## Seventh Meeting of the Caribbean Development Roundtable

# "Geospatial Information, the Currency of Modern Governments"

Cecille Blake
United Nations, DESA/UNSD,UN-GGIM Secretariat
Paramaribo, Surinam , 12 October 2022



## Nations Face Serious Challenges





### Can you measure and monitor sustainable development...

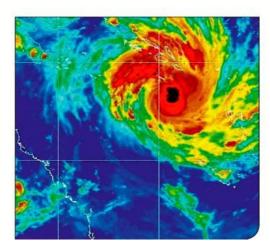












...without geography, place, and location

### "Everything happens somewhere..."

Nancy Tosta, June 2001













**Everything that happens...** happens somewhere.

GIS helps us to locate, view, relate, record, collect, measure, analyze, model and monitor what happens where, when, why, and how.

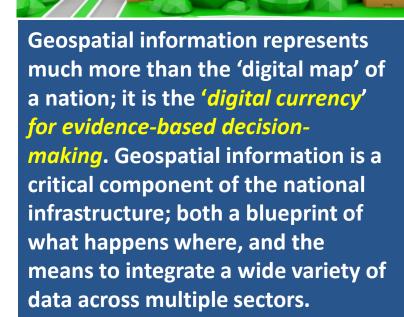
We can do this more today than ever before....which is far less than what we will do tomorrow.



What Is 'geospatial information' and GIS?

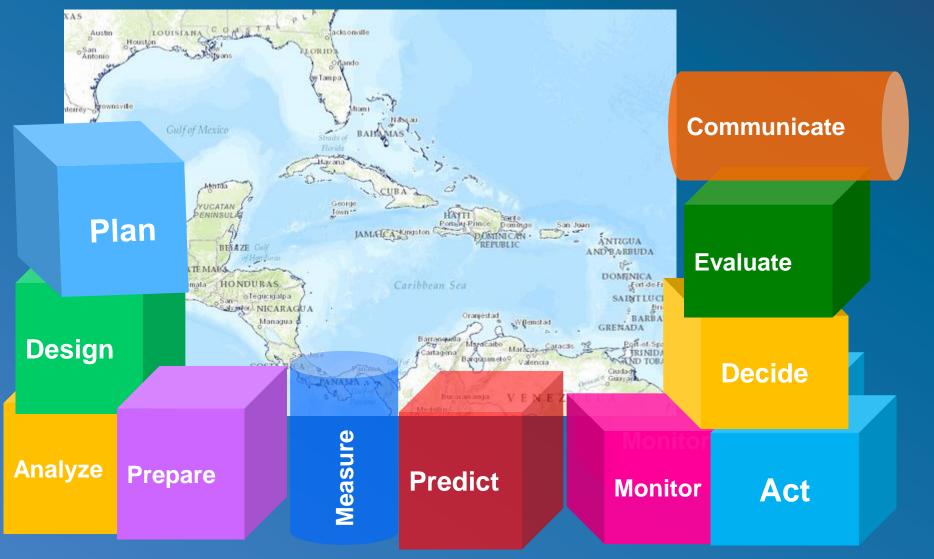
**Geospatial Information -** is data describing the location, shapes and attributes of things, and the relationship between them. It is the composite of spatial data and attribute data. Any data can be mapped. It is the integrative glue for everything.

**Geographic Information System (GIS)** — an integrated collection of computer software and data used to view and manage information geographic places, analyze spatial relationships and model spatial processes. It provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed.





### **GIS a Platform for Action**





#### **GIS** is Pervasive

**Agriculture/Forestry** 

**Defense/Security** 

Pollution

Urbanization

Congestion

Mining



**Land Use** 



**Human Health** 

Education

**Global Warming** 

**Marine** 

**Biodiversity** 

Water

Logistics

**Business** 

**Disasters** Utilities

**Tourism** 

Energy

Governance

**Development** 

**Transportation** 

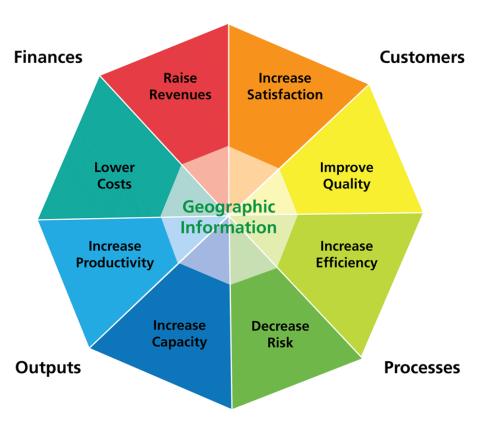
### GI and Tools – an enabler

Bahrain improves planning, achieved 75% reduction in service delivery times and 60% reduction in data creation and maintenance costs

Algiers -Improved management of water supply and draining

Netherlands - excavators to get accurate information on the underground-situation and helps prevent damage to cables and pipe lines; saves costs and increases efficiency.

#### **Benefits Spectrum**



**Ecuador-** SDI facilitates emergency response, earthquake

Brazil's "crime maps" and tools yields 10% reduction in police incidents and 13% reduction in homicides in May 2012 compared to May 2011.

India plans its rural road core network, and ensures investment made at the right places

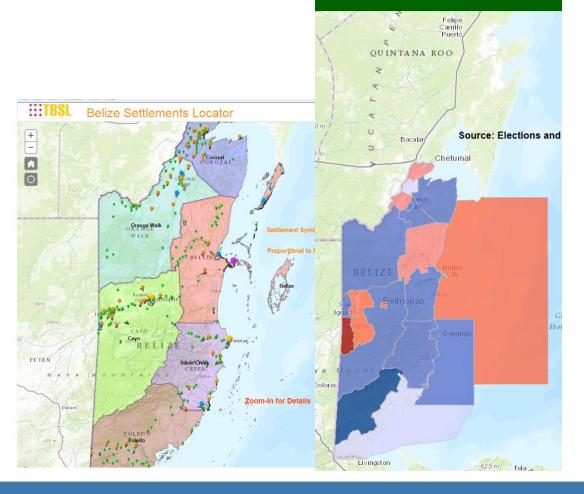


#### **Democratic Governance**

Equity
Good governance
Transparency
Collaboration & cooperation



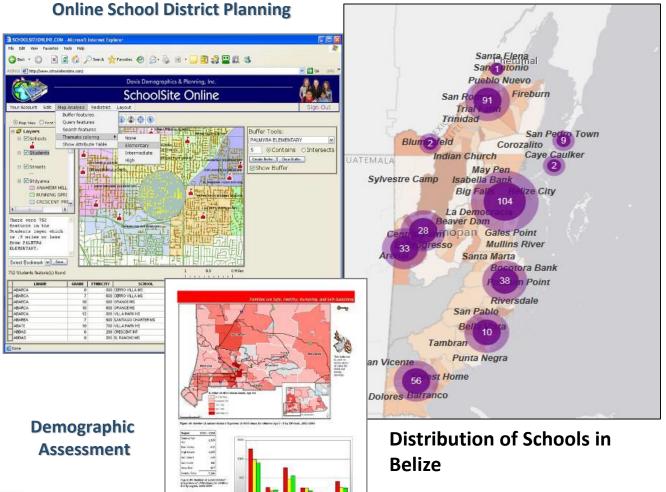
Crowd sourcing
Public Participation
Data Visualization
Open Data Access





Election Results 2012

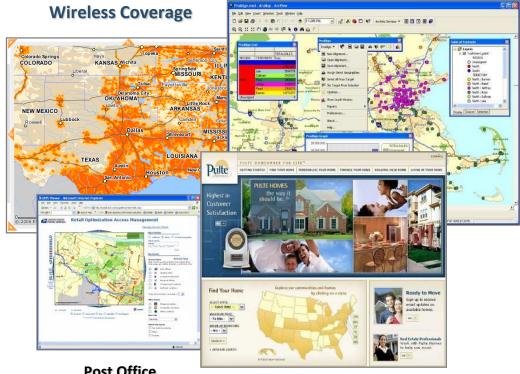
#### **Education**



- Planning and site selection of new schools, libraries
- Management of education facilities and assets
- Improve the delivery of geography and social studies
- Assigning students to schools and transporting them
- Increase the number of GIS specialists

#### **Economic Resilience**

#### **Territory Analysis**



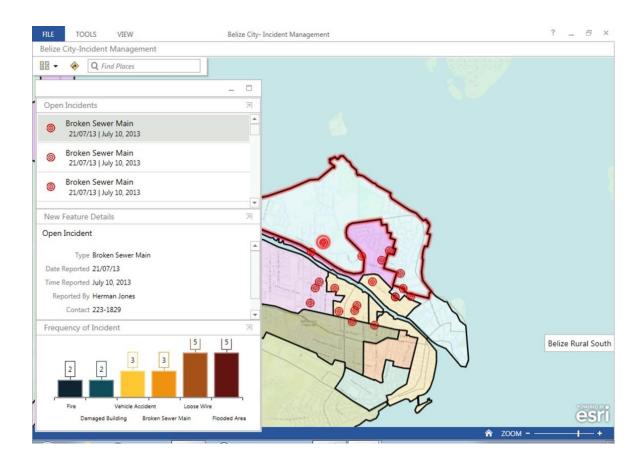
Post Office Locations

**Real Estate** 

**Crime Analysis** 

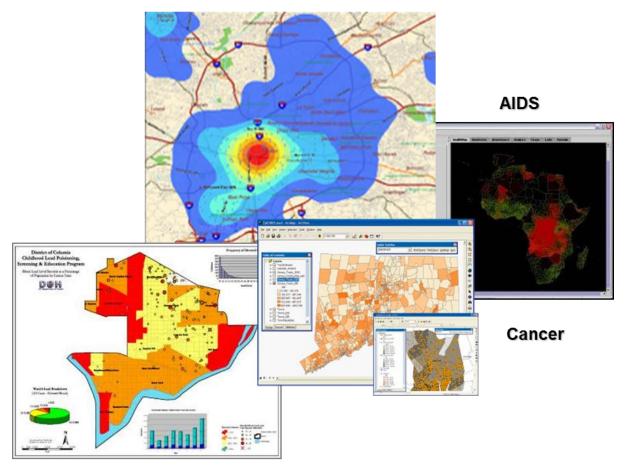
Tactical analysis

Operations Management



## **Healthy People**

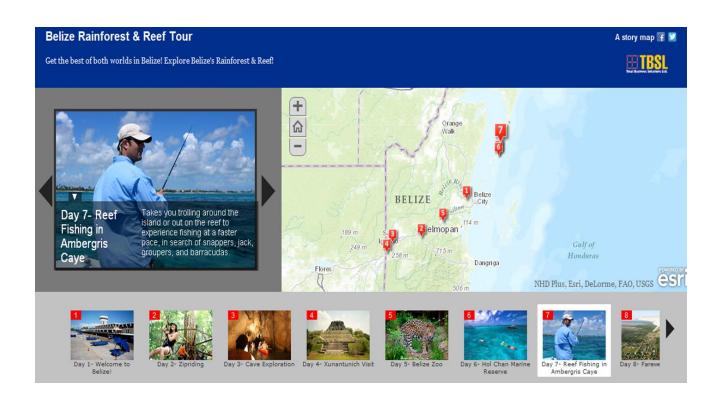
#### **Epidemiology**



**Lead Poisoning** 

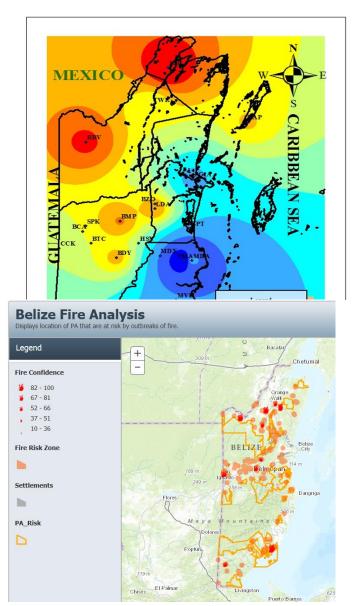
- Increase accessibility to servicesestablishing service areas
- Prevent future disease outbreaks
- Tracking of diseases chick V, COVID-19
- Emergency response optimal route
- Case management address disparities in access to health care

## **Healthy Environment**



- Understanding the interdependence of the earth ecosystems and human impact
- Manage and monitor protected areas
- Disaster management, mitigation and response

#### Rainfall Summary from Jun., 16-17th, 2013





## SECOND UNITED NATIONS WORLD GEOSPATIAL INFORMATION CONGRESS

10-14 October 2022, Hyderabad, India

**Inaugural Address by PM Shri Narenda Modi** 

India's development pillars are TECHNOLOGY and TALENT



#### Geospatial technology is driving inclusion and progress.

The role of technology in schemes like SVAMITVA and housing, and the outcomes in terms of **property ownership and women empowerment** have a direct impact on the **UN's Sustainable Development Goals on poverty and gender equality.** 

The GatiShakti Master Plan is being powered by geospatial technology including the **Digital Ocean platform** for the management of oceans which is crucial for the environment and the marine ecosystem.

The geospatial sector has ensured the **freedom to innovate**, because **all data is free and accessible**, data have now been democratized. This has been a boost to the drone sector and the **opening up of the space sector for private participation**.

The possibilities that geospatial technologies offers are endless. Sustainable development, managing disasters and mitigating, tracking the impact of climate change, forest management, water management, food security are done through GIS



## Some Challenges of Geospatial Program Development

- Small pool of trained geospatial personnel
- 2. Need to increase the knowledge about the wider role of GIS/Geo technologies in ongoing IT developments
- 3. Access, sharing, dissemination and use geospatial data
- Need for formal institutional structures with responsibility to coordinate and implement national geospatial information management
- 5. Formulate and enforce **Legislation** to govern country implementation
- 6. A program versus a project approach to GIS program development
- 7. Financial support is required to facilitate the growth of GIS



## Caribbean Geospatial Information Management



## Caribbean – some GIM Initiatives

- Bahamas National GIS Centre (1998), NSDI Legislation passed
- Belize Land Information Centre (LIC)
- BVI National GIS Freedom of information legislation
- Cayman Islands Land Information System
- Infraestructura de Datos Espaciales de la República de Cuba (initiated in 2000)
- Dominican Republic Centro Nacional de Geoinformatica
- Jamaica Land Information Council celebrating 30 years this year.
- Guyana Recommendations for a National Policy on Geographic Information
- St. Lucia Demographic Yearbook Dissemination Of Demographic Statistics / Institute of Surveyors St. Lucia Incorporated



## Strengthening GIM in the Caribbean 2014- 2018, Outcomes

Business Unit: Caribbean Project		Strategic option:		STRENGTHEN				
Strategic Objective		Strategies		Indicators Tracing	GOALS / Specific objectives			
					minimum	medium	optimum	Actual
1	Strengthen the geodetic network	Increase stations	Increase number of stations Increase data availability Increase security location	5% further in the region	3%	5%	10%	More than 10%
2	Broadcast Geographic Information	Create Digital Map of the Caribbean	Increase number of geopertals	10% further in the region	5%	10%	15%	5%
3	Promote the use of G. I.	Construct Land Cover Map	Consider Project countries  Ensure the quality of the project  Disseminate results by geoportal	90% of the coverage for the region	80%	90%	100%	100%
4	Capacity Building	Training in geographic skills	Increase basic skills Increase intermediate skills Increase transversal competences	90% of participations for the countries in the project	80%	90%	100%	80%
5	<u>Using geographical</u> <u>standards</u>	Apply standards in processes	Increase in production processes Increase in integration processes Increase in dissemination processes	20% of processes	10%	20%	30%	20%
6	<u>Update computer</u> <u>technology</u>	Renew computers	Update servers Update computers Update network equipment	2% of equipment available	1%	2%	3%	More than 3%
7	<u>Geographic Metadata</u>	Promote the Application	Define a profile for the Region Train them on application Implement use	20% of the countries in the project	10%	20%	30%	Less .than10 %

## A Global Geospatial Mandate

At its 47<sup>th</sup> plenary in July 2011, ECOSOC, recognizing the importance of global geospatial information, established the **Committee of Experts on Global Geospatial Information Management (UN-GGIM)**, and:

- Requested the Committee to present to ECOSOC in 2016 a comprehensive review of all aspects of its work and operations, in order to allow Member States to assess its effectiveness.
- Encouraged Member States to hold regular highlevel, multi-stakeholder discussions on global geospatial information, including through the convening of global forums, with a view to promoting a comprehensive dialogue with all relevant actors and bodies.

#### Resolution

#### 2011/24 Committee of Experts on Global Geospatial Information Management

The Economic and Social Council,

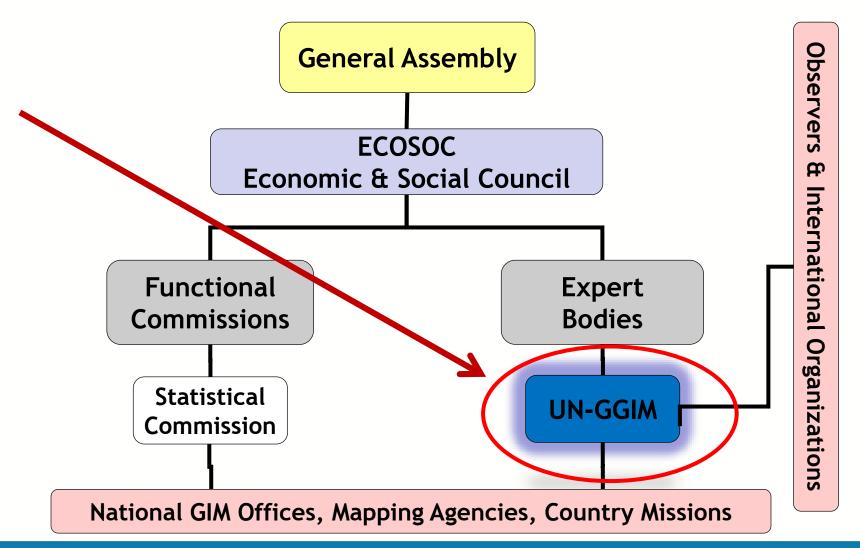
- 1. Takes note of the report of the Secretary-General on global geospatial information management<sup>3</sup> and the recommendations contained therein;
- 2. Recognizes the need to promote international cooperation in the field of global geospatial information;
- 3. Decides, in this regard, to establish the Committee of Experts on Global Geospatial Information Management, in accordance with the terms of reference contained in the annex to the present resolution, to be established and administered within existing resources and organized accordingly, and requests the Committee to present to the Economic and Social Council in 2016 a comprehensive review of all aspects of its work and operations, in order to allow Member States to assess its effectiveness;
- 4. Encourages Member States to hold regular high-level, multi-stakeholder discussions on global geospatial information, including through the convening of global forums, with a view to promoting a comprehensive dialogue with all relevant actors and bodies:
- 5. Emphasizes the importance of promoting national, regional and global efforts to foster the exchange of knowledge and expertise, to assist developing countries in building and strengthening national capacities in this field.

http

47th plenary meeting 27 July 2011



### **UN-GGIM:** An Inter-Governmental Body



**UN-GGIM** 

### **Global Context - UN-GGIM**

#### Formal inter-governmental **UN Committee of Experts** to:

- Enhance and coordinate Global Geospatial Information Management activities
- Make joint decisions and set directions on the use of geospatial information
- Work with Governments to improve policy, institutional arrangements, and legal frameworks
- Address global issues and contribute collective knowledge
- Develop effective strategies to build geospatial capacity in developing countries





#### **UN-GGIM:** What do we do?

#### **Some Work Items**

- 1. A global geodetic reference framework,
- 2. Adoption and implementation of standards
- 3. Determining global fundamental data sets
- 4. Geospatial information supporting Sustainable Development and the post 2015 development agenda
- 5. Integrating geospatial, statistics and other data
- 6. Legal and policy frameworks
- 7. Land Administration and Management
- 8. Disaster risk reduction and resiliency
- 9. Marine geospatial information
- 10. Integrated Geospatial Information Framework



### Global Development Frameworks and UN-GGIM

**SDGs** 

Geospatial Roadmap

Global Development Frameworks

2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

Sendai Framework for Disaster Risk Reduction 2015-2030

Paris
Agreement
on
Climate Change

UN-GGIM Global Geospatial Frameworks

INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK (IGIF)

Strategic
Framework on
Geospatial Information
and Services for Disasters

Global Statistical Geospatial Framework (GSGF) Framework for Effective Land Administration (FELA)

SAMOA Pathway for SIDS

Addis Ababa Action Agenda

Habitat III New Urban Agenda

Our Ocean, Our Future: Call for Action Global Fundamental Geospatial Data Themes

Global Geodetic Reference Frame (GGRF)

National Institutional Arrangements in Geospatial Information Management

Role of Standards in Geospatial Information Management

Compendium on Licensing of Geospatial Information

Statement of Shared Guiding Principles for Geospatial Information Management



#### The IGIF Documents

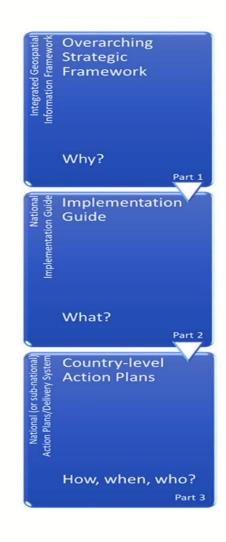


A three-part document set of connected, documents.

The **Overarching Strategic Framework** is fully developed

The **Implementation Guide** structure and main elements are developed and structure approved in-principle.

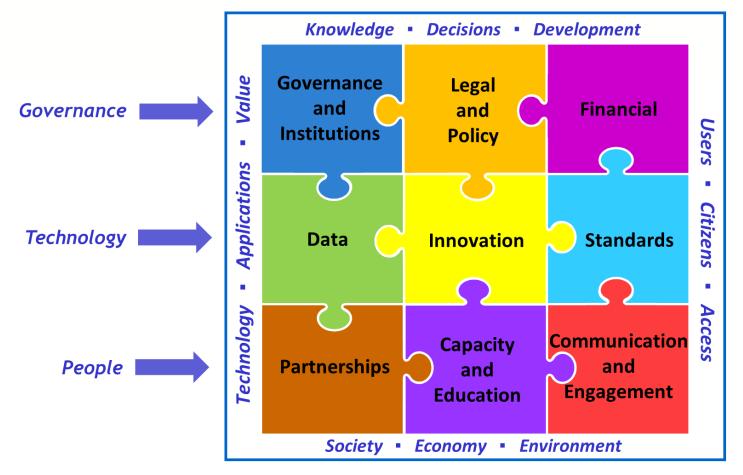
The **Country-level Action Plans** are work in progress.







#### **Nine Strategic Pathways**





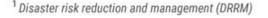
Anchored by 9 Strategic Pathways, the Framework is a mechanism for articulating and demonstrating national leadership in geospatial information, and the capacity to take positive steps.





# Strategic Framework on Geospatial Information and Services for Disasters







#### **Priorities for Action**



## Governance and Policies

- Data Sharing
- Collaboration, coordination and partnerships
- Open channels of communication



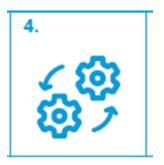
# Awareness Raising and Capacity Building

- Multi-sectoral training & education
- Research
- Benchmark best practices



## Data Management

- Data standards and protocols
- Data development
- Security, privacy and safety



# Common Infrastructure and Services

- Standards and interoperability
- Common operations centre
- Hardware, software, network, applications, models

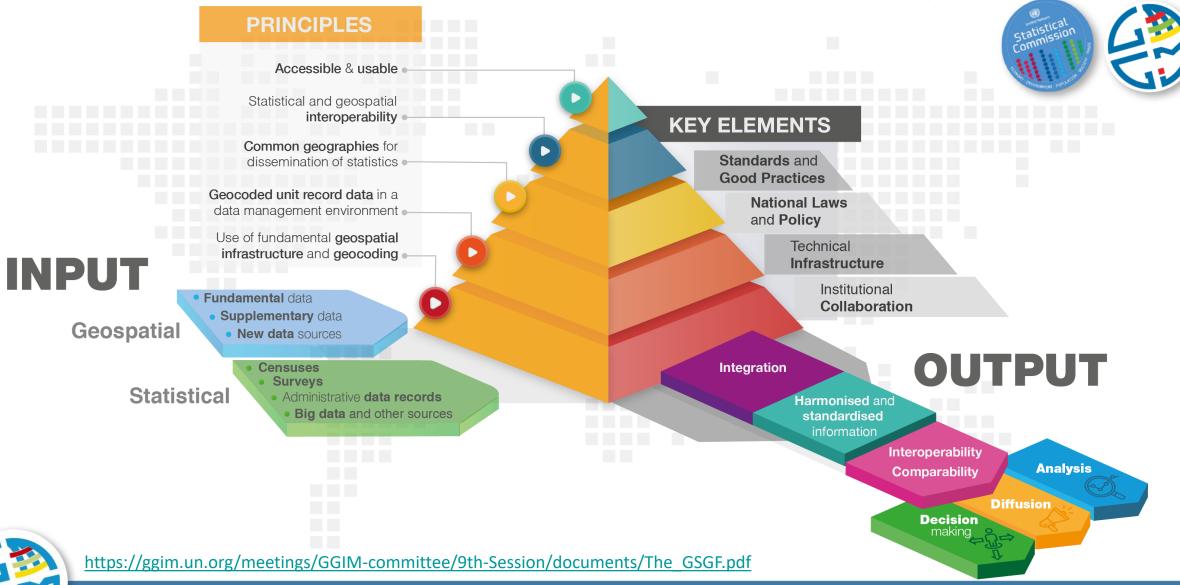


Resource Mobilization

 Funding and investment



Global Statistical Geospatial Framework (GSGF)



**UN-GGIM** 



Developed by the IAEG-SDGs' Working Group on Geospatial Information (WGGI)



## The Regional Response

http://www.un-ggim-americas.org/en/inicio.html





















#### **OBJECTIVE**



## To improve Spatial Data Infrastructures at the national and regional levels in the Caribbean

- □ building on recent and on-going developments
- ☐ leveraging indigenous skills and resources
- ☐ utilising external resources and technical expertise

**Bridging the Geospatial Divide** 



### The Caribbean GeoPortal

#### https://www.caribbeangeoportal.com/



GeoPortal Data Tools Learn Community About Us



#### Caribbean Living Atlas

The Caribbean GeoPortal is home to hundreds of ready to use datasets. Some provided by Esri, other by users and Caribbean focused organizations. Mix this data with your own to build a bigger picture. Find answers and make better decisions.

#### Explore the Data

Q Enter search terms

Using the search bar and filtering options, you can explore the dynamic content of the Living Atlas. If you are signed in, you can preview the data, and bookmark interesting datasets by clicking on the blue star. You'll know its referenced when the blue star turns yellow. Once you have bookmarked interesting datasets as your favorites you can work with them later in the Map, where you create and share maps you create!

BGrid ≒ Relevance ‡ Filter



Disaster Response

ouring a time of crisis, having access to the most current and authoritative data can be the difference between life and death. Wether the crisis is caused by



#### COVID-19

See how the region is monitoring the spread of COVID-19 and view detailed country information on available dashboards. Explore the different templates and solutions that are available to help your community, or if you need more you can request help from the Esri Disaster Response Program.

COVID-19 Page

GeoPortal Data Tools Learn Community About

#### Hurricane and Cyclones

This map describes the current & recent location of tropical storms, as well as forecast positions and probable track of tropical storms. The areas currently covered by the live feeds are the Atlantic and Eastern Pacific, the Central Pacific (Hawaii, etc.), and the Western Pacific and Indian Ocean. The data sources are the National Hurricane Center, Central Pacific Hurricane Center and Joint Typhoon Warning Center.

Open the App



#### Recent Earthquakes Layer

This service presents recent earthquake information from the USGS Prompt Assessment of Global Earthquakes for Response (PAGER) program. In addition to displaying earthquakes by magnitude, this service also provide earthquake impact details. Impact is measured by population as well as models for economic and fatality loss. For more details, see: PAGER Alerts. Events are updated as frequently as every 5 minutes.

View the Layer

## For consideration going forward

- 1. Recognizing the value and importance of geospatial data, geostatistical data and Earth observation and its management in strengthening the economic, social and environmental development priorities of member Countries.
- 1. The role of ECLAC as Technical Secretariat of the UNGGIM, Regional Committee for Latin America and the Caribbean to support member countries in the strengthening and or development of geospatial information management through:
  - capacity building initiatives at the management and technical levels
  - geospatial governance arrangements,
  - the adoption/adaption of standards, and
  - the collection and management of geospatial and geostatistical data in support of monitoring and management sustainable development goals.
- 2. How do we encourage countries to develop and implement collaborative geospatial information management models that will serve to facilitate the sharing and exchange of data, working practices, methodologies, technical expertise among public, academic and private organizations, with the purpose of leveraging limited resources while adding value and generating the necessary knowledge to make informed policies and decisions, in support of sustainable social, economic and environmental development including disaster risk management

#### Invitation to sit at the Regional Global Ecosystem table



## 9° SESSION UN-GGIM: Americas

November 28, 29 and 30, 2022 Santiago de Chile, ECLAC

#### Some agenda items

- New tools for the dissemination of regional geospatial information
- Situation, needs and challenges of Member States
- Implementing the Integrated Geospatial Information Framework a workshop
- Regional collaboration
- Looking at the future
- Global Statistical and Geospatial Framework Workshop
- The Strategic Framework for Geospatial Information and Services for Disasters



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