

**First Forum
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**Development Of Common Frameworks
And Methodologies ***

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**United Nations High Level Forum on
Global Geospatial Information Management
24 -26 October, Korea 2011.**

**DEVELOPMENT OF COMMON FRAMEWORKS
AND METHODOLOGIES**

Mexico



**INSTITUTO NACIONAL
DE ESTADÍSTICA Y GEOGRAFÍA**



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Introduction



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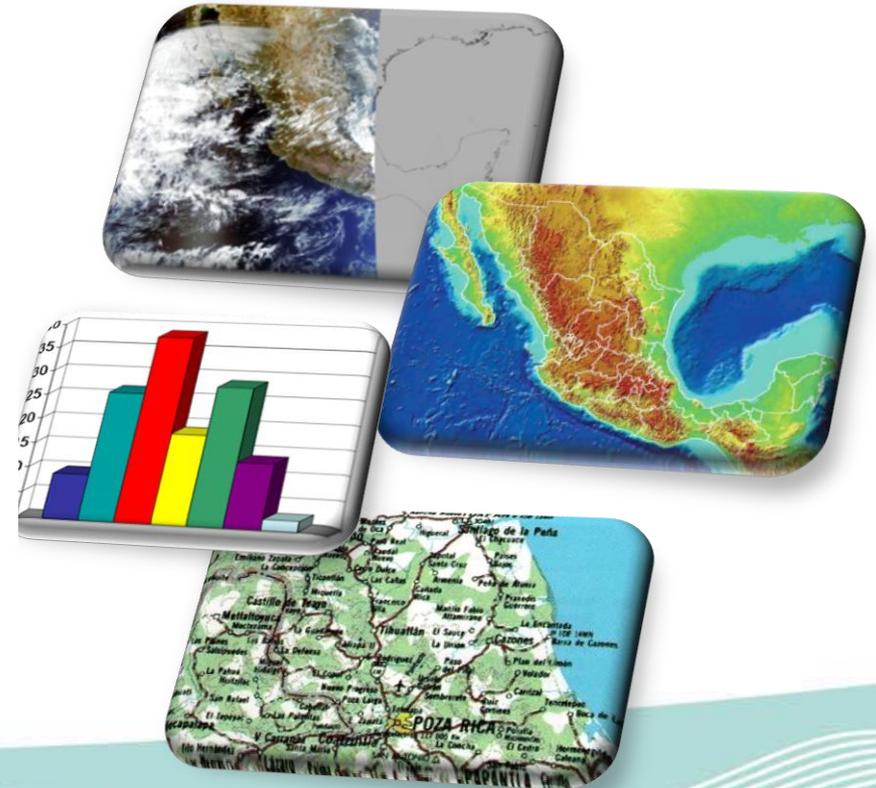


Introduction



Herein is presented the Mexican experience in relation to the development of regulation (standards) and methodology, as well as joint projects with neighboring countries.

The development of standards is basic for a coherent, active and operative National Statistical and Geographical Information System (SNIEG). The Law of SNIEG establishes that the National Institute of Statistics and Geography must issue regulations and standards.



Legal Framework



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Legal Framework

Constitution of the Mexican United States

First Title, Chapter I

Civil Rights

Article 26

B. The State shall have a National Statistical and Geographical Information System, and its data shall be considered official data. It is compulsory for the Federation, the Federal District, states and municipalities to use the data produced by the System as stipulated in such Law.

...

The Law shall establish the organization and operation bases of the National Statistical and Geographical Information System according to the principles of accessibility, transparency, objectivity and independence...

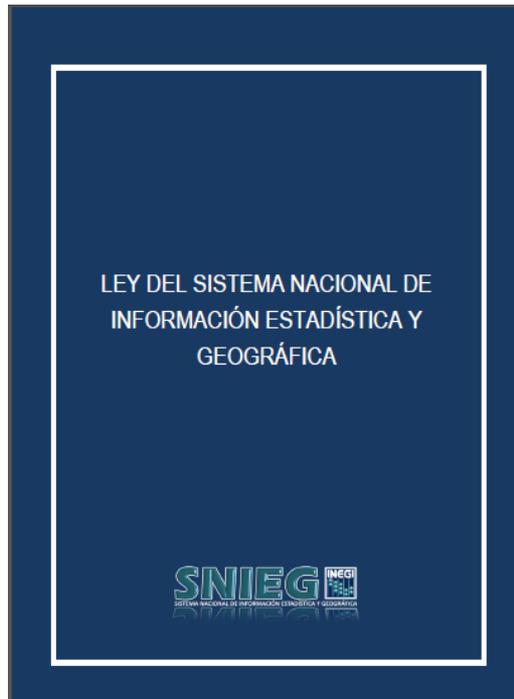




Legal Framework



Law of the National Statistical and Geographical Information System (LSNIEG)



➤ *Art. 52 LSNIEG*

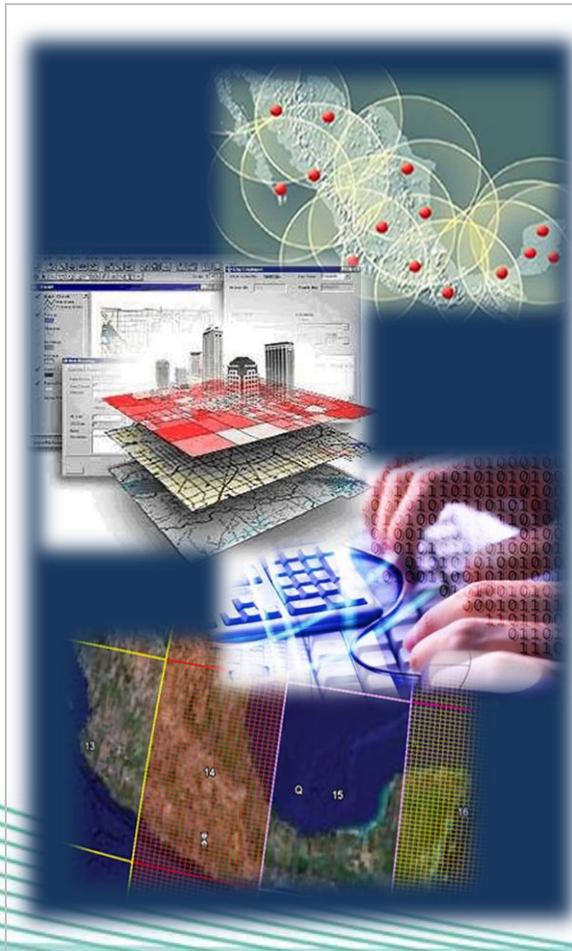
The Institute, according to Article 26, Section B of the Constitution of the Mexican United States, is a public agency with technical and management autonomy, with legal personality and own assets, **responsible of the regulation and coordination of the National Statistical and Geographical Information System ...**



Legal Framework



Law of the National Statistical and Geographical Information System (LSNIEG)



➤ *Art. 58 LSNIEG*

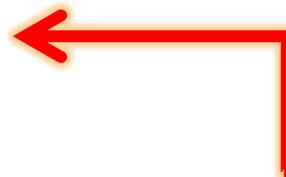
The Institute will regulate, by means of general directives, **the collection, processing and publication of Information,** for the proper functioning of the System or will authorize the directives used by the State Units for such activities.



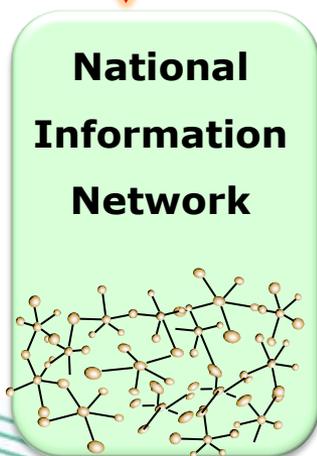
Legal Framework



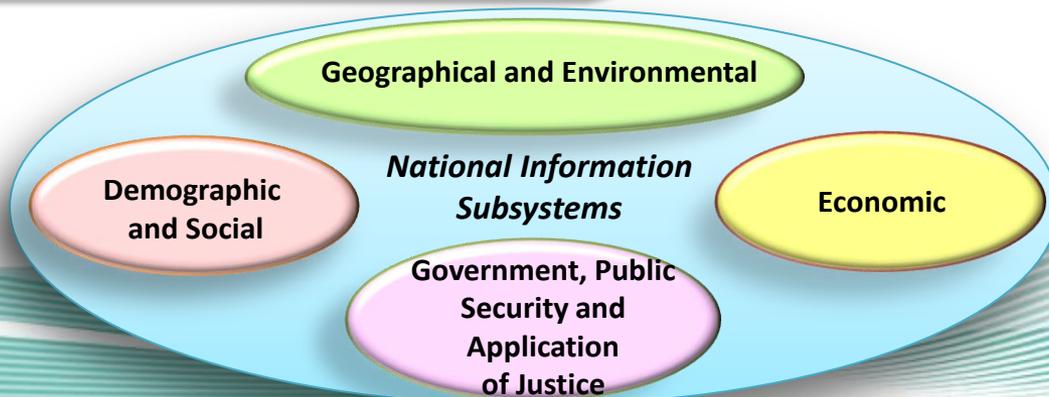
In order to produce and disseminate



Articulated by the



Organized through





Legal Framework



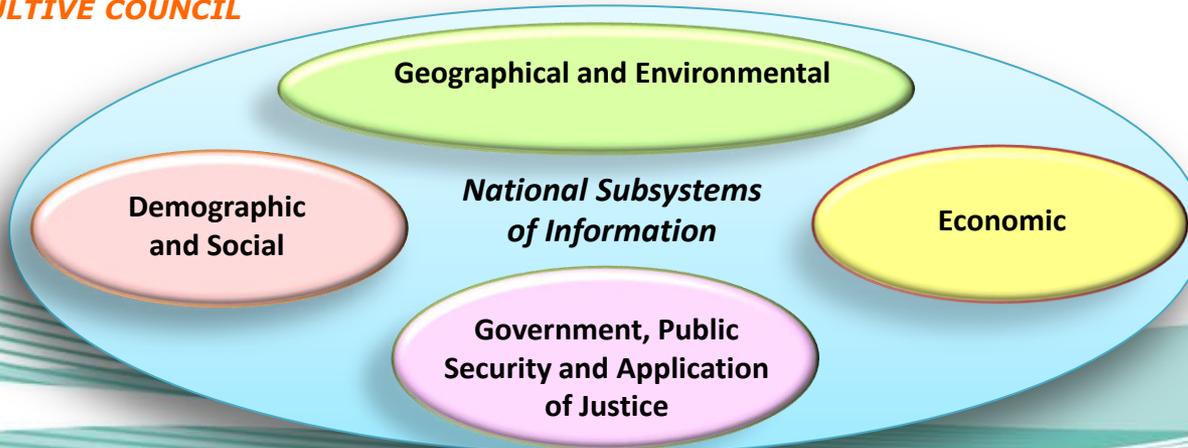
Components of the



NATIONAL SYSTEM OF STATISTICAL AND GEOGRAPHICAL INFORMATION



NATIONAL CONSULTIVE COUNCIL





National Consultive Council

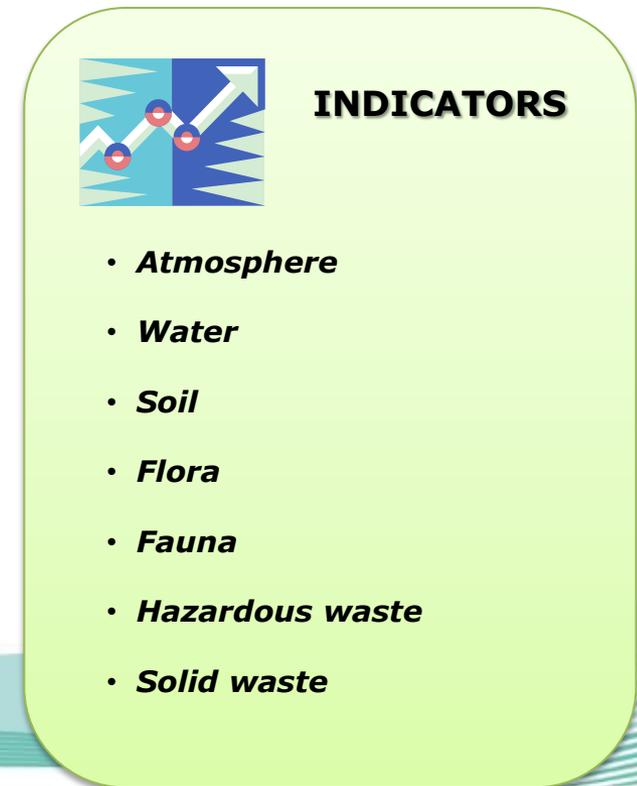
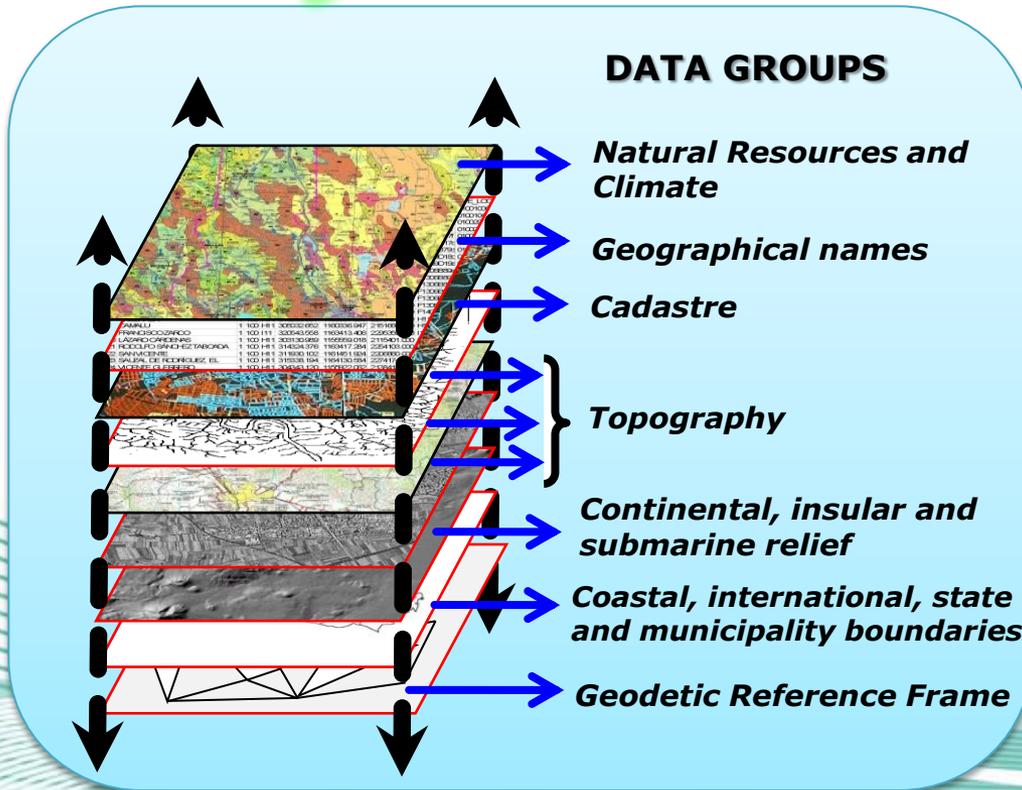
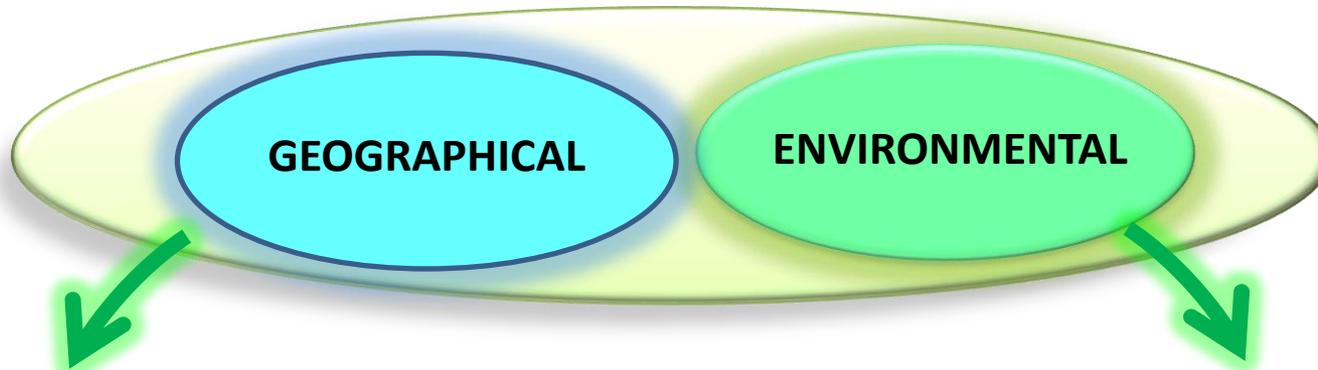


It is a participation and consultation body in charge of giving its opinion, suggestions and advising INEGI and its Governing Board with respect to the development of statistical and geographic activities for the production, integration and dissemination of Information of National Interest. It is formed by:

- A. The President of the National Institute of Statistics and Geography
- B. A representative of each Secretariat of the State of the Federal Public Administration
- C. A representative of the Central Bank of Mexico
- D. A representative of the Federal Judicial Power
- E. A representative of the Chamber of Deputies of the Congress
- F. A representative of the Republic Senate
- G. Five representatives of the Federated Entities
- H. A Technical Secretary



National Subsystem of Geographical and Environmental Information



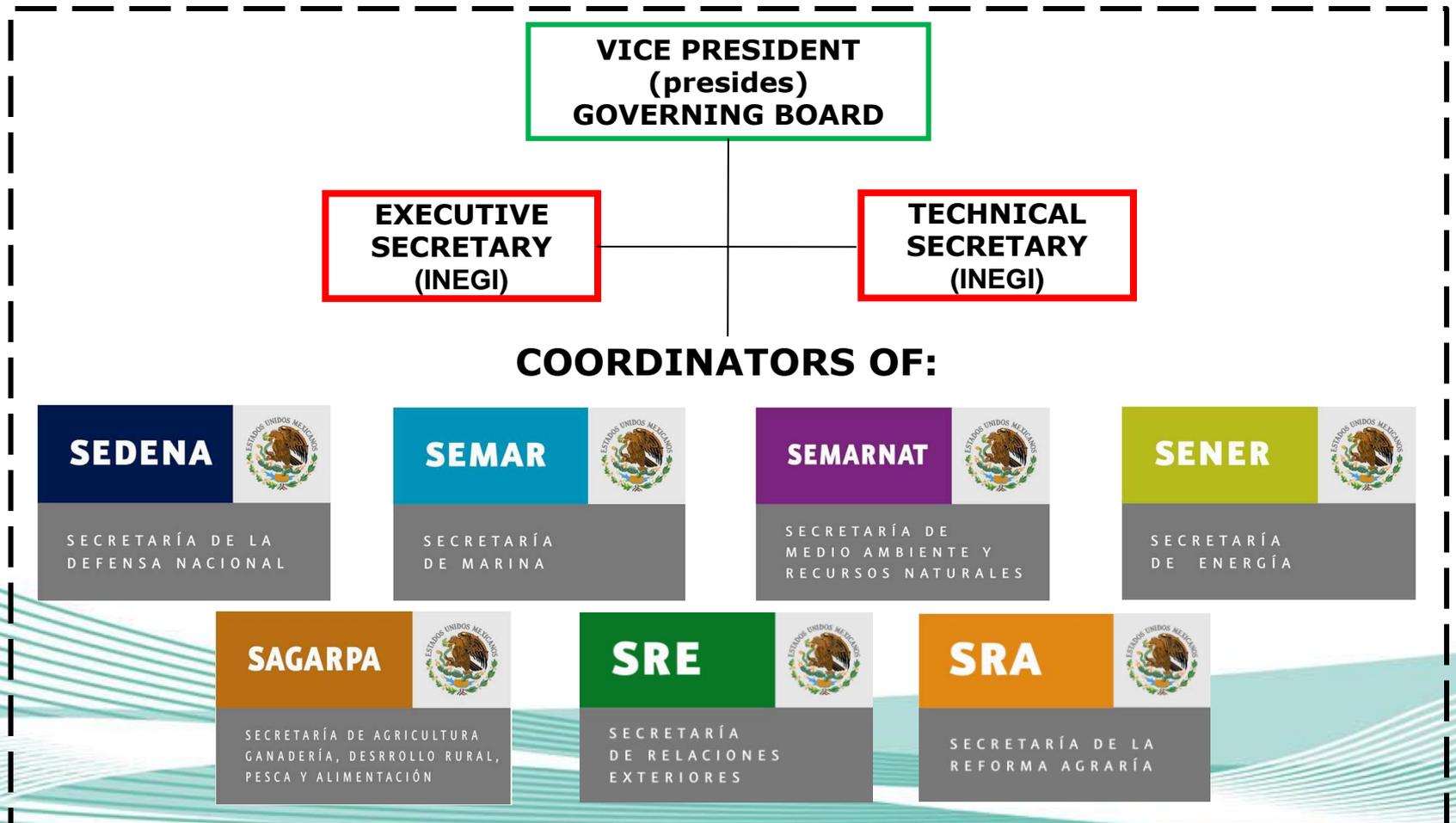


National Subsystem of Geographical and Environmental Information

Executive Committee



Collegiate bodies of participation that contribute to interinstitutional coordination and to the implementation of policies defined for the execution of statistical and geographic activities of SNIEG.





Specialized Technical Committees



Collegiate instances of participation and consultation established by an agreement of the INEGI Government Board and formed by representatives of the Units of the State and the Institute, who will promote their conformation and proper operation.

As part of the National Subsystem of Statistical and Geographical Information, the following Specialized Technical Committees have been established:

Water

Climate Change

Basic
Geographic
Information

Energy
Sector

Land Use,
Vegetation and
Forest Resources

Cadastre and
Register
Information

Hazardous
emissions, waste
and dangerous
substances

Regulation



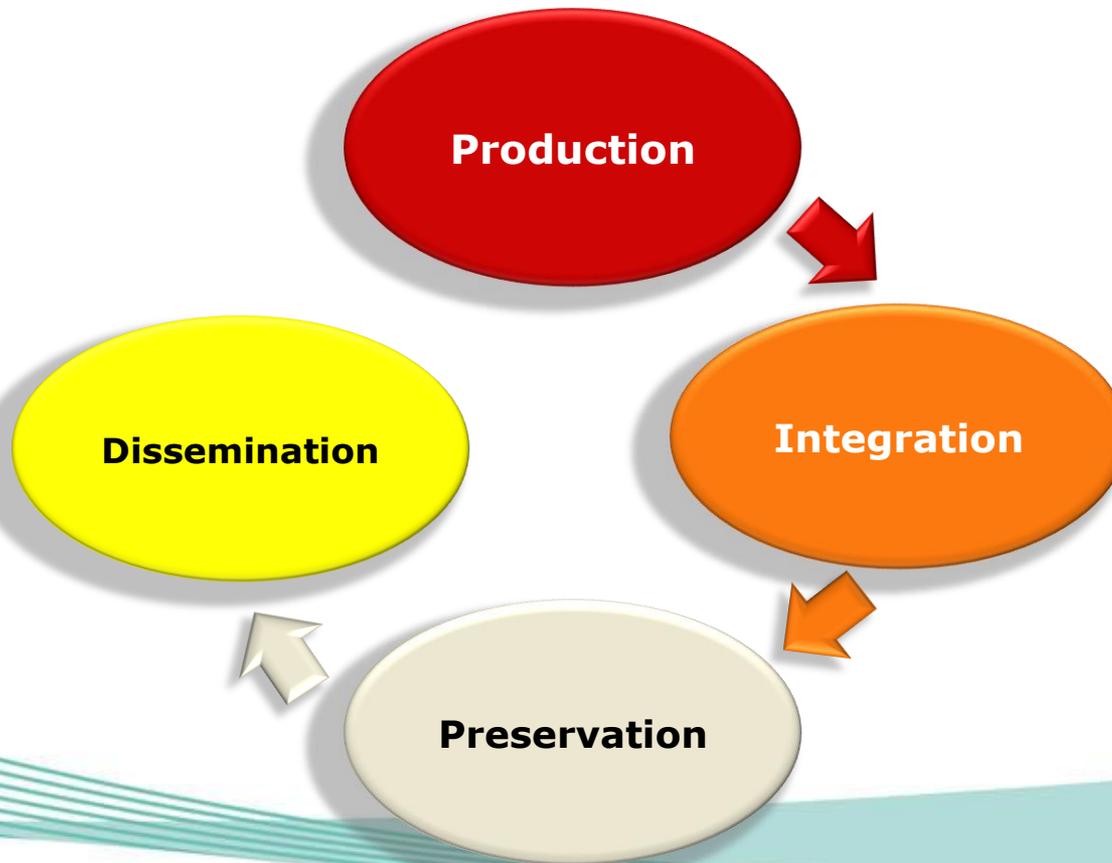
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Technical Regulation



In order to provide ***high quality, pertinent, truthful and timely*** information, produced by the System, it is necessary to regulate the information process:

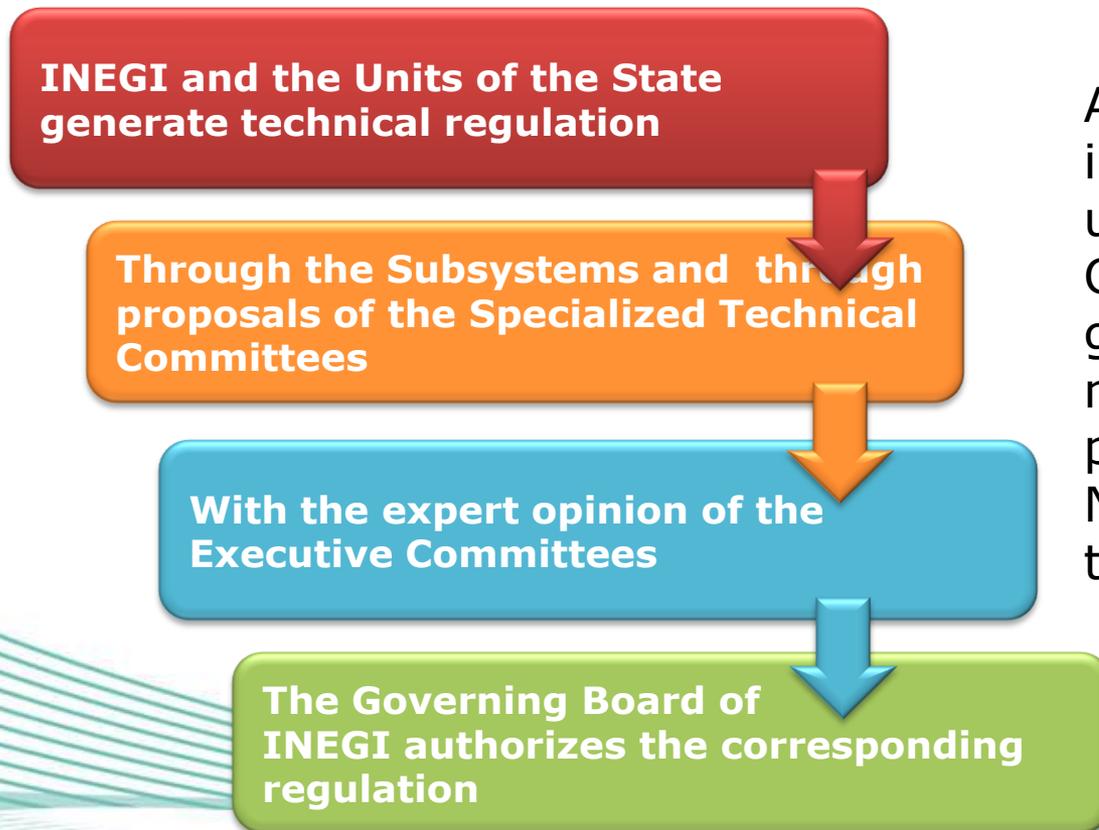




Technical Regulation



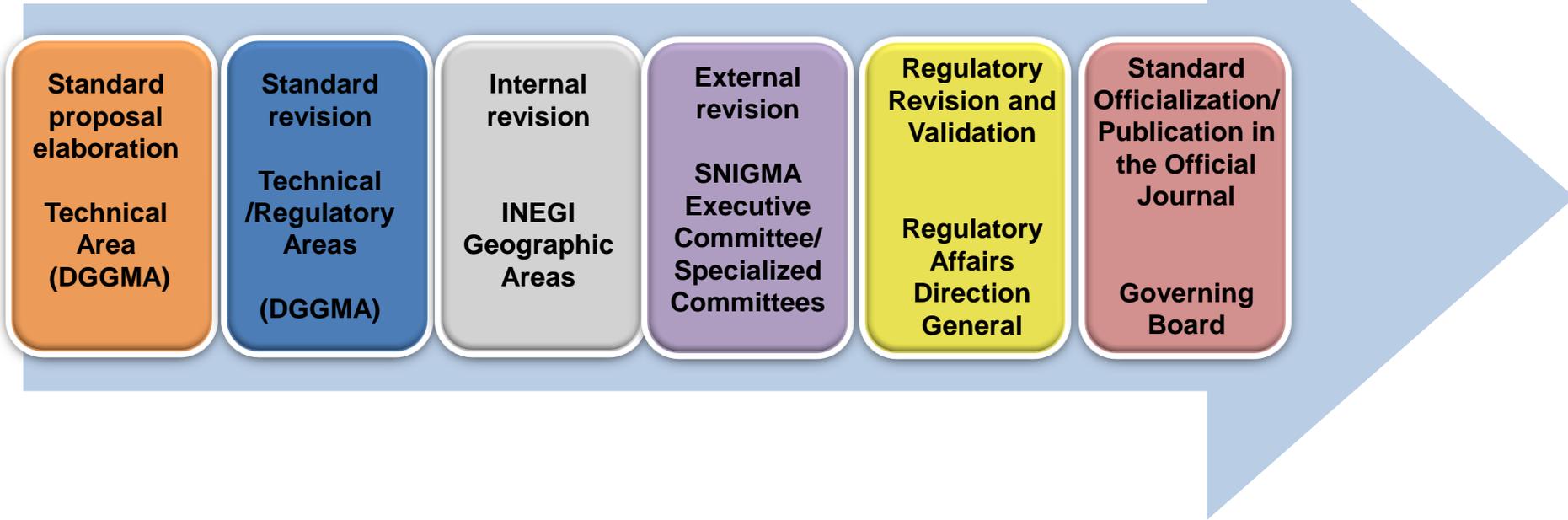
By issuing general directives, INEGI regulates the setting of standards and guidelines that guarantee their coherence and consistency through the following procedure:



Also, the Institute invites international organizations, upon request of an Executive Committee, to review and give its opinion about the methodologies used to produce Information of National Interest, including those of the Institute itself.



Technical Standards





Technical Standards



Technical Standards published in 2010 in the Official Journal

Standard for the National Geodetic System

Standard of the Positional Accuracy Standards

Standard for Geographic Addresses

Standard for Geographic Metadata Generation

Technical Standards to be published in 2011 in the Official Journal

Continental and Insular Geographic Names

Submarine Relief Form Names

Generation, Capture and Integration of Cadastre and Register Data

Unique Code for the Territory Register

Agreement for the official use of the Unique Catalogue of Codes assigned to the States, Municipalities and Localities

Technical Standards to be developed in 2011

Orthoimages

Interoperability



International Experiences





RGNA Geodetic Data



The Active National Geodetic Network (RGNA) is a set of 22 GPS stations continuously operating and generating geodetic data in Mexico.

The data are available at the INEGI website and used by Geodesy international agencies.



The US NGS uses this data in the OPUS (Online Position User Service) processing service.

The Geocentric Reference System for the Americas (SIRGAS) has been adopted as the official framework for several South American countries.



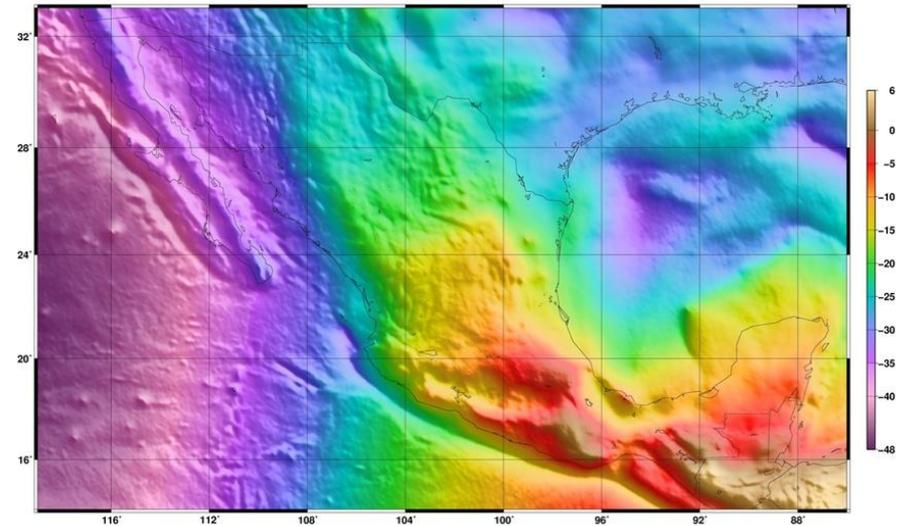
Geoid



Given the widespread use of GPS for obtaining coordinates to be used in topographic and cadastre activities, it is necessary to have a geoid model for the expression of height values at mean sea level.



Geoid Height Model



INEGI is part of the working group on Gravity and North American Geoid, along with Canada and the USA, for the determination of an international standard geoid, within a subcomission of the International Association of Geodesy.



Geoid



Another project is the “Monitoring of Temporary Changes on the Geoid for Mexico, Central America and the Caribbean”, financed by the Pan American Institute of Geography and History (PAIGH), INEGI, National Geodetic Survey and the University of New Brunswick. At present, the countries participating are: Guatemala, El Salvador, Costa Rica, Nicaragua, Honduras, Dominican Republic, Panama, USA, Canada and Mexico.

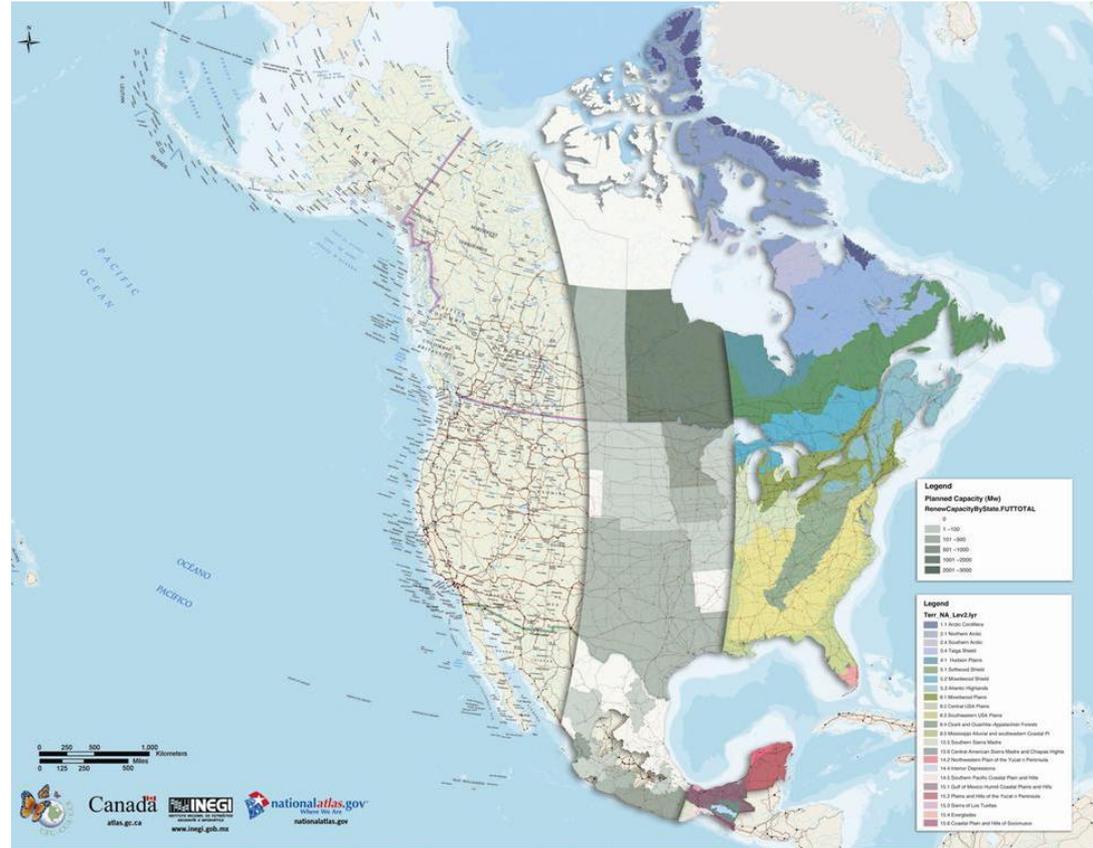


The North American Atlas



Hydrography and its basic infrastructure are essential elements for representing the territory, and for its geographic understanding.

In a globalized situation, the Mexican reality is better understood comprehensively if the neighboring countries are included.





The North American Atlas



The construction of a trilateral map is the result of the integration of specifications and standards that demonstrate the interoperability of at least this part of the Cartographic Systems of the participant countries.

This project has combined the information and experience of four agencies:

- Natural Resources Canada
- U.S. Geological Survey
- INEGI
- Commission for the North American Environmental Cooperation

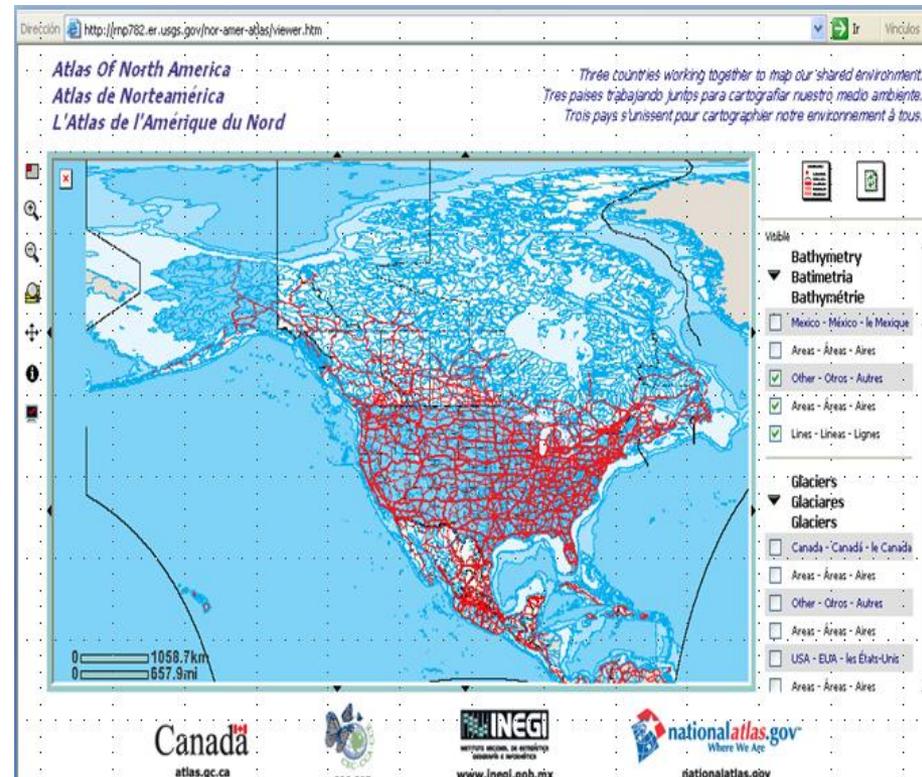
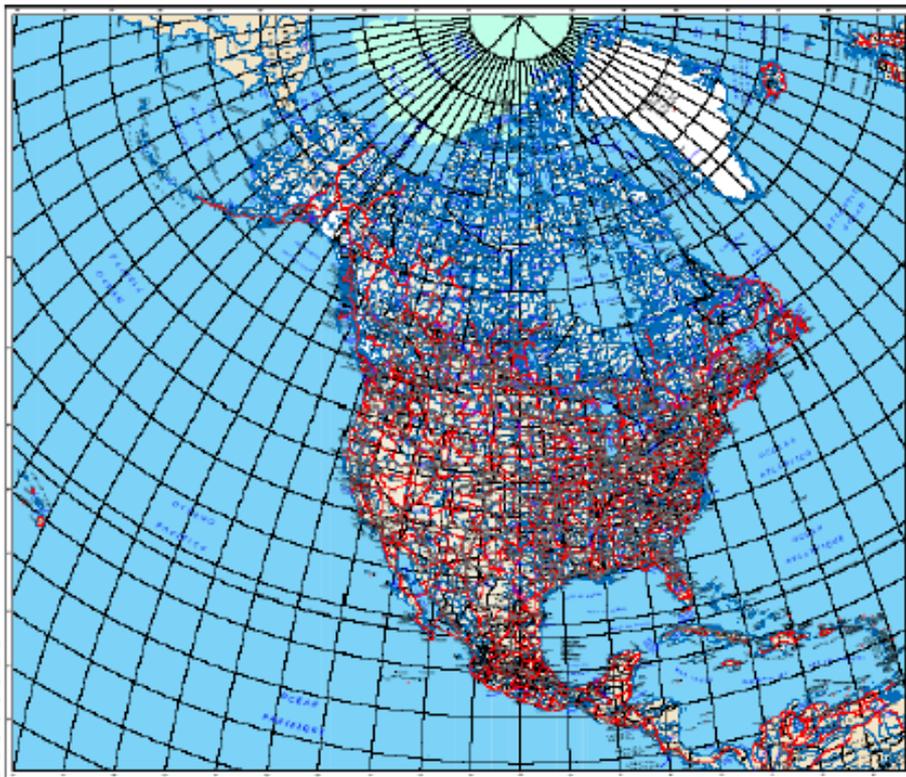




The North American Atlas



This map was printed at 1:10,000,000 scale and can be consulted in a web map service.





Building of the Mexico-USA Transboundary Fundamental Data



An on-line map system has been developed for the seamless transboundary fundamental data query; the data can be downloaded from a web platform. <http://borderhealth.cr.usgs.gov>

Among the available data you can find:

- Binational integration of land use
- Highway infrastructure data
- Toponyms
- Potential pollution sources
- Analysis of land use and pollutants
- Models for interactive river networks
- Water quantity and quality data
- Geological data
- Census data

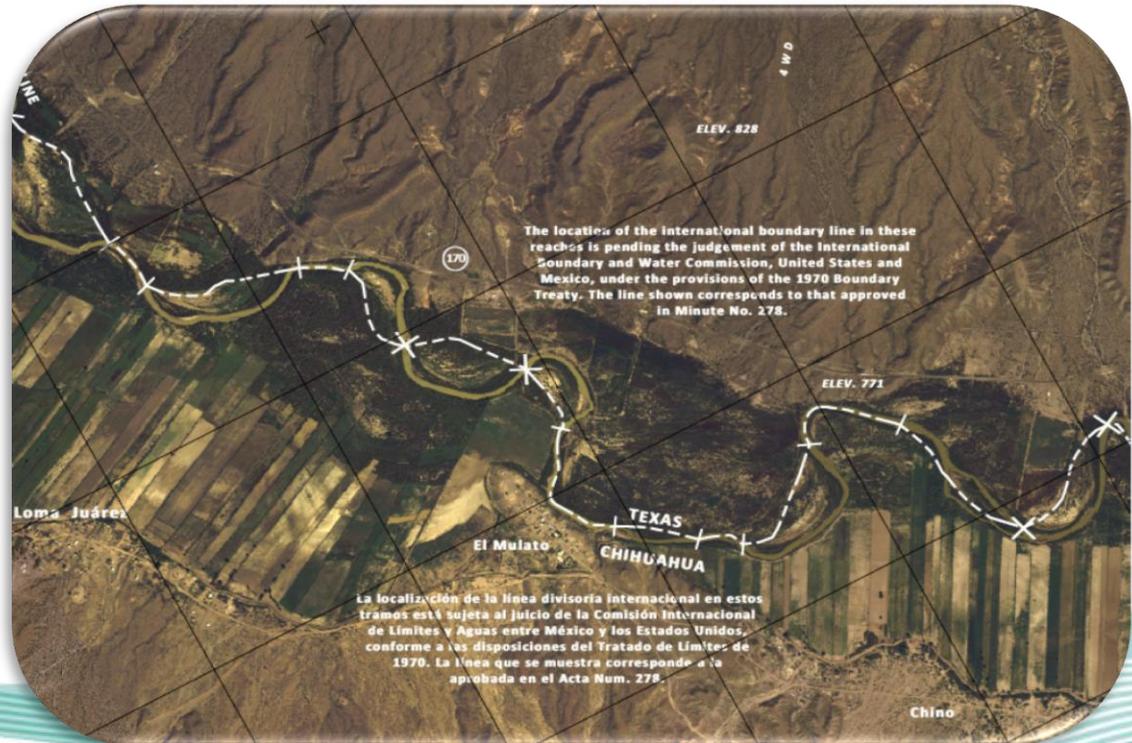


Building of the Mexico-USA Transboundary Fundamental Data



USA – Mexico Aerophotographic Mosaic

- The USA performed the aerophotographic survey of the Rio Grande that allowed the generation of the aerophotographic mosaic.
- INEGI reproduced the aerophotographic mosaic at 1:25,000 scale.
- Each country chose its geographic features and its geographic names.





Producing of the Mexico-USA Transboundary Fundamental Data



For joint Mexico-USA joint work in the Rio Grande region, it has been necessary to create alliances with agencies on both sides of the border, such as:

- INEGI
- United States Geological Service
- Border University Consortiums - SCERP
- International USA- Mexico Border and Water Commission

- Pan American Health Institute
- PEMEX (Mexican Petroleum Co.)
- Border 2012 -EPA and SEMAR

As a result of the Mexico-USA collaboration, some products have been generated showing statistical information on both sides of the border.



Building of the Mexico-USA Transboundary Fundamental Data



On-line Map System for Seamless Transboundary Fundamental Data
Queries

USGS

U.S.-Mexico Border Environmental Health Initiative [Back to Main Page](#)

Zoom

Query

Tools

Downloads

Documents

Scale Information

Scale ~ 1:1,118,575

Layers

Display [Download](#)

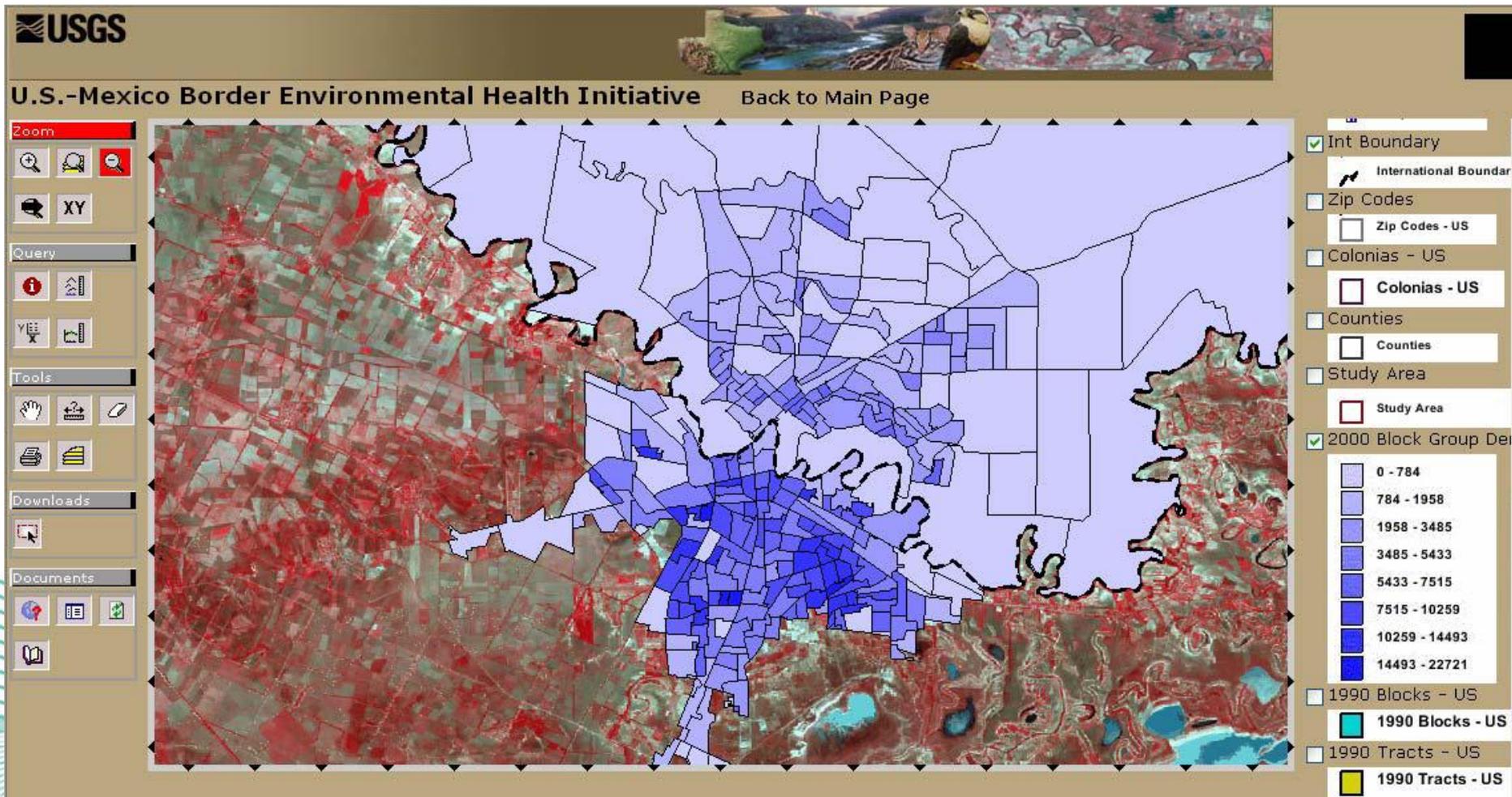
- Places (Names)
- Anthropogenic Boundaries
- Transportation
 - Airports : Bi-national
 - Major Roads: Binational
 - Railroads : Bi-national
- Weather/Climate
- Hydrography
- Biology
- Geology
- Census
- Infectious Disease/Health Inventory
- Orthoimagery
- Land Cover



Building of the Mexico-USA Transboundary Fundamental Data



2000 Census Data (INEGI and US Census Bureau) showing population density per AGEB (Mex) and block group (US).





Integration of Central America Geospatial Data



In order to integrate a geospatial information continuum of basic and thematic data at 1:250,000 scale for Central America, a group of experts from several countries was established.

Countries, Agencies and Institutions

Participants:

PANAMA Tommy Guardia National Geographical Institute

GUATEMALA National Geographical Institute

COSTA RICA National Geographical Institute

BELIZE Land Information Center Belize

EL SALVADOR National Geographical and Cadastre Institute

ESTADOS UNIDOS United States Geological Survey

HONDURAS National Direction of Cadastre and Geography

MEXICO National Institute of Statistics and Geography

Organizing Institutions:

Pan American Institute of Geography and History/ National University of Costa Rica /United States Geological Survey



Integration of Central America Geospatial Data



Results:

Hydrographical data integration on the border with Guatemala and Belize.

Commitment:

To produce a regional Central America map containing the main information layers that allow integration of basic and thematic data for the region in order to help environmental projects as well as to disaster relief and mitigation.





Considerations





Considerations



- Continue with the construction of a regulatory framework for the strengthening of the National System of Statistical and Geographical Information of Mexico
- Using common frames and methodologies enables to regulate geographic activities and contributes to:
 - Promote the use of common technical specifications for the performance of activities under homogeneous criteria
 - Promote the use of a common language
 - Generate consistent geospatial information
- Facilitating information interchange among countries in the region



THANK YOU

