Strategic Alignment Study, Value Proposition Statement **SETTING DIRECTION:** Geospatial Information Management Strategy, Change Strategy **CREATING A PLAN OF ACTION:** Country-level Action Plan **TRACKING SUCCESS:** Monitoring and Evaluation, Success Indicators	✓ Efficient Planning and Coordination ✓ Strengthened Leadership, Institutional Mandates and Political Buy-in ✓ Cooperative Data Sharing ✓ Valued Geospatial Information Management	2 3 4 5 9	Governance Model Strategic Alignment Study Value Proposition Statement Geospatial Information Management Strategy Change Strategy Success Indicators
2 Policy and Legal	**DESCRIPTION:** Establishes a robust policy and legal framework that is essential for instituting effective, efficient and secure management and exchange of geospatial information-nationally and sub-nationally. **OBJECTIVE:** Address current policy and legal issues by improving the policies and laws associated with, and having an impact on, geospatial information management. This is achieved by proactively monitoring the policy and legal environment, including mandating responsibility for the production of data, and keeping abreast of issues and challenges arising from the evolving, innovative and creative use of geospatial information and emerging technologies.	• Legislation • Policies, Norms and Guides • Data Protection, Licensing and Sharing • Governance and Accountability	• Common Legal Terms • Review and Assessment • Policy Review Questions • Use Case Example • Gap Analysis Matrix • Policy and Legal Instrument • Accessing Fitness for Purpose for Policy • Managing Intellectual Property Rights • Addressing Sensitive Information	**PROVIDING LEADERSHIP:** Policy and Legal Working Group **ASSESSING NEEDS:** Policy and Legal Review, Needs Assesment and GAP Analysis **ADDRESSING OPPORTUNITIES:** Policy and Legal Framework, Data Sharing and Dissemination, Licensing Geospatial Information **FUTURE PROOFING:** Future-Proofing **ADDRESSING COHERENCE:** Intellectual Property Rights, Privacy and Data Protection, Liability Concerns, Sensitive Information **DELIVERING COMPLIANCE**: Impact Assessment, Compliance Strategy	✓ Sound and Enabling Policy and Legal Environment ✓ Maximizes Utility of Geospatial Information with Safeguards ✓ Effective/Secure Management, Integration, and Application ✓ Responsive to Changes and Progress ✓ Mandates and Responsibilities Clarified ✓ Strengthen Governance and Accountability	1 9	Review and Assessment Gaps and Opportunities Analysis Policy and Legal Framework Documented Intellectual Property Rights/Data Protections Impact Assessment Compliance Strategy Methodology for Modernization
3 Financial	**DESCRIPTION**: Establishes the business model, develops financial partnerships, and identifies the investment needs and means of financing for delivering integrated geospatial information management, as well as recognizing the milestones that will achieve and maintain momentum, and realize benefits. **OBJECTIVE:** Achieve an understanding of the financial plans required to establish and maintain integrated geospatial information management, as well as the longer-term investment program that enables government to respond to evolving societal, environmental and economic demands for geospatial data.	• Business Model • Opportunities • Investment • Benefits Realization	• UN-IGIF 'Current and Desired Future Dual Response' Survey • UN-IGIF Baseline Survey • World Bank/FAO SDI Diagnostic Tool • Business Model Canvas • Developing a Business Model • Geospatial Program Budget • Socio-Economic Impact Assessment Approach • Components of a Business Case • Developing an Annual Budget • Financing Models	**SETTING DIRECTION:** Financial Governance, Financial Accountability **SITUATIONAL ASSESSMENT:** Current Operating Environment, Current Business Model, Data Policy, Public Good **FINANCIAL PLAN:** Desired Business Model, Financial Planning **CASE FOR INVESTMENT:** Socio-Economic Impact Assessment, Business Case, Investment Appraisal, Annual Budget **SOURCES OF FUNDING:** Sources of Funding, Strategic Opportunities **DERIVING VALUE:** Benefits Realization, Communicate Benefits	✓ Investment Plan with Funding Sources, Obligations, and Estimates for Future Years ✓ New Funding Initiatives Identified to Meet National Geospatial Information Priorities ✓ Financial Accounting of Costs Associated with all Aspects of National Geospatial Information Program ✓ Socio-Economic Value of Geospatial Information is Defined and Aligned to Financial Plan to Realize Benefits	1 2 7 9	Financial Arrangement and Management Plan Situational Assessment Strategic Opportunities Assessment Desired Business Model Financial Plan Socio-Economic Impact Assessment Investment Appraisal Annual Budget
4 Data	**DESCRIPTION**: Establishes a geospatial data framework and custodianship guidelines for best practice collection and management of integrated geospatial information that is appropriate to ensure cross sector and multidisciplinary collaboration. **OBJECTIVE**: Enable data custodians to meet their data management, sharing and reuse obligations to government and the user community through the execution of well-defined data supply chains for organizing, planning, acquiring, aggregating, integrating, curating, analyzing, publishing and archiving geospatial information.	• Data Themes • Custodianship, Acquisition and Management • Data Supply Chains • Data Curation and Delivery	• Fundamental Geospatial Data Themes • Data Theme Description • Data Inventory Questionnaire • Dataset Profile Template • Gap Analysis Matrix • Data Theme Road Map Template • Data Custodianship Policy Principles • Data Governance Roles • Data Management Plan Elements • Metadata Creation Checklist • Data Release Guidelines • Guidance for Geodetic Infrastructure • Global Statistical Geospatial Framework • Guidance on Geo-Statistical Integration	**GETTING ORGANIZED:** Data Framework, Data Inventory, Dataset Profiles **PLANNING FOR THE FUTURE:** Data Gap Analysis, Data Theme Roadmap **CAPTURING AND ACQUIRING DATA:** Data Capture, Data Acquisition Program **MANAGING DATA SUSTAINABILITY:** Custodianship Policy, Data Governance, Data Management, Maintained Metadata, Data Release, Storage/Retrieval System **MAINTAINING ACCURATE POSITIONING:** Maintained Geodetic Reference Frame **INTEGRATING DATA:** Geospatial/Statistical Integration, Geocoding and Aggregation, Data Supply Chains, Data Interoperability	✓ Increased Range and Scope of Authoritative Data ✓ A Critical Mass of Centrally Coordinated Data ✓ Cost Reduction Through Productivity Improvements ✓ Ability to Monitor and Measure Progress Towards Achieving SDGs	1 2 5 6 7 9	Data Framework Data Inventory Dataset Profiles Data Gap Analysis Data Theme Roadmap Custodianship Policy Data Governance and Management Data Storage/Retrieval Process Maintained Geodetic Infrastructure Data Interoperability Metadata Profiles

The Quick Reference Guide provides a high-level overview of the UN-IGIF Nine Strategic Pathways—along with potential tools, actions, outcomes, and deliverables. Refer to the UN-IGIF Implementation Guide for complete details.

	DESCRIPTION AND OBJECTIVE	ELEMENTS OF THE STRATEGIC PATHWAY	POTENTIAL TOOLS AND METHODOLOGIES	KEY ACTIONS TO STRENGTHEN GEOSPATIAL INFORMATION MANAGEMENT	OUTCOMES	RELATED PATHWAYS	POSSIBLE DELIVERABLES
5 Innovation	**DESCRIPTION**: Recognizes that innovation has the potential to stimulate, trigger and respond to rapid change, advance past outdated technologies and processes, and to bridge the geospatial digital divide. Technology is continually evolving, creating new opportunities for innovation and creativity. **OBJECTIVE**: Leverage the latest and cost-effective technologies, innovations and process improvements so that governments, businesses, academia, and communities, no matter what their current situation, may advance or leapfrog to modern geospatial information management practices and services.	• Technological Advances • Innovation and Creativity • Process Improvement • Bridging the Geospatial Digital Divide	• UN-IGIF Technology Maturity Index • Capability Framework Matrix • Geospatial Drivers and Trends • ICT Data inventory • PEST and SWOT Analysis • Modernizing Data Assets • Modern Data Creation Methods • Data Integration Approaches • Data Storage Processes • Pillars of an Innovation Program • Critical Path Analysis • Open SDG Data Hubs	**GEOSPATIAL LANDSCAPE**: Innovation Group, Technology Maturity Index, Strategic Alignment **IDENTIFYING INNOVATION NEEDS:** Monitoring Trends, Technology Needs Assessment **TRANSFORMATION ROADMAP:** Modernizing Data Assets, Modern Data Creation Methods, Enabling Infrastructure **PLANNING FOR ACTION:** Geospatial Digital Transformation Strategy, Building a Culture of Innovation **OPERATIONALIZING INNOVATION:** National Innovation System, Innovation Programs, Innovation Hubs, Process Improvement **FUTURE DIRECTIONS:** Buidling the Geospatial Digital Divide, Integrated System-of-Systems	✓ Effective Geospatial Information Managment Processes ✓ Increased Productivity Through an Innovation Enabled Environment ✓ Innovative Workforce ✓ Ability to Bridge the Geospatial Digital Divide	1 4	Technology Maturity Matrix Geospatial Digital Transformation Strategy Modernizing Data Assets Enabling Infastructure Innovation System and Programs Innovation Hubs Process Improvement Integrated Systems-of-Systems
6 Standards	**DESCRIPTION**: Establishes and ensures the adoption of standards and compliance mechanisms for enabling data and technology interoperability to deliver integrated geospatial information and to create location-based knowledge. **OBJECTIVE**: Enable an efficient and consistent approach for different information systems to be able to discover, manage, communicate, exchange and apply geospatial information for a multitude of uses, improved understanding and decision making.	• Standards Governance and Policy • Technical and Data Interoperability • Compliance Testing and Certification • Community of Practice	• National Governance Model • Standards Baseline Survey • Standards Needs Assessment and Gap Analysis • Roles and Responsibilities for National Standards Governance • Standards Training, Tools and Related Resources • User Community Case Studies and Statements of Benefits • Community Good Practices	**DIRECTION SETTING:** Standards Governance, Standards Awareness, Strategic Goals **UNDERSTANDING NATIONAL NEEDS:** Baseline Survey, Standards Inventory, Needs Assessment and Gap Analysis **PLANNING FOR CHANGE:** Action Plan, Institutional Arrangements **TAKING ACTION:** Implementation, Communication and Engagement, Risk Assessment **ONGOING MANAGEMENT:** Standards Review Program, Community of Practice, Capacity Development **ACHIEVING OUTCOMES:** Compliance, Success Indicators	✓ Minimized Barriers to Data Sharing and Integration ✓ Enhanced Abilities to Share and Address Common Issues ✓ Rapid Mobilization of New Sources of Data and Technologies ✓ Improved Uptake of Geospatial Information ✓ Efficiencies in Geospatial Data Production and Lifecycle Management	1 3 4 8 9	Standards Governance Framework Standards Strategy and Plan Strategic Goals Baseline Survey Standards Inventory Needs Assessment and Gap Analysis Action Plan Standards Review Program Standards Compliance Program
7 Partnerships	**DESCRIPTION**: Establishes cross-sector and interdisciplinary collaboration, cooperation and coordination with all levels of government, geospatial industry, private sector, academia, and the international community, as an important premise to developing and sustaining an enduring nationally integrated geospatial information framework. **OBJECTIVE**: Create and sustain the value of geospatial information through a culture based on inclusion, trusted partnerships and strategic alliances that recognize common needs, aspirations and goals, towards achieving national priorities and outcomes.	• Cross-sector and Interdisciplinary Cooperation • Private Sector and Academia Collaboration • International Collaboration • Community Participation	• Identifying and Classifying Potential Partners • Evaluation of Potential Partners • Review and Evaluation • Types of Partnerships • Communication Plan • Success Indicators	**UNDERSTANDING PARTNERSHIPS:** Needs for Partnering, Types of Partnerships **EVALUATING OPPORTUNITIES:** Partnership Opportunities, Selection Criteria **IDENTIFYING POTENTIAL PARTNERS:** Potential Partners, Preliminary Screening, Initial Engagement **SELECTING PARTNERS:** Options and Operational Implications, Financial Analysis **FORMALIZING PARTNERSHIPS:** Establishing Agreement, Communication Plan, Governance Structure **MANAGING PARTNERSHIP:** Reporting and Accountability, Review and Evaluation, Concluding a Partnership	✓ Increased Development Capacity through Sharing, Learning and Knowledge Transfer ✓ Enhanced Organization Knowledge, Expertise, and Proficiencies and Expanded Capability through Complementary Resources ✓ Agility and Flexibility in Transformation and Reform ✓ Empowered Creativity and Innovation through Collaboration and Joint Efforts	1 2 3 4 5 9	Stakeholder Identification Process Stakeholder Evaluation and Selection Criteria Partnership Agreement Governance Structure Communication Plan Review and Evaluation Process
8 Capacity and Education	**DESCRIPTION**: Establishes enduring capacity development and education programs so that the value and benefits of integrated geospatial information management is sustained for the longer term. **OBJECTIVE**: Raise awareness, build and strengthen knowledge, competencies, skills, instincts, processes, resources, and innovative entrepreneurship that organizations, communities and individuals require to utilize geospatial information for evidence based decision-making and effective service delivery.	• Awareness Raising • Formal Education • Professional Workplace Training • Entrepreneurship	• Knowledge Skills- Resource Matrices for Organizations and Teams • Capacity Scanning Matrix • Incremental Approach to Needs Assessment/Analysis • Gap Analysis Approach to Needs Assessment/Analysis • PEST and SWOT Analysis • Typical Components of a Capacity Development and Education Strategy • Capacity Development Approaches • Recording Success Indicators for Capacity Development	**SETTING DIRECTION:** Capacity and Education Working Group, Target Groups **ASSESSING NEEDS:** Inventory of Knowledge Skills and Resources, Assessment and Analysis **CONSIDERING ALTERNATIVES:** Capacity Development and Education **PLANNING FOR ACTION:** Development Approaches, Implementation Plan, Education Programs, Outreach Initiatives **TAKING ACTION:** Community of Practice, Innovation Hubs and Incubators, Geospatial Challenges, Geography in Schools, Scholarships and Internships **ASSESSING VALUE:** Monitor and Evaluate	✓ Broad Geospatial Awareness and Capabilities at all Levels ✓ Increased Adoption/Application of Geospatial Information, Technologies, and Processes ✓ Stimulate Creativity and Innovative Solutions to Address Real-world Challenges, Economic Opportunities and Growth, and Well-being of Society ✓ Equipped with Increasing Knowledge, Proficiencies and Instincts in Geography and Geospatial Sciences	1 2 5 7 9	Inventory of Knowledge, Skills, and Resources Needs Assessment and Gap Analysis Capacity Development Strategy Geospatial Education Programs Education Implementation Plan Innovation Hubs and Incubators Geospatial Literacy Outreach Plan Monitoring and Evaluation Framework
9 Communication and Engagement	**DESCRIPTION**: Recognizes that stakeholder identification, user engagement and strategic communication are essential to successfully deliver integrated geospatial information management arrangements nationally and sub-nationally for sustainable social, economic and environmental development. **OBJECTIVE**: Ensure effective communication and engagement to enhance and deepen participation and contributions from all stakeholders and at all levels. Commitment, mutual understanding, collaboration, cooperation and communication are essential to successfully implement the UN-IGIF within organizations and with stakeholders.	• Stakeholder and User Engagement • Strategic Messaging • Strategy, Plans and Methods • Monitoring and Evaluation	• Categories of Stakeholders • Identifying and Classifying Stakeholders • Stakeholder Analysis Matrix • Stakeholder Analysis and Communication • Stakeholder Communication Plan • Communication Methods • Communication Methods- Advantages and Disadvantages • Review and Evaluation- Methods for Benchmarking	**PROVIDING LEADERSHIP:** Communication and Engagement Strategy, Working Group, Internal Communication **UNDERSTANDING OPPORTUNITIES:** Stakeholder Identification, Stakeholder Analysis **SETTING DIRECTION:** Policy Platform, Geospatial Brand, Strategic Messages **CREATING A PLAN OF ACTION:** Communication Plan, Communication Methods **MONITORING PROGRESS:** Review and Evaluation, Stakeholder Surveys **COMMUNICATING VALUE:** Benefits Communication, Lessons Learned Resource	✓ Heightened Awareness and Active Engagement ✓ Elevated Trust, Confidence, and Increased Use of Geospatial Information ✓ Greater Synergy, Increased Opportunities, Innovations and Accomplishments ✓ Increasing Engagement, Awareness, and Participation ✓ Positive Relationships, Greater Efficiency and Effectiveness	1 3	Communication and Engagement Strategy Working Group for Communication and Engagement Stakeholder Identification Stakeholder Analysis Geospatial brand Communication Plan and Methods Review and Evaluation Plan

The Quick Reference Guide provides a high-level overview of the UN-IGIF Nine Strategic Pathways—along with potential tools, actions, outcomes, and deliverables. Refer to the UN-IGIF Implementation Guide for complete details.

UN-IGIF CASE STUDY:
CLIMATE ACTION IN INDONESIA

CASE HIGHLIGHTS

SECTOR

- Climate Action/Environment
- Forestry and Other Land Use (FOLU)

CHALLENGE

Indonesia faced significant challenges effectively monitoring and managing its vast and diverse landscapes to achieve emission reduction committments set under the Paris Agreement.

SOLUTION

The FOLU Net Sink 2030 Initiative set forth an ambitious vision for transformative climate action, with geospatial information and infrastructure recognized as key components of its success. To support this vision, the United Nations Integrated Geospatial Information Framework (UN-IGIF) provided a comprehensive, structured approach to geospatial information management, serving as the foundation for data-driven forestry, land use, and emissions management.

IGIF PATHWAYS UTILIZED

All nine Strategic Pathways were used to support climate action.

OVERVIEW

Indonesia's rapid economic growth throughout the late 20th Century drove extensive logging, conversion of forests to agricultural land, and peatland drainage. These activities released large amounts of greenhouse gases, especially carbon dioxide and methane, significantly contributing to climate change issues.

Recognizing the urgent need to address these issues, Indonesia signed the Paris Agreement and committed to ambitious voluntary Nationally Determined Contributions (NDCs) to reduce its greenhouse gas emissions and combat climate change. Indonesia's NDC included a commitment to reduce greenhouse gas emissions 29% by 2030, with the potential to increase this to 41% with international support.

Indonesia struggled to meet the NDC targets due to strong economic pressures, deforestation, and land-use changes. Transformative change was needed in the FOLU sector to deliver the NDC. The FOLU Net Sink 2030 Initiative, launched in 2022, laid out a path to transform the sector into a net carbon sink by 2030, focused on reducing deforestation, promoting reforestation, and implementing key sustainable land management practices. This bold new initiative empowered Indonesia to set more ambitious targets, updating their NDC in 2022 to reduce emissions 31.89% by 2030 and 43.20% with international support.

CHALLENGE

Indonesia's diverse landscapes span over 17,000 islands and include tropical rainforests, peatlands, mountain ranges, vast coastal ecosystems, and grasslands. Effectively monitoring and managing these varied environments presents significant challenges to achieving emission reduction goals.

Despite efforts to curb deforestation, illegal logging and forest and peatland conversion for agriculture remained significant issues, hindering emission reduction efforts. Indonesia's peatlands and grasslands are also prone to frequent fires, which increase emissions. Coastal degradation in Indonesia, such as the destruction of mangroves and coral reefs also increase emissions and further complicate the achievement of reduction goals.

Historically, environmental data was siloed across ministries, local governments, and institutions, making it difficult to track emissions, monitor land-use changes, and enforce policies effectively. Without a unified approach, decision-making lacked precision, and opportunities for targeted interventions were often missed. Strengthened cross-sector coordination, improved data-sharing policies, and collaborative financing were needed to successfully support the initiative. Innovative new data sources, geospatial technologies, and targeted training were also needed to provide comprehensive and integrated data to more effectively monitor and manage these diverse landscapes to achieve emission reduction goals.

UN-IGIF
INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

Enabling a Better Future with Location Data

SOLUTION

Geospatial information was pivotal to Indonesia's FOLU Net Sink 2030 Initiative, with the nine strategic pathways of the UN-IGIF providing a strong framework to enhance geospatial information management and infrastructure—ensuring the program's ambitious goals were both achievable and sustainable.

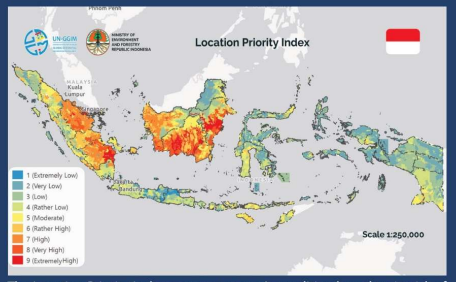
The **Governance and Institutions Pathway** outlined the formal arrangements that clearly defined geospatial information management roles and responsibilities, and the processes for coordination and management within the Ministry of Forestry and across various agencies, local governments, forest management units, and academic institutions. The **Policy and Legal Pathway** established new geospatial regulations and guidelines in 2021 to strengthen the administration and use of geospatial data to support Indonesia's climate action strategies. The **Finance Pathway** ensured the long-term sustainability of geospatial information for the FOLU Initiative, securing funding from national, state, and regional budgets, alongside private sector investments, international grants via government to government schema with the Norweigian Ministry of Climate and Environment, and funding from partners like the United Nations Development Program and the World Bank. These efforts ensured the robust governance essential for success.

The Ministry of Forestry implemented the **Data and Innovations Pathways** to advance innovative new data sources and geospatial technologies like remote sensing and the SIGAP geospatial information system. The SIGAP system enabled the collection, processing, integration, and visualization of spatial data, incorporating 103 thematic datasets from 35 geospatial data producers. These innovations facilitated precise analyses like the Location Priority Index and Environmental Services Index, improved monitoring, and enabled targeted mitigation strategies such as improved forest conservation, peatland restoration, and low-impact logging. The Ministry leveraged the **Standards Pathway** to issue national decrees and geospatial standards to enhance data consistency, interoperability, and accessibility. Together, these pathways empowered data-driven analysis and informed decision-making, driving innovative advancements in forestry and environmental management.

The **Communications and Engagement Pathway** enabled an inclusive stakeholder engagement strategy, including government, international organizations, academia, industry, and communities at all levels—from local to global. The **Partnership Pathway** strengthened collaboration for data-sharing, finance, and capacity-building efforts, ensuring sustainable geospatial support for Indonesia's climate initiatives. Through the **Capacity and Education Pathway**, spatial analysis training was conducted at 22 Environmental Governance Units and multiple provinces, providing the knowledge and skills to apply remote sensing and GIS technologies in support of the FOLU Initiative, including through collaboration with the Centre for Climate Risk and Opportunity Management at IPB University.

The nine strategic pathways of the UN-IGIF provided a solid foundation for Indonesia's FOLU Net Sink 2030 Initiative, strengthening geospatial management, collaboration, and sustainable climate action.

Staff of local Environmental Governance Units receive spatial analysis training.



The Location Priority Index assesses an area's condition based on its risk of deforestation and forest fires and its potential for carbon sequestration. By integrating these factors, the index helps determine which areas should be prioritized for mitigation actions.

PROJECT BENEFITS

The UN-IGIF's comprehensive approach to climate action served as the foundation for Indonesia's FOLU Net Sink 2030 Initiative, enhancing geospatial information management, strengthening partnerships and collaboration, and enabling targeted environmental interventions. As a result, the project has achieved many critical benefits essential for its long-term success, including:

1. Improved inter-ministerial cooperation and coordination, especially between the Ministry of Forestry, the Geospatial Information Agency (BIG), and other relevant stakeholders involved in climate governance and land use planning.
2. Enhanced data integration and interoperability across agencies, allowing for real-time monitoring and evidence-based policy decisions.
3. Strengthened national capacity in geospatial data governance, including improved standards, metadata management, and data sharing practices.
4. Increased transparency and accountability in carbon accounting and deforestation monitoring, supporting national and international reporting obligations.
5. Better alignment of local, regional, and national efforts in forest and land use programs through spatially-enabled planning tools.
6. Empowerment of subnational governments and communities through access to accurate, up-to-date geospatial data for localized climate action.
7. Optimization of land-based mitigation strategies through spatial analysis, enabling identification of priority areas for conservation, restoration, and sustainable land use.
8. Strengthened international collaboration and donor engagement by demonstrating measurable, data-driven progress towards Indonesia's climate commitments.

WHY IGIF AND CAP MATTER

Why are the IGIF and CAP so important?

- Data fuels governance & innovation.
- Without structure, data is fragmented.
- IGIF + CAP provide vision, leadership, capacity
- They align geospatial with national priorities
- They turn tech spend into public value
- Not just maps—positioning to solve national & global challenges

"Positioning geospatial information to address global challenges"

Fifteenth session of the United Nations Committee of Experts on Global Geospatial Information Management

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