



Project for the strengthening of Spatial Data Infrastructures in the Caribbean

Progress and next steps

November, 2016



Cooperation for the Caribbean Region

A Collaborative Agreement between the National Institute of Statistics and Geography (INEGI) and the Mexican Agency for International Development Cooperation was signed to make this Project possible.

INEGI is contributing with the technical support and the Government of Mexico is providing the financial support for this project with an investment of 4.5 million dollar.

The project has the support of the Association of Caribbean States, who is committed with contributing to the development of the region.



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General Objective

To promote the development of **Spatial Data Infrastructure (SDI)** in the Caribbean, in order to strengthen the generation, use and sharing of geospatial information, including for policy making

Specific Objectives:

- Reduce Geospatial Data Infrastructure gaps within the Caribbean region, and with respect to the rest of the Continent.
- Support the integration and participation of Caribbean countries in the international geospatial information context, including the UN-GGIM: Americas initiative.



Participating Countries

1. Antigua and Barbuda



2. Bahamas



3. Barbados



4. Belize



5. Cuba



6. Dominique



7. República Dominicana



8. Grenada



9. Guadeloupe



10. Guyana



11. Haïti



12. Jamaica



13. Martinique



14. St Kitts & Nevis



15. St. Lucia



16. St. Maarten



17. St. Vincent & the Grenadines



18. Suriname



19. Trinidad and Tobago





UN-GGIM:Americas

REGIONAL COMMITTEE OF
UNITED NATIONS
ON GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT
FOR THE AMERICAS

UN-GGIM:Americas Caribbean Project



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38 Member States



Antigua and Barbuda



Argentina



Bahamas



Barbados



Belize



Bolivia



Brazil



Canada



Chile



Colombia



Costa Rica



Cuba



Dominique



Dominican Republic



Ecuador



El Salvador



Grenada



Guadeloupe



Guatemala



Guyana



Haïti



Honduras



Jamaica



Martinique



Mexico



Nicaragua



Panama



Paraguay



Perú



St. Maarten



St. Lucia



St. Vincent and the Grenadines



St Kitts and Nevis



Suriname



Trinidad and Tobago



United States of America



Uruguay



Venezuela



Working Groups



Caribbean Project Components

1. Diagnosis

2. Capacity Building

3. Infrastructure Acquisition

4. Incorporation to UN-GGIM



1. DIAGNOSIS



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1. Diagnosis of the geospatial information management status

Questionnaires and consultations with countries and institutions.

Caribbean Project Technical Advisory Committee.



2. CAPACITY BUILDING



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Capacity Building: Courses and Workshops

GEODESY

By Keith Miller- UWI

INEGI Headquarters, December 2014

Participation of 15 country
representatives



STANDARDS

By Trevor Taylor – OGC

UN Headquarters, 2-3 August 2015

Participation of 17 country
representatives



CARTOGRAPHY

By Bheshem Ramlal, UWI & Valrie Grant, URISA Caribbean Chapter
INEGI Headquarters, Mexico City – November, 2015
Participation of 14 countries



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GEOGRAPHIC METADATA

By José Luis Mondragón- INEGI, México & Pablo Morales- SNIT, Chile
14-18 March 2016, Havana, Cuba.
Participation from 15 countries



Financed by the Chile-Mexico
joint Development Cooperation Fund



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SPATIAL DATA INFRASTRUCTURES

By Aarón Villar INEGI, México & Jorge Prado UNAM, México
July 31 and August 1, UNHQ
Participation of 15 Countries



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USE OF GEODETIC EQUIPMENT

By Francisco Medina, ECO; Javier Arellano, INEGI;
Hector Parra, Military Geographic Institute of Chile.
August 15 to 19, UWI St. Augustine, Trinidad and Tobago.
Participation of 16 Countries



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UN-GGIM International Forum on Geospatial Information and Services for Disasters and URISA's 8th Caribbean GIS Conference

September 4-8, 2016. Bridgetown, Barbados.
Participation of 12 Caribbean Countries



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Geographic Information Systems

By MSc. Valrie Grant - URISA Caribbean Chapter and

Dr. Earl Edwards - University of West Indies

October 2-3, 2016 Mexico City

Participation of 12 Countries



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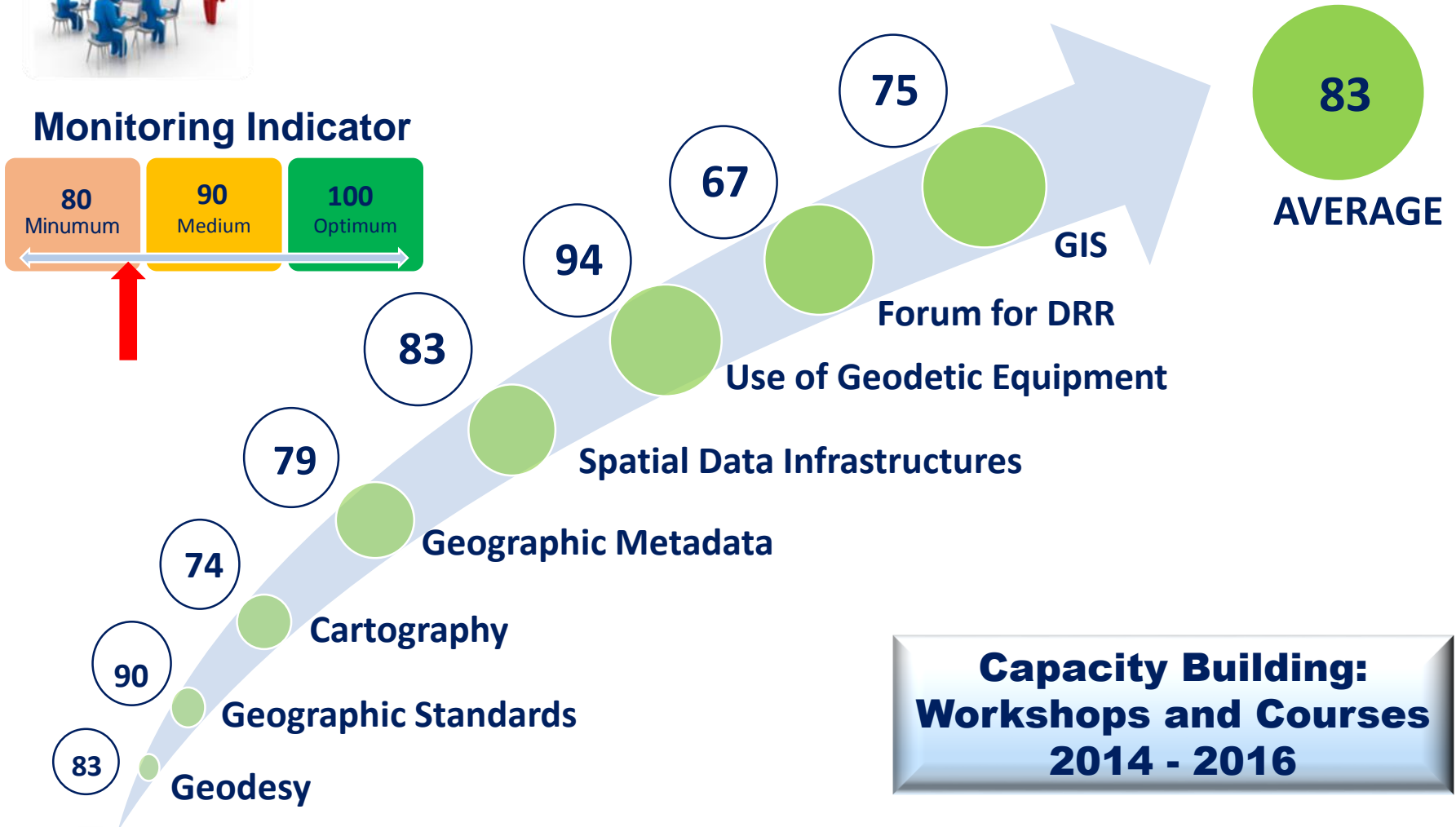
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Percentage of Participation



Monitoring Indicator



**Capacity Building:
Workshops and Courses
2014 - 2016**



3. INFRASTRUCTURE ACQUISITION



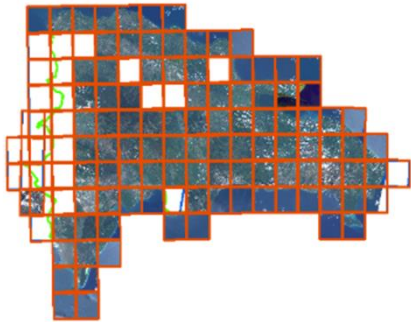
INFRASTRUCTURE ACQUISITION



GNSS continuous operating reference stations



3.1 Strengthen the Caribbean Geodetic Network



Satellite Imagery



3.2 Land Cover Map



Computer equipment



**3.3 Geomatics Solution
Digital Map for the Caribbean**



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3.1 Strengthening the Geodetic Network



Strengthening of the Geodetic Network

Location of GNSS Stations



Equipment delivered to Caribbean Countries

43 GNSS receivers



16 GNSS Stations



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Regional Data Processing Center

MoU signed with the University of the West Indies (UWI):

Physical space and trained staff (operation & maintenance)

Regional connectivity and data access to all countries

Capacity building and technical advice



3.2 LAND COVER MAP



Aim: a current land cover map of the Caribbean



Expected Results

- Full regional coverage, with adequate spatial and spectral resolutions
- Harmonization of land cover classification systems
- National and regional land cover cartography



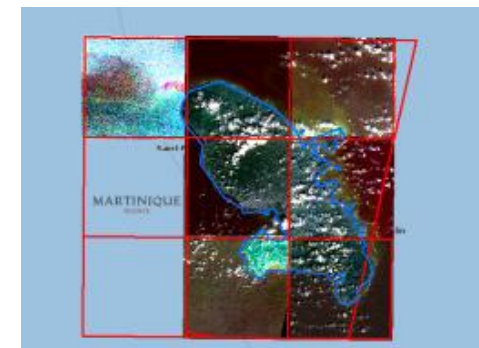
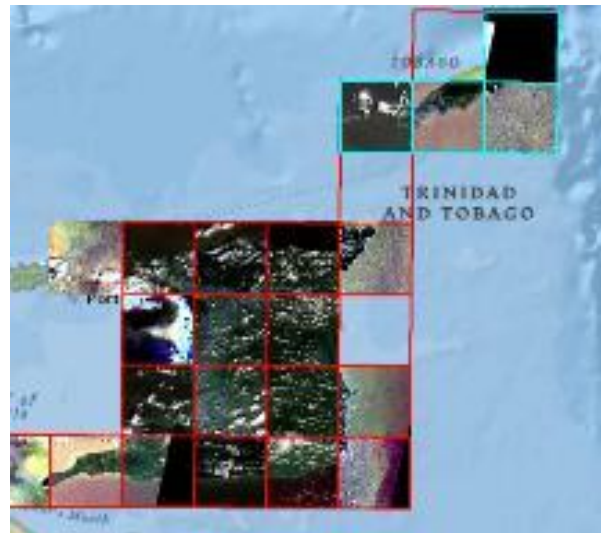
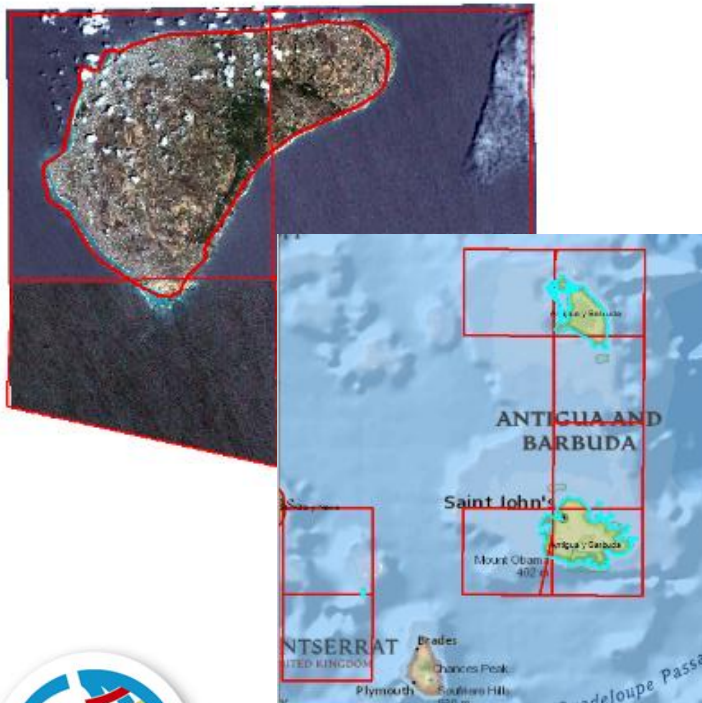
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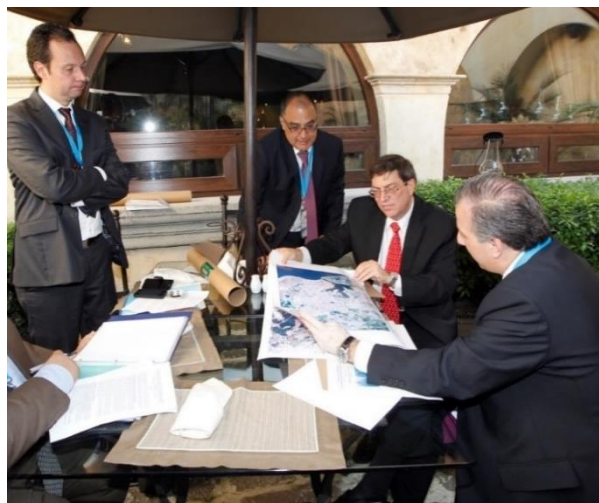
Sources: satellite imagery

- Rapid Eye satellite images (covering 220,474 km²) were acquired
- Panchromatic band 2.5 - 3 meters spatial resolution, ideal for small islands



Satellite Imagery delivered to Caribbean Countries

Visits to the region – March 2015 and
UN-GGIM-5 – New York, August 2015



Cuba



Trinidad &
Tobago



Barbados



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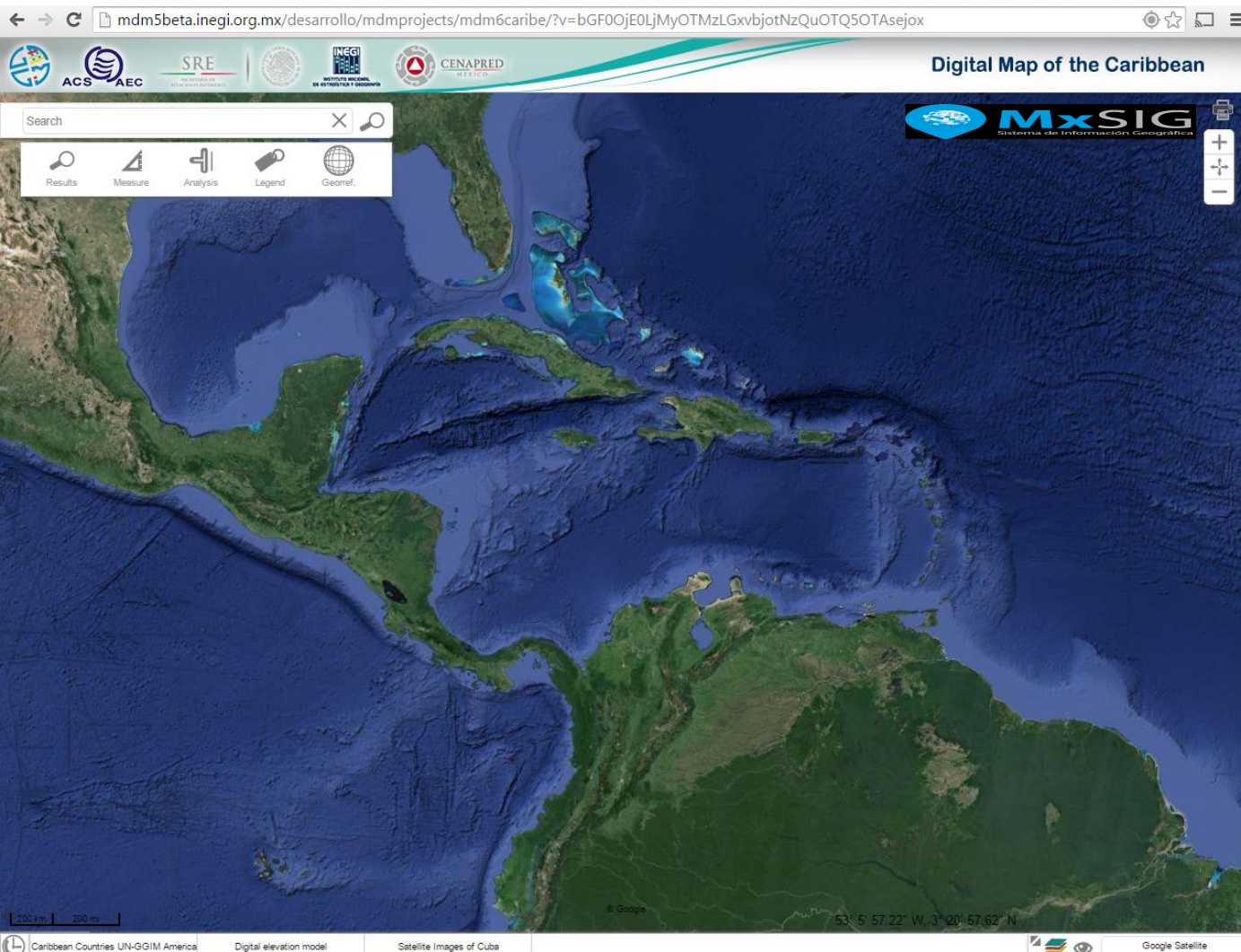
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3.3 Geomatics Solution Digital Map for the Caribbean



Geomatics Solution

Digital Map of the Caribbean



Based on MxSIG
Open & free platform

Basic layers:

- Land cover
- Satellite Imagery
- Relief / Topography

Incorporable layers

- Economic data
- Census data
- Cadastre

4. Incorporation to UN-GGIM

- **UN-GGIM 4** – New York, August 2014
- **UN-GGIM: Americas 1** – Mexico City, September 2014
- **UN-GGIM 5** – New York, August 2015
- **UN-GGIM: Americas 2** - Mexico City, November 2015
- **UN-GGIM 6** – New York, August 2016
- **UN-GGIM International Forum on Disasters**, September 2016.
- **UN-GGIM: Americas 3** – Mexico City, October 2016



Main Challenges of the Project

- National/Institutional commitment to the Project and the activities of the Committee of Experts of UN-GGIM and the regional Committee.
- Local and regional measures to ensure sustainability of the Capacity and Infrastructure built.
- Incorporation of other donor organizations who are working in the region.



Future Actions



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Continue capacity building phase

Upcoming Training Events

Course on Classification Land Cover using MAD-Mex (INEGI/CONABIO)
Trinidad and Tobago- November 2016

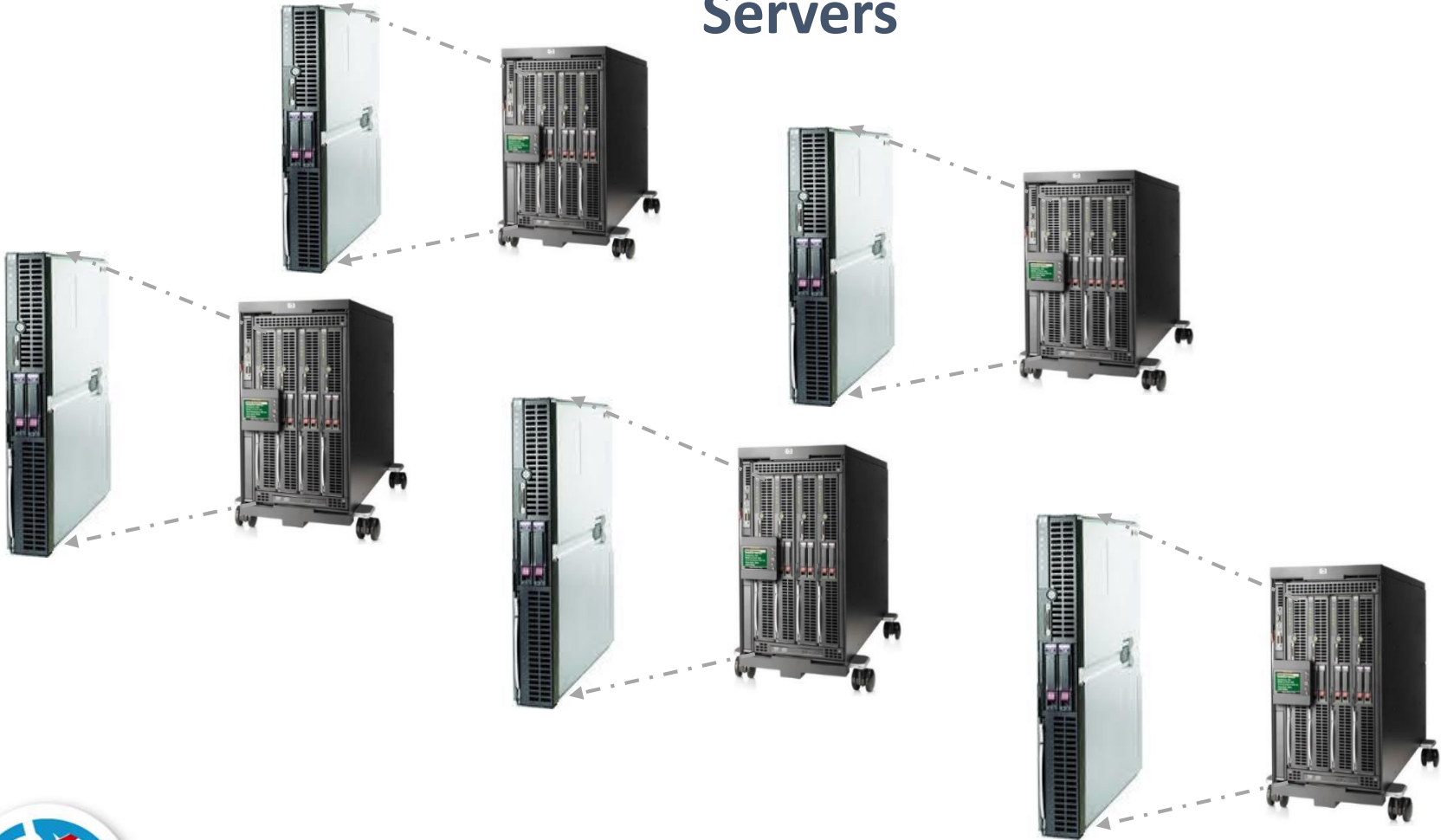
UN-GGIM:Americas 4rd Session. Santiago, Chile- April 2017

Quality of Geographic Data, Chile – April 6-7, 2017



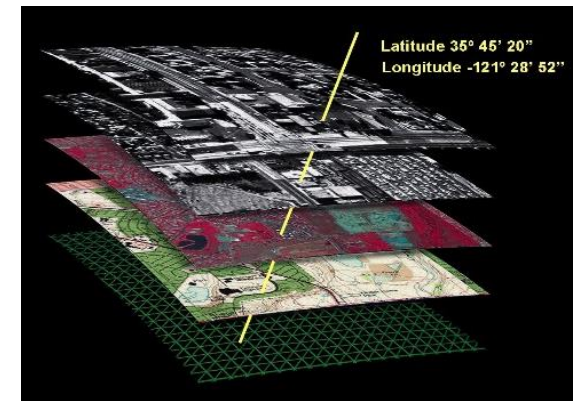
Acquisition of informatics equipment

Servers



Next steps: 2017 and beyond

- Continue capacity building strategy
- Consolidate data processing centre (at UWI) and the Caribbean geodetic network
- Integrate Central America and the Caribbean into a common geomatics platform, with an emphasis on disaster prevention and management
- Integrate other projects, tools and information layers into the geomatics platform:
 - ✓ Disaster Management and resilience-building – PITCA, CEPREDENAC
 - ✓ Mapping of gender statistics (Gender Atlas) – ECLAC, INEGI
 - ✓ Economic units, housing & roads— INEGI
 - ✓ Hydrography, elevation & soils– INEGI, HG Cuba
 - ✓ Climatology y seismology – UNAVCO
 - ✓ Analysis of emerging trends and relationships



Workshop on Classification for Land Cover with MAD-Mex

Trinidad and Tobago November 28 –December 2



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Workshop on Construction of Geoportals using MxSIG

INEGI, Headquartes, Aguascalientes, Mexico

December 12-16, 2016



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