UN-GGIM

United Nations Initiative on Global Geospatial Information Management

Geospatial World Forum 2014

"Positioning geospatial information to address global challenges"

UN-GGIM | United Nations Initiative on Global Geospatial Information Management

ggim.un.org

CONTENT:

1. Sustainable development

2. UN:GGIM and UN-GGIM:Américas

3. Caribbean Project

4. INEGI

Importance of Geospatial Information:

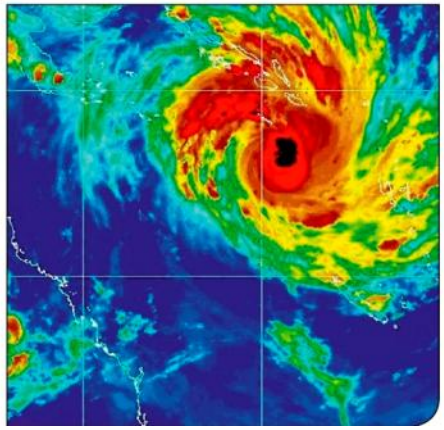
"In Namibia a country in which water is a scarce resource…spatial data is only below water in significance"

Minister Alpheus G. !Naruseb, Minister of Lands and Resettlement, Namibia

"We envisage a dynamic Pacific if we can be assisted in implementing the UN-GGIM Resolutions for geospatial information. We need to put in place a solid framework from local to national then regional level"

Tevita Boseiwaqa, Permanent Secretary for Lands and Mineral Resources, Fiji

How can you measure and monitor sustainable development…



…without location and geography

Genesis of UN-GGIM

- In 2009, the United Nations Statistics Division/DESA (UNSD) convened in New York, on the side of the 9th United Nations Regional Cartographic Conference for the Americas (UNRCC-A), an informal consultative meeting with geospatial information experts from different regions of the world, and discussed how to better coordinate the various regional and global activities on geospatial information and the related management issues.

- At its substantive session in July 2011, Economic and Social Council (ECOSOC) considered the report of the General Secretary and adopted a resolution to create the United Nations Committee of Experts on Global Geospatial Information Management (2011/24), asking to present a Report on 2016 to propose the creation of the Geospatial Information Commission of The United Nations.

UN-GGIM: Why a global mechanism?

- Significant gap in the recognition and management of geospatial information globally
- Lack of a global consultative and decision-making mechanism among Member States in:
  - setting global standards on geospatial information;
  - developing common tools; and
  - bringing geospatial information to bear on global policy issues
- This gap is increasingly being filled by the private sector, reducing the role and influence of Governments
- Governments, not the private sector, have the mandate and accountability to maintain and deliver the national geospatial information base and related policy

UN-GGIM: A global initiative

Formal inter-governmental Committee of Experts to:

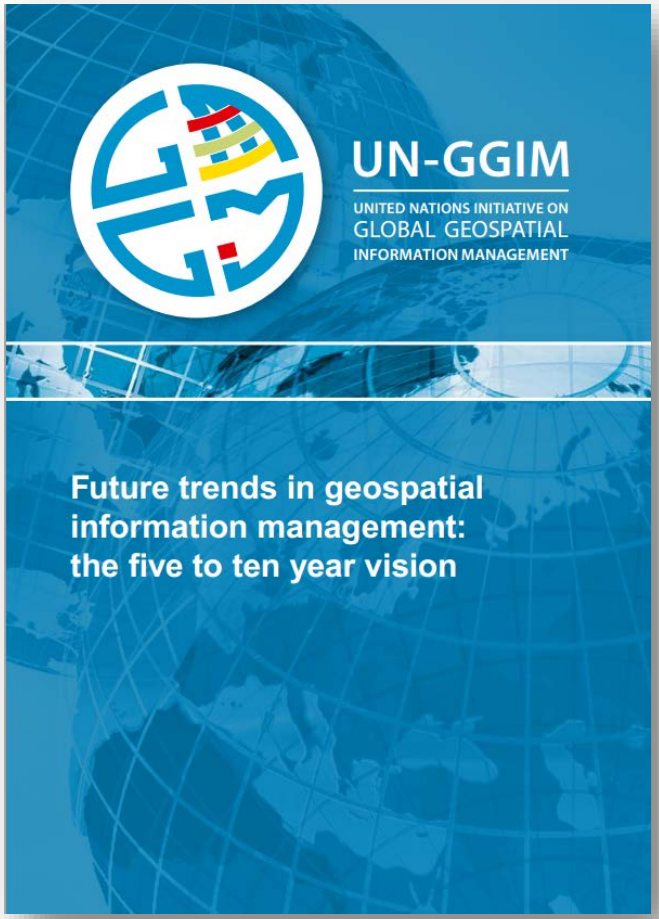
- Coordinate Global Geospatial Information Management activities by involving Member States at the highest level as key participants
- Make joint decisions and set directions on the use of geospatial information within national and global policy frameworks
- Address global issues and contribute collective knowledge as a community with shared interests and concerns
- Develop effective strategies to build geospatial capacity in developing countries

UN-GGIM: Global Agenda

1. Global geodetic reference frame.
2. National institutional arrangements in GI management.
3. Global map for sustainable development and status of mapping in the world.
4. Legal and policy frameworks.
5. Establishment and implementation of standards.
6. Linking of geospatial information to statistics and other data.
7. Integration of land and marine GI.
8. Activities on GI within the United Nations system and to the United Nations Conference on Sustainable Development.
9. Development of a knowledge base for GI.

Some Results of the Initiative

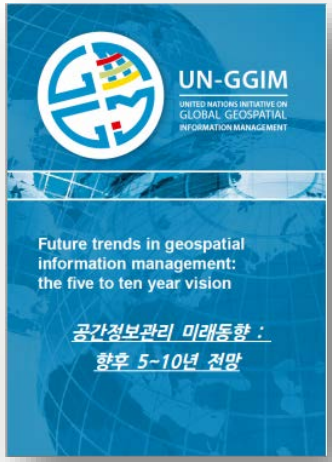
English



French

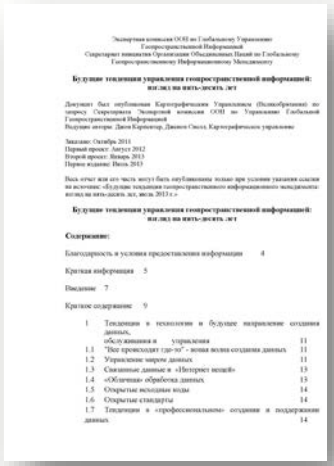
Chinese

Korean



Spanish

Russian



"…building effective geospatial infrastructures and promoting greater use of geospatial information are part of a new frontier in harnessing science and technology for advancing sustainable development"

Wu Hongbo
Under-Secretary-General for Economic and Social Affairs
August 2012

Some Results of the Initiative

Sessions of the United Nations Committee of Experts on Global Geospatial Information Management:

1. Seoul, Republic of Korea, October 2011.
2. United Nations Headquarters, New York, August 2012
3. Cambridge, United Kingdom July 2013
4. To be held, United Nations Headquarters, New York, August 2014

Some Results of the Initiative

High Level Forums and Workshops on Global Geospatial Information Management:

1. Seoul, Republic of Korea, October 2011- 350 experts from 90 countries, 22 United Nations representatives and 37 representatives from international organizations and the private sector.
2. Doha, Qatar, February 2013- 350 participants from 60 Member States, international organizations, the private sector, and UN entities.
3. Chengdu Forum on UN-GGIM Global Map for Sustainable Development. October 2013, Chengdu, China
4. HLF on The Role of Geospatial Information in Measuring and Monitoring the Sustainable Development Goals. United Nations Headquarters, New York January 2014.
5. Workshop on Integrating Geospatial and Statistical Information. Beijing, China June 2014
6. Statistics and Geospatial Information. United Nations Headquarters, New York, August 2014.

Creation of a Regional-Global architecture for UN-GGIM

- UN-GGIM Co-Chairs (2014-2015),Dr. Vanessa Lawrence, Ordnance Survey U.K and Dr. Eduardo Sojo, INEGI Mexico

UN-GGIM Regional Committees:

- UN-GGIM for Asia-Pacific (formerly PCGIAP) November 2012
- **UN-GGIM for the Americas (formerly PC-IDEA) August 2013**
- UN-GGIM for Arab States February 2013
- UN-GGIM for Europe August 2014
- UN-GGIM Africa 2014

UN-GGIM:Americas´ Working Groups

1. WG on geospatial data collection and management.
2. WG on access and use of geospatial information in disaster risk reduction and climate change.
3. WG on Standards and technical specifications
4. WG on regional coordination and cooperation.
5. WG on promotion and assessment of Spatial Data Infrastructure

CARIBBEAN PROJECT
Gulf of Mexico
North Atlantic Ocean
Caribbean Sea
North Pacific Ocean
UNITED STATES
Tampa
St. Petersburg
Miami
Key West
Straits of Florida
Freeport
Grand Bahama
Great Abaco
THE BAHAMAS
BIMINI ISLANDS
New Providence
Nassau
Eleuthera
Great Bahama Bank
Andros Island
Cat Island
San Salvador
Rum Cay
Long Island
Cay Sal Bank (THE BAHAMAS)
Great Exuma
Samana Cay
Crooked Island
Mayaguana
Guinchos Cay (THE BAHAMAS)
Cay Lobos (THE BAHAMAS)
RAGGED ISLAND RANGE (THE BAHAMAS)
Acklins Island
Turks and Caicos Islands (U.K.)
Grand Turk
Great Inagua
Tropic of Cancer
Havana
Matanzas
Pinar del Rio
Santa Clara
Cienfuegos
CUBA
Nuevitas
Camagüey
Holguín
Manzanillo
Santiago de Cuba
Guantánamo
U.S. Naval Base / Guantanamo Bay
Windward Passage
Isla de la Juventud
Yucatan Channel
Campeche Bank
Bahía de Campeche
Mérida
Cancún
Isla Cozumel
Campeche
Ciudad del Carmen
MEXICO
Chetumal
Villahermosa
Belize City
Belmopan
Flores
Tuxtla Gutiérrez
BELIZE
ISLAS DE LA BAHÍA
SWAN ISLANDS (HONDURAS)
Cayman Islands (U.K.)
George Town
Cayman Trench
Montego Bay
Kingston
JAMAICA
Navassa Island (U.S.)
Cap-Haïtien
Port-au-Prince
Les Cayes
HAITI
Santiago
DOMINICAN REPUBLIC
Santo Domingo
Milwaukee Deep (deepest point of the Atlantic Ocean, -8605 m)
Puerto Rico Trench
Mona Passage
Isla Mona
San Juan
Puerto Rico (U.S.)
British Virgin Is. (U.K.)
Virgin Is. (U.S.)
Neth. Antilles (NETH.)
St. Croix
Anegada Passage
Anguilla (U.K.)
St. Martin (Guad. and Neth. Antilles)
St. Barthelemy (Guad.)
ANTIGUA AND BARBUDA
St. John's
Basseterre
ST. KITTS AND NEVIS
Plymouth
Montserrat (U.K.)
Guadeloupe (FRANCE)
Marie-Galante
Basse-Terre
Islas de (VENEZUELA)
DOMINICA
Roseau
Martinique (FRANCE)
Fort-de-France
Castries
ST. LUCIA
Aves Ridge
Kingstown
ST. VINCENT AND THE GRENADINES
BARBADOS
Bridgetown
GRENADA
St. George's
Tobago
Trinidad
TRINIDAD AND TOBAGO
Port-of-Spain
Isla de Margarita
Cumaná
Barcelona
Maturín
Puerto Cabello
Caracas
Barquisimeto
Valencia
Maracay
Maracaibo
Lago de Maracaibo
Golfo de Venezuela
Aruba (NETH.)
Oranjestad
Netherlands Antilles (NETH.)
Curaçao
Bonaire
Willemstad
Santa Marta
Barranquilla
Cartagena
Monteria
Medellín
Cúcuta
San Cristóbal
Bucaramanga
Arauca
Merida
San Fernando
Ciudad Bolivar
Ciudad Guayana
Río Orinoco
Georgetown
VENEZUELA
GUYANA
GUIANA HIGHLANDS
Puerto Ayacucho
COLOMBIA
CORDILLERA ORIENTAL
Pereira
Ibagué
Bogotá
Cali
Buenaventura
Peru - Chile Trench
BRAZIL
Boa Vista
Isla del Coco (COSTA RICA)
Tapachula
SIERRA MADRE
Quetzaltenango
GUATEMALA
Puerto Barrios
San Pedro Sula
La Ceiba
Guatemala
HONDURAS
Puerto Lempira
Tegucigalpa
Santa Ana
San Salvador
San Miguel
Choluteca
EL SALVADOR
Cayos Miskitos
Mosquito Coast
Puerto Cabezas
Isla de la Providencia (COLOMBIA)
Isla de San Andrés (COLOMBIA)
Middle America Trench
Matagalpa
León
NICARAGUA
Managua
Granada
Bluefields
Lago de Nicaragua
ISLAS DEL MAIZ
Puntarenas
San José
Puerto Limón
COSTA RICA
Bocas del Toro
Colón
Panama Canal
Panama
Balboa
Golfito
David
PANAMA
Santiago
La Palma
Scale 1:12,500,000
Lambert Conformal Conic Projection, standard parallels 9°N and 17°N
0 100 200 300 Kilometers
0 100 200 300 Miles
Boundary representation is not necessarily authoritative.

General Objective

Promote the development of Spatial Data Infrastructure in 16 countries in the Caribbean, to strengthen the generation, use and sharing of geospatial information.

Specific Objectives:

- Reduce the Geospatial Data Infrastructure gap in the region, with respect to the other countries of the Continent
- Support the integration and participation of 16 Caribbean countries in the UN-GGIM: Americas initiative.

Strengthening the Region

Regional Collaboration Project scheduled for execution in three years (2014-2016)

Specific Actions

- 1. Diagnosis of National SDI
- 2. Capacity Building
- 3. Acquisition of Infrastructure
- 4. Incorporation to UN-GGIM

Establishment of National SDI

Aligned to UN-GGIM: Americas key actions

Promote

Regional Interoperability

Benefits for the Caribbean Countries

Top Geoespatial Benefits

1. Having infrastructure and knowledge to advance in the development of the national SDI in each country.
2. Advance the construction of a Geodetic Reference Framework Regional and Continental for geodetic survey standardization.
3. Enable information access and exchange among the 16 countries and the whole Continent.
4. Have information for regional-plan design and implementation.

Incorporation to UN-GGIM:

- UN-GGIM4
  August 6-8, 2014, New York City.

- UN-GGIM: Americas
  September 22-25, 2014,
  Mexico City at the Latin America Geospatial Forum.

GGIM
UNITED NATIONS INITIATIVE ON
GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT

UN-GGIM

UN Global Geospatial Information Management Initiative

United Nations Statistics Division

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"Positioning geospatial information to address global challenges"

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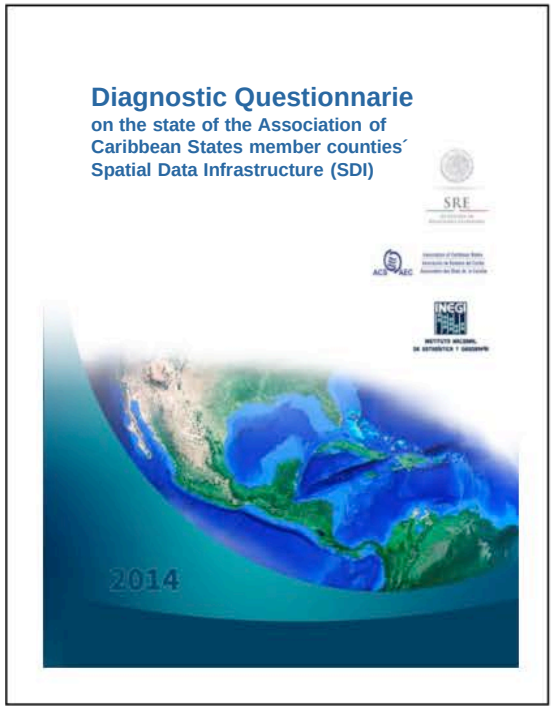
1. Diagnosis of the geospatial information management status



First Caribbean Project Workshop:

April 3 and 4, Panama City, Panama

1. Antigua & Barbuda
2. Bahamas
3. Barbados
4. Dominique
5. Grenada
6. Guadeloupe
7. Guyana
8. Haiti
9. Jamaica
10. Martinique
11. Dominican Republic
12. St Kitts & Nevis
13. Vincent & the Grenadines
14. St. Lucia
15. St. Maarten
16. Trinidad & Tobago

Caribbean Geodetic Reference Frame.

- GNSS for:
- Providing a spatial georeference within International Terrestrial Reference Frame (ITRF)
- Linking the Caribbean to Geocentric Reference System for the Americas (SIRGAS).
- According to the diagnosis, the acquisition of the necessary equipment in each country will be implemented, they will be strategically distributed in the geographic area of influence.
- This will be done according to international standards, which will contribute to regional interoperability and building the SDI of the Caribbean.

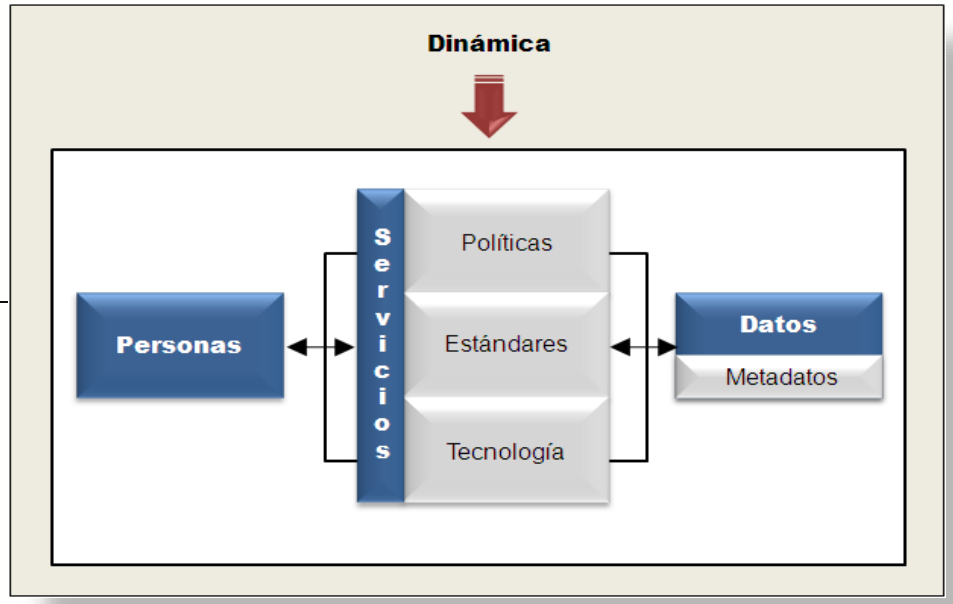
Interoperability

- A geomatic solution will be developed consistent with hardware, software and procedures integrated in the query, analysis and publication system of the georeferenced statistical and geographic information.
- The geomatic solution will be implemented on the Mexico Digital Map platform, V. 6.0.
- The design solutions will allow each country to publish its geographic services compliant with international standards in order to achieve regional interoperability and the Caribbean Spatial Data Infrastructure building.

Spatial Data Infrastructure Concept

Collection of technologies, policies and institutional arrangements that facilitate the availability of and access to spatial data. (Cookbook, 2009)

Conceptual Model



(Strain & Rajabifard, 2004)

3. Infrastructure acquisition

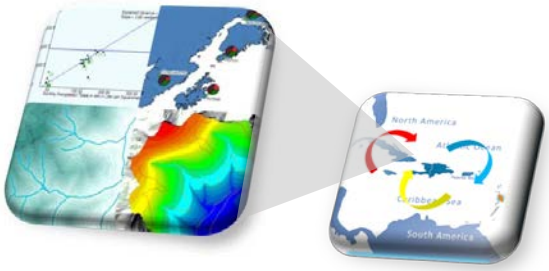
GNSS continuous operating reference stations

Computer equipment

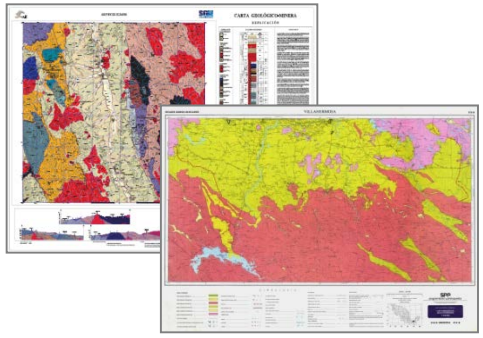
- Caribbean geodetic reference frame
- Promote interoperability and facilitate timely geospatial information use and exchange

Telecommunications

2. Capacity building



Spatial data infrastructures



Land cover and vegetation classification System

Geospatial information systems

National Institute of Statistics and Geography

Mexico

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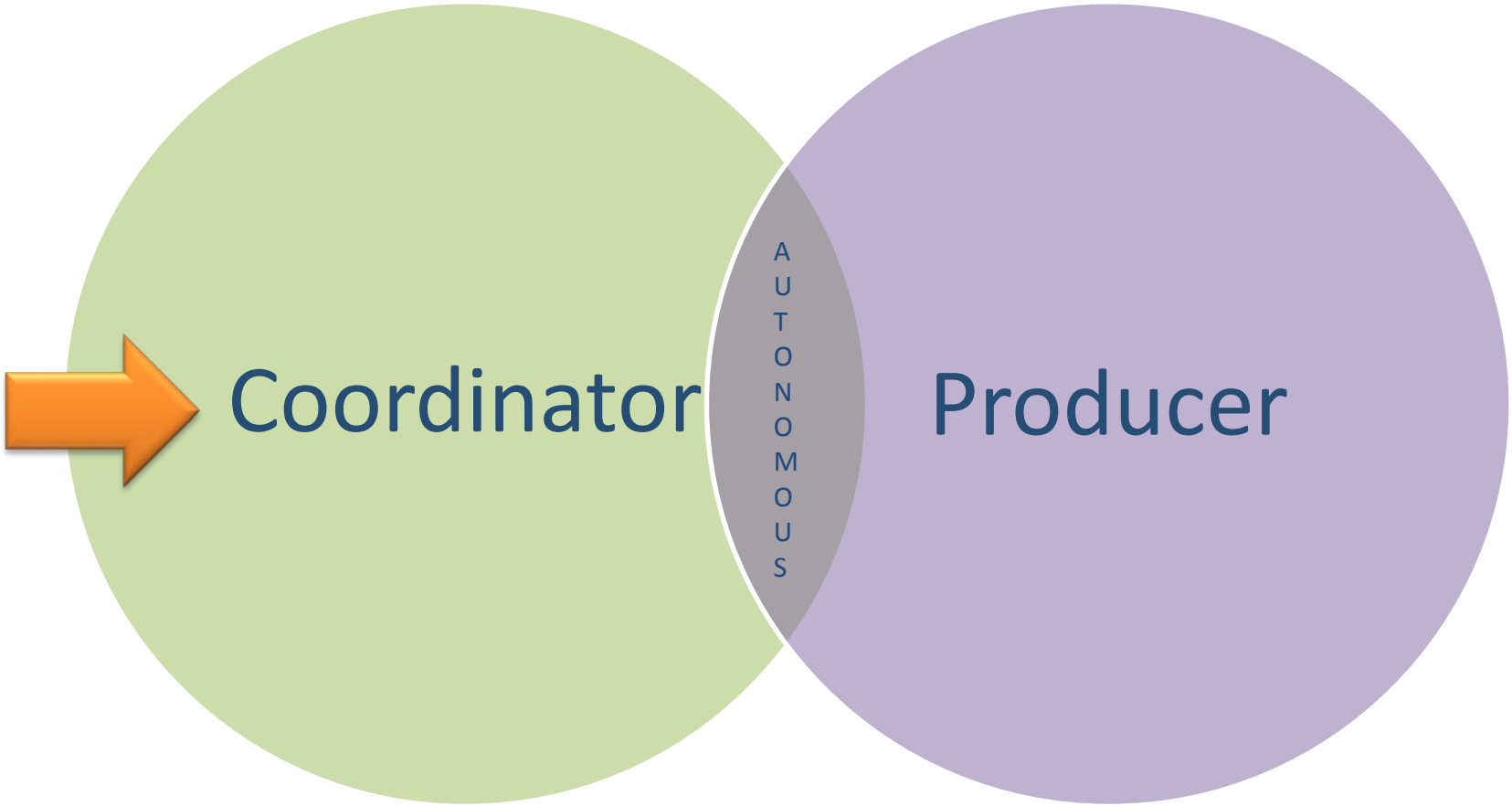
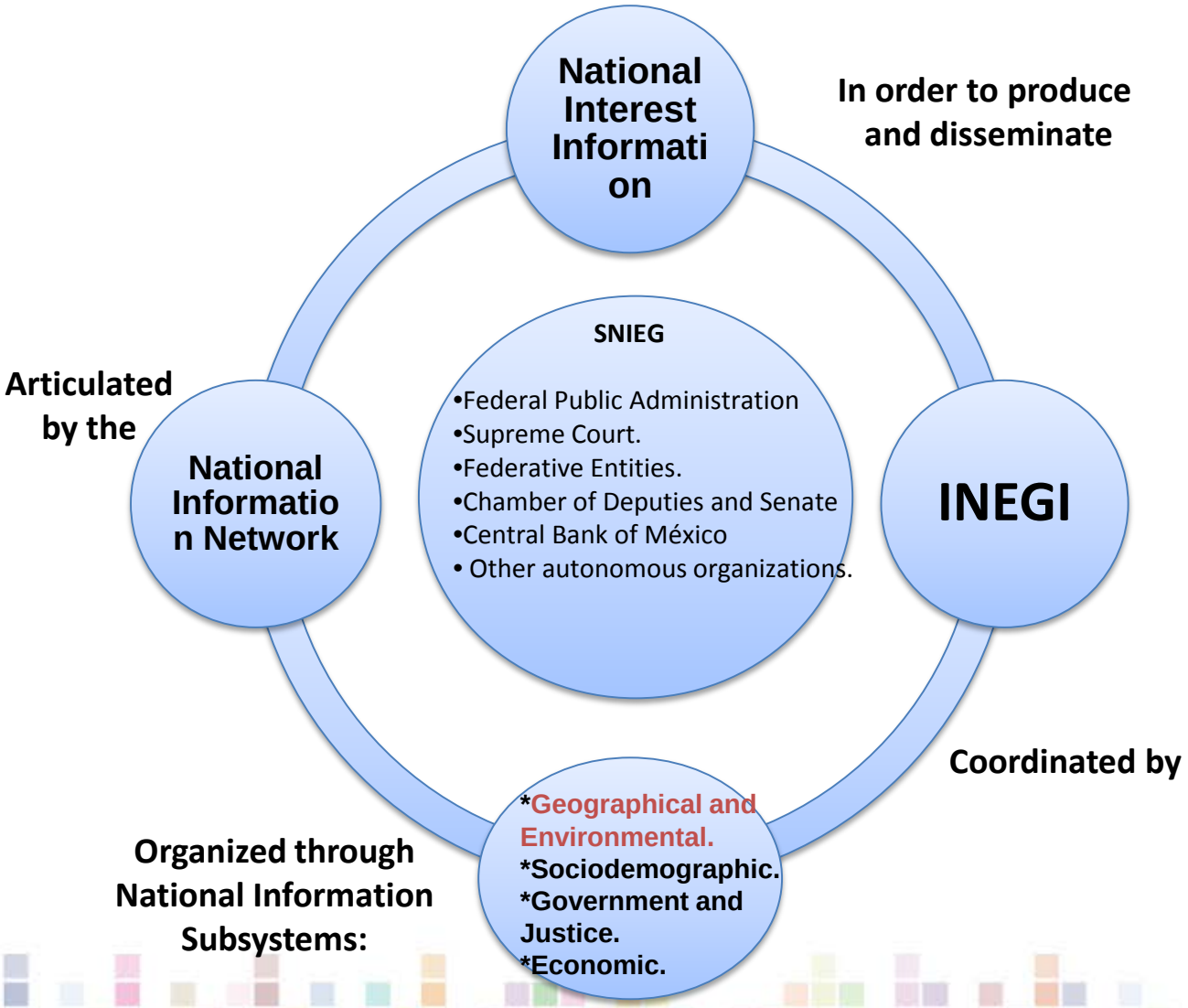


INSTITUTO NACIONAL
DE ESTADÍSTICA Y GEOGRAFÍA

INEGI as Coordinator



The National Statistical and Geographical Information System in Mexico

Technical Committees of Geographical and Environmental Information

Water Information

Energy Sector Information

Basic Geographic Information

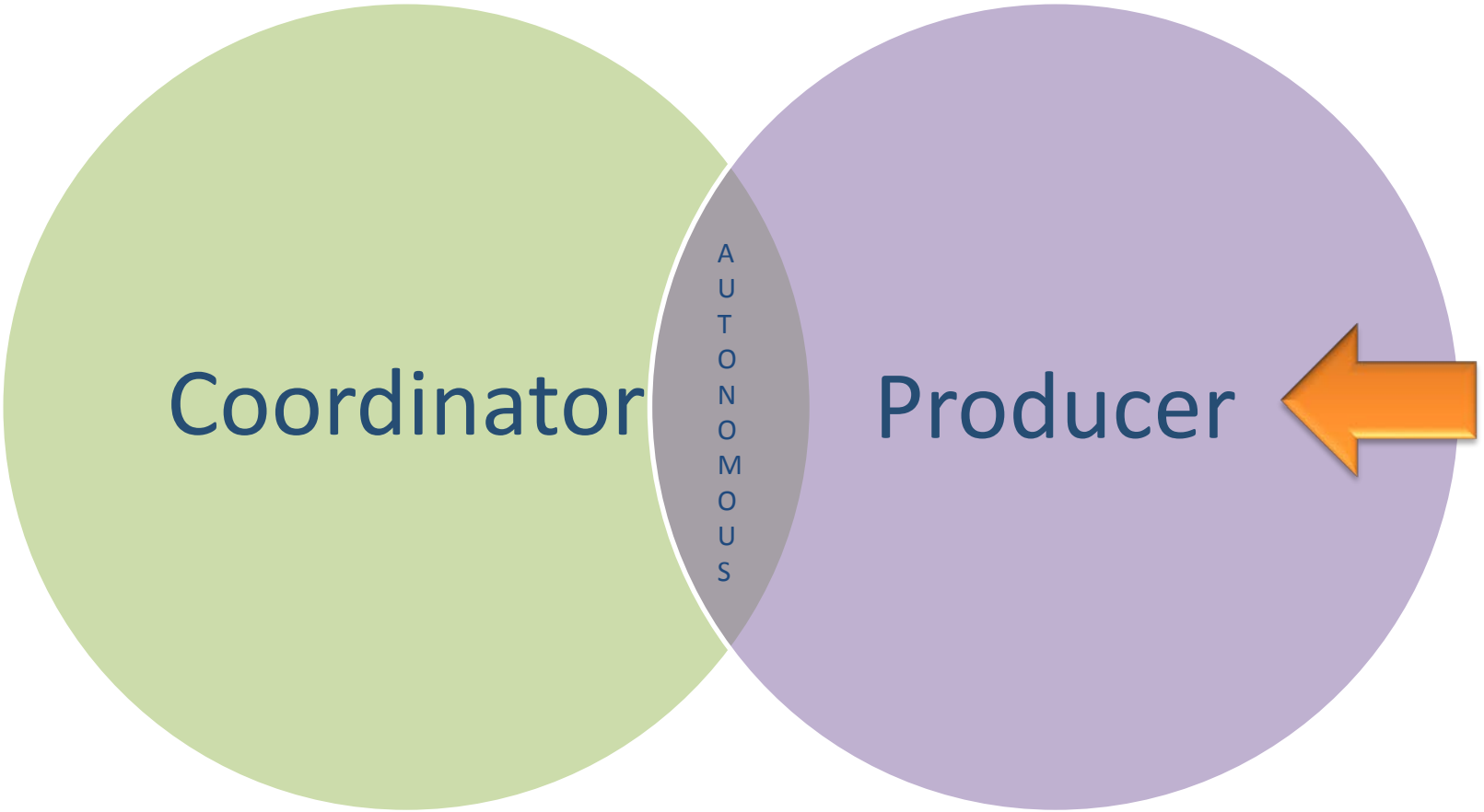
Cadastre and Land Registry Information

Emissions, Residues and Dangerous Substances Information

Land Use, Vegetation and Forestry Resources Information

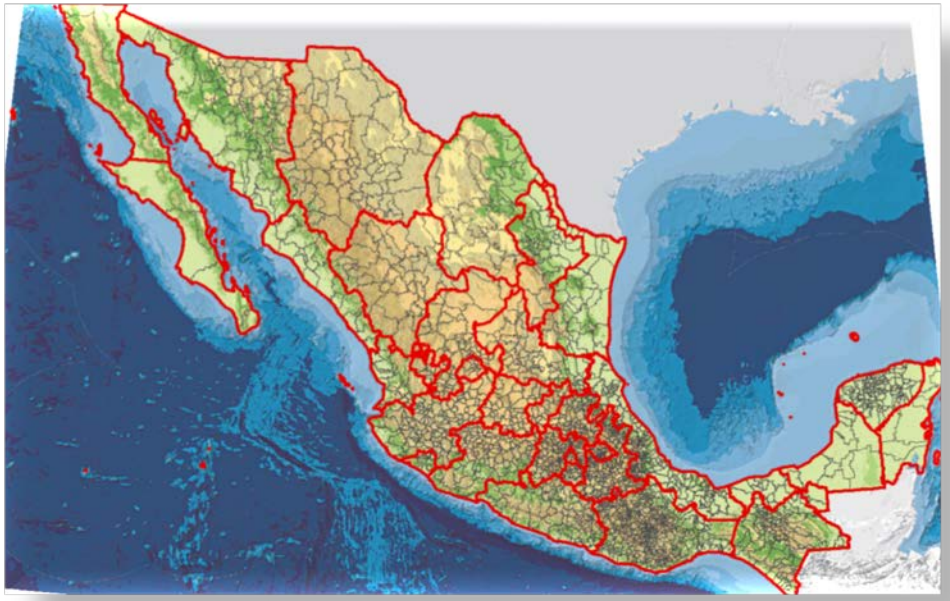
Climate Change Information

INEGI

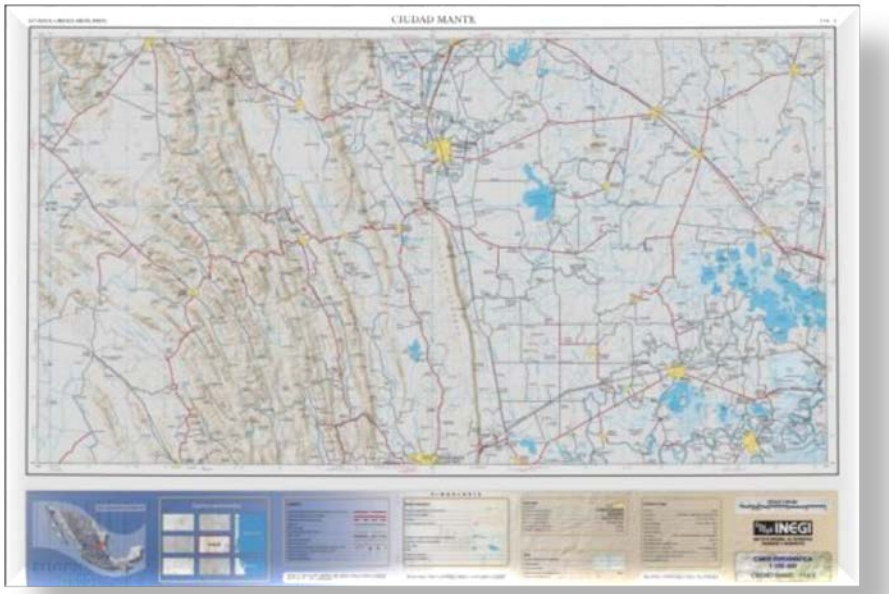


INEGI as Producer

Cartographic Database components:

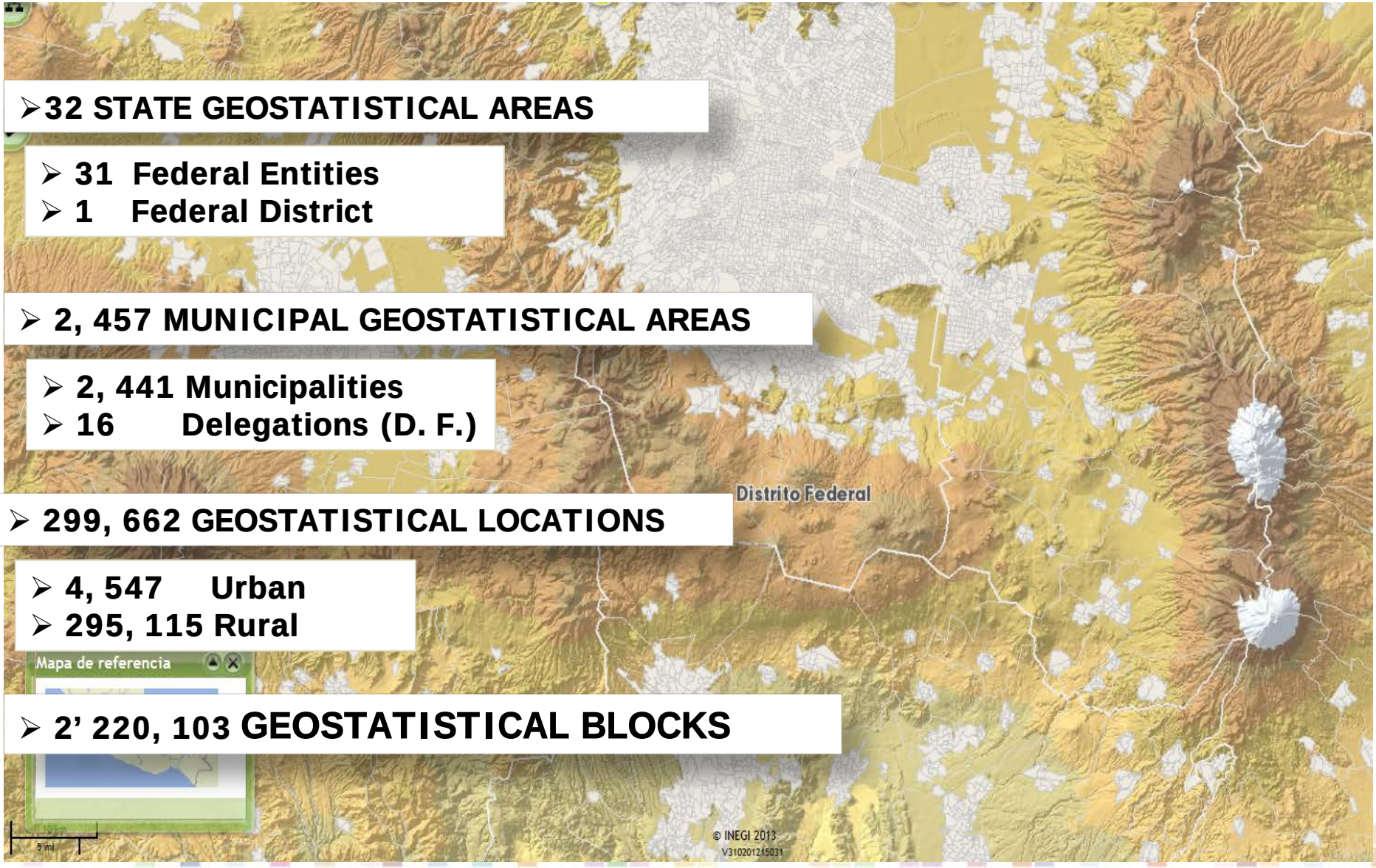


National Geostatistical Framework



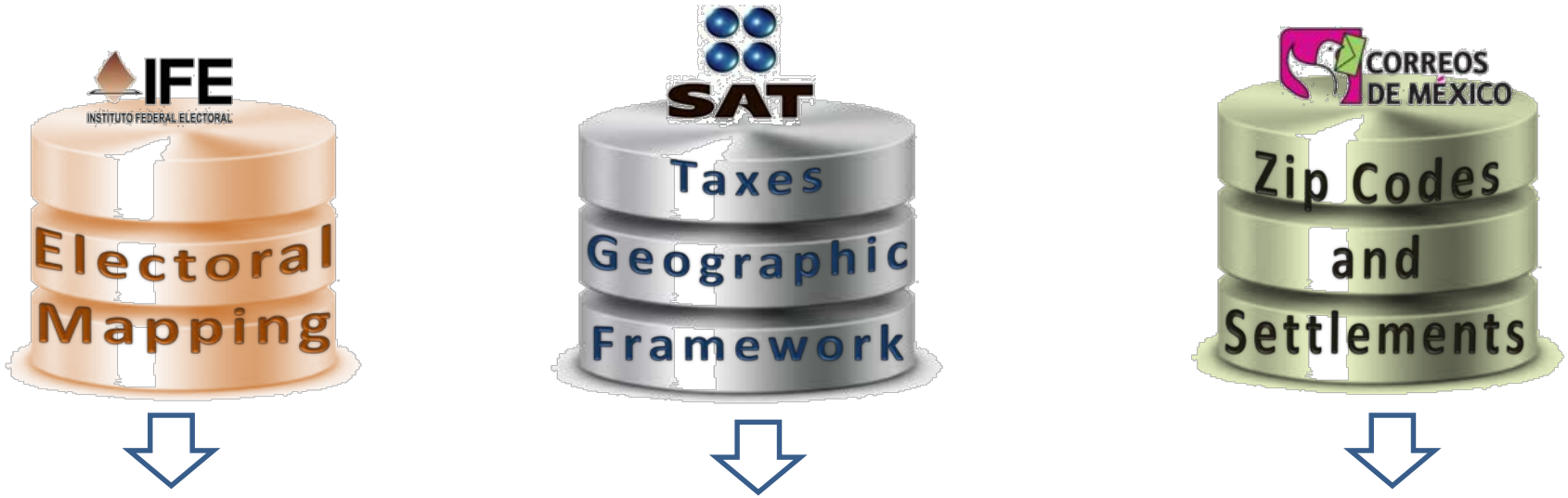
Topographic Map of Mexico

NATIONAL GEOSTATISTICAL FRAMEWORK:



- **32 STATE GEOSTATISTICAL AREAS**
  - **31 Federal Entities**
  - **1 Federal District**
- **2, 457 MUNICIPAL GEOSTATISTICAL AREAS**
  - **2, 441 Municipalities**
  - **16 Delegations (D. F.)**
- **299, 662 GEOSTATISTICAL LOCATIONS**
  - **4, 547 Urban**
  - **295, 115 Rural**
- **2' 220, 103 GEOSTATISTICAL BLOCKS**

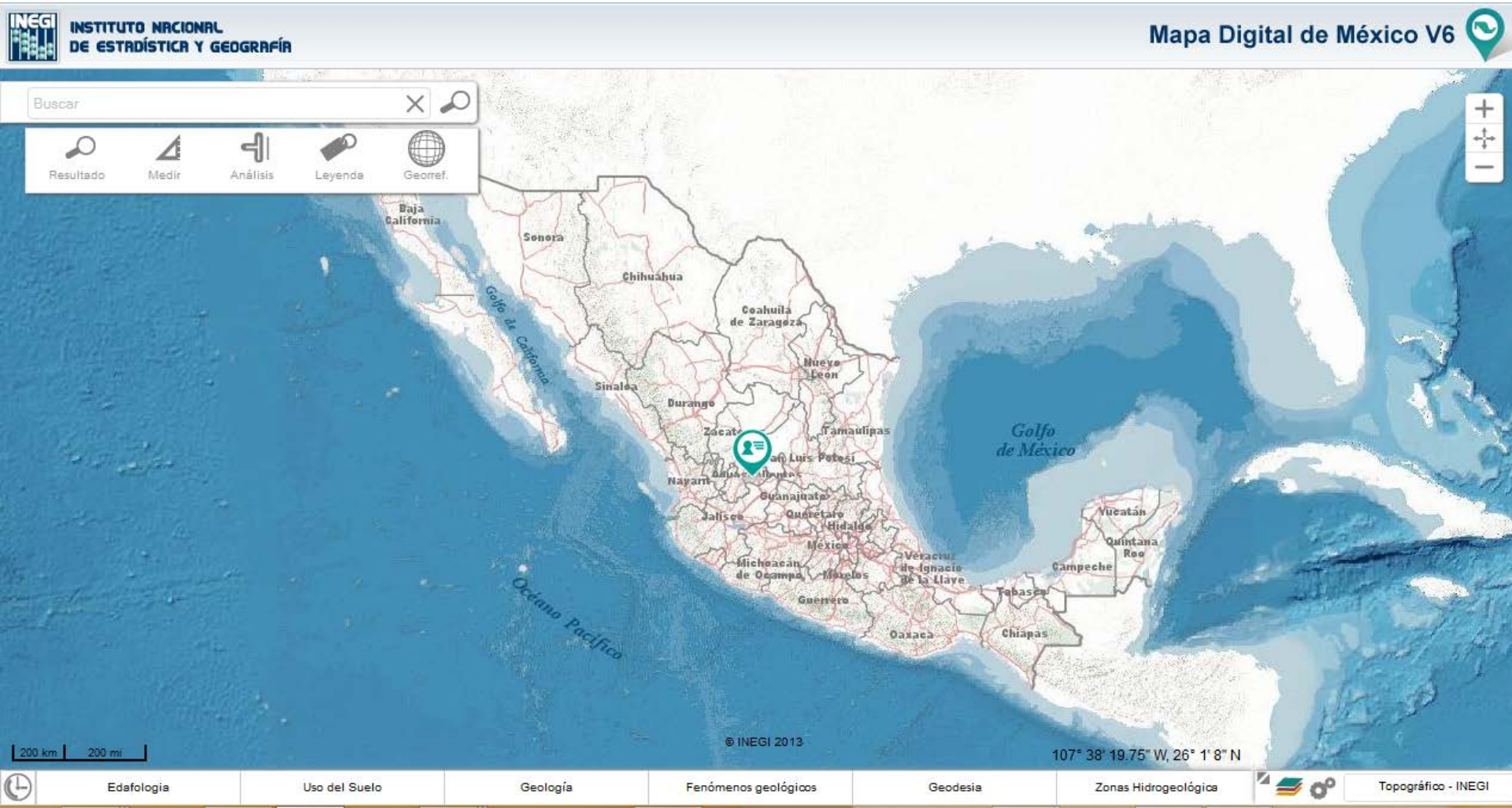
The Cartographic Database, concentrates all updates provided by the Federal Government and Institutions with the objective of sharing them



Homologation of catalogs and creation of a Single Cartographic Database

Digital Map of Mexico

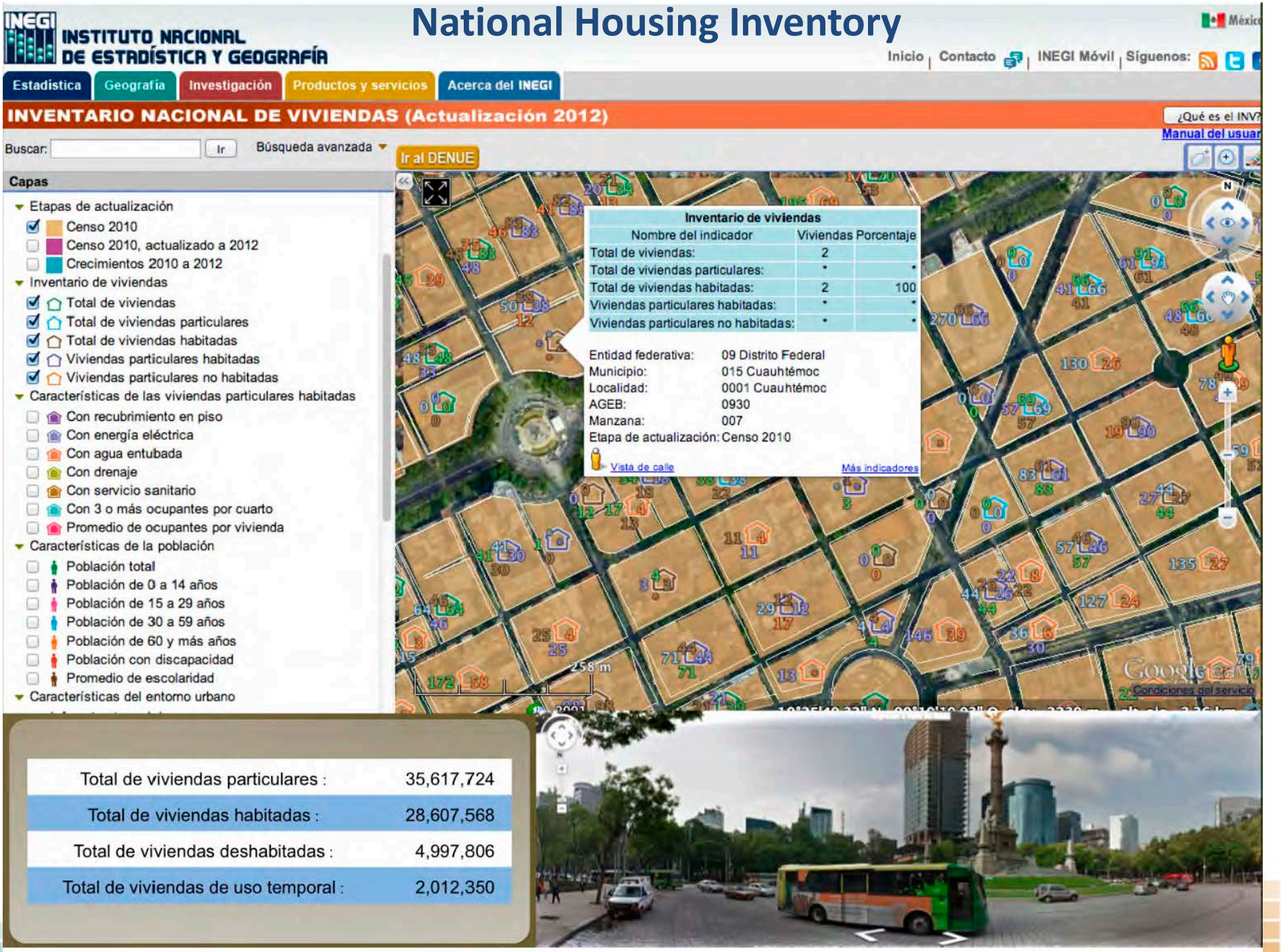
Allows for the visualization and analysis of geographic and georeferenced statistical information. It offers 158 vector data layers, with more than 66 million geographic objects and 4 raster layers covering the whole country.



Economic Unit Georeference (DENUE)

To date, 4.4 million Economic Units have been georeferenced and updated periodically

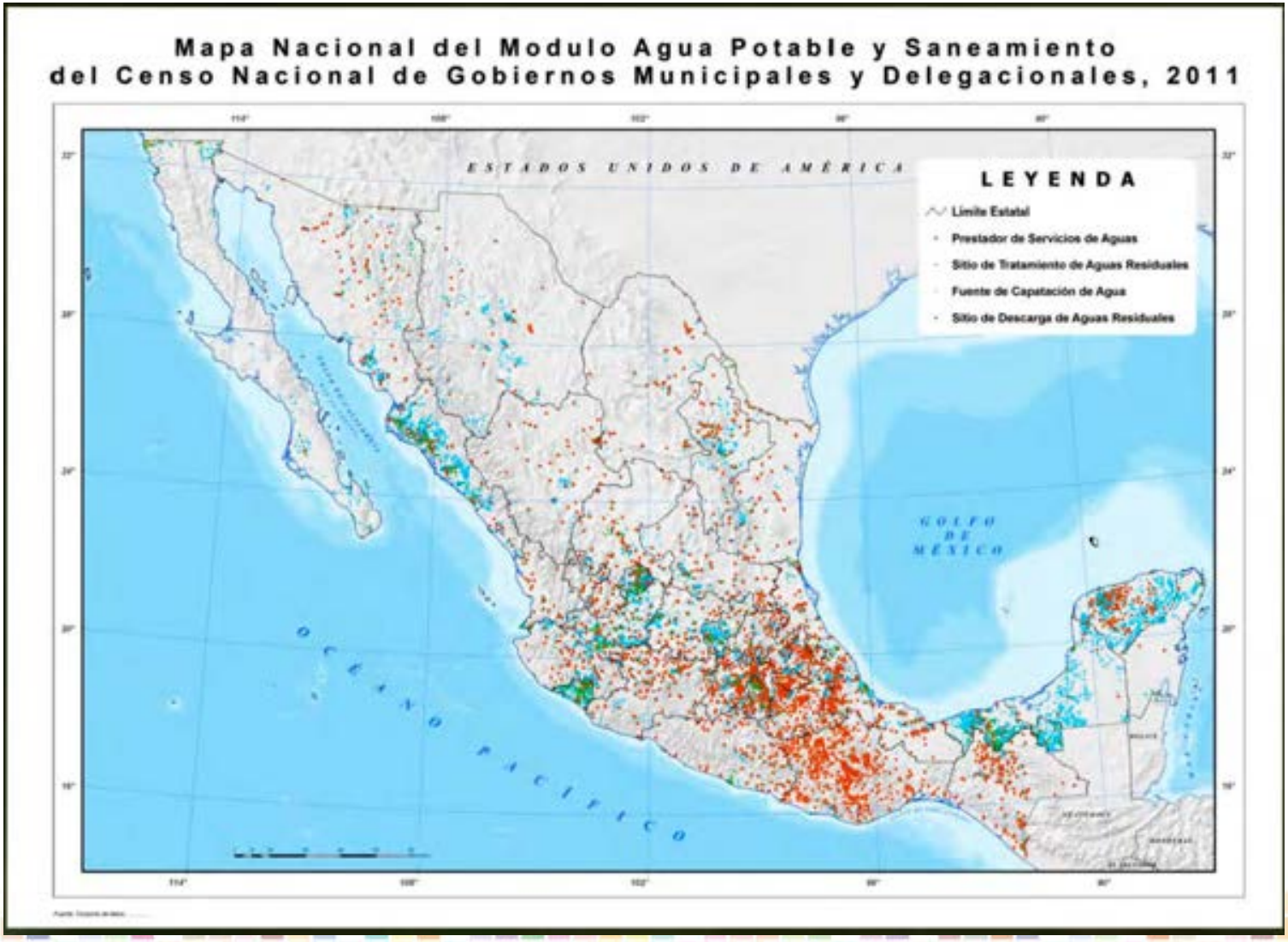
National Housing Inventory



Total de viviendas particulares :	35,617,724
Total de viviendas habitadas :	28,607,568
Total de viviendas deshabitadas :	4,997,806
Total de viviendas de uso temporal :	2,012,350

Environmental Information

Georeferencing environmental information



Environmental Statistics System

Municipios	Total de tomas de agua para abastecimiento público	Total de tomas de agua para abastecimiento público tipo pozo	Total de tomas de agua para abastecimiento público con macromedidor	Total de tomas de agua para abastecimiento público con macromedidor funcionando	Puntos de descarga de aguas residuales sin tratamiento	Puntos de descarga de aguas residuales sin tratamiento en ríos y lemnos	Población total 2010
033 Ecatepec de Morelos	71	71	71	55	4	1	1656107
121 Cuautitlán Izcalli	40	40	40	40	13	13	511675
039 Intapaluca	40	40	39	21			
057 Naucalpan de Juárez	40	40	40	40			
106 Toluca	40	40	38	21			
013 Atizapán de Zaragoza	33	33	33	33			
085 Temascalcingo	29	27	0	0			
109 Tultitlán	27	27	5	2			
060 Nicolás Romero	24	24	17	6			
020 Coacalco de Berriozábal	22	22	22	6			
104 Tlalnepantla de Baz	22	22	17	16			
031 Chimalhuacán	22	22	16	11			
024 Cuautitlán	17	17	17	16			

National Land Registry and Cadastre Information System

Cadastral mapping of private property
(12 million properties)

Cadastre and registry of social property
(8.8 million properties)

Registry Information
Cadastre register 26.9 Million and Public property register 12 Million

National Institute of Statistics and Geography

Mexico

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