Meeting
“Building a national geospatial information system: driving forces and success stories.”

Integration of the Cadastral and Registry Information System

February 4, 2013
Introduction
Law of the National Statistical and Geographical Information System

Article 3.

The National Statistical and Geographical Information System (SNIEG) aims to supply society and the State with quality, relevant, truthful and opportune information, in order to contribute national development.
National Subsystems of SNIEG

Parts of the System in charge of producing, integrating and disseminating information by specific topics

- Demographic and Social
- Geographical and Environmental
- Economic
- Government, Public Security and Application of Justice
SNIGMA components

**Geographic**

Datasets

- Geographical names
- Cadastre, Topographic, Natural Resources and Climate Data
- Land, Island and Submarine Relief
- Coastal, International, State and Municipal Limits
- Geodetic Reference Frame

**Environment**

Indicators

- Atmosphere
- Water
- Soil
- Biodiversity
- Hazardous Waste
- Solid Waste
Process to integrate the Cadastral and Registry Information System

Graphical cadastral query

Integration of information

Technology

Cadastral and Registry Information System

Results

Coordination

Standards

Data Collection

Coordination
Mexican Coordination within the SNIEG
Regulation
ARTICLE 62.- The Institute will promote the adoption of methods and technical standards in gathering data to be registered, in coordination with the authorities that manage directories of individuals or corporations, cadastre, public property and commerce registry, lists, inventories and other administrative registries to gather information.

ARTICLE 93.- The inscription on the National Geographic Information Registry regarding municipal and state cadastres, will consider both cartography and data bases of urban and rural lands within their territories. In the case cartography and data bases described in the previous paragraph don’t exist, data available in lists, sketches and cadastral cards will be registered.
LAND USE AND PROPERTY DISTRIBUTION IN MEXICO

**TOTAL AREA: 196 MILLION HECTARES**

**Distribución de la Propiedad en México. Superficie Total 196.7 Mhas.**

- Social Property: 103.9 Mha
- Private Rural Property: 73.1 Mha
- Agricultural and Ranching Colonies: 3.8 Mha
- Colonias Agrícolas y Ganaderas: 3.8 Mha.
- National Properties: 7.2 Mha
- Others (Federal Lands, Urban areas, water bodies, etc): 5.8 Mha
- Otras (Zonas Federales, Zonas Urbanas, etc)

Source: INEGI. Land Use and Vegetation Information, version IV 2010
SOCIAL PROPERTY DISTRIBUTION
(EJIDOS AND COMMUNITIES)
Incorporated parcels into the Cadastral and Registry Information System

INFORMATION NATIONAL AGRARIAN, COMMUNAL PROPERTY

• 29,427 Agrarian Conglomerates with:
  • 5.8 Million of Parcels
  • 3 Million of urban parcels
  • 69 thousand common lands

Program with Secretary of Agriculture 3.3 Million parcels

Program with Secretary of Social Development 25.8 Million parcels

Program with Bank Public works BANOBRA S 2.5 Million parcels

TOTAL 40.4 Million parcels
Technical standards

Generation, Gathering and Integration of Cadastral and Register Data for Statistical and Geographic purposes

Promotes harmonization and uniformity of cadastral and register data.
Technical standards

Location Accuracy Standards

Sets the values of accuracy to be applied to geographic location processes

Outside the precision range established by the standard

Imprecise Survey Method

Within the range of accuracy established by the standard

Reliable Method of Survey
Technical standards
National Geodetic System

Defines the unique geographical reference framework to be used in the country

Allows the overlay of any geographic dataset to properly:

- Integrate
- Compare
- Analyze

Unique Geodetic Reference Framework
Technical standards

Geographic Addresses

Set the rules for describing an address geographically

Complete gathering

- **TYPE OF ROAD:** STREET
- **ROAD NAME:** ISABEL LA CATÓLICA
- **OUTSIDE NUMBER:** Not available (SN)
- **TYPE OF HUMAN SETTLEMENT:** Neighbourhood
- **HUMAN SETTLEMENT NAME:** CAMPESTRE
- **POSTAL CODE:** 20129
- **CITY OR TOWN NAME:** AGUASCALIENTES
- **MUNICIPALITY NAME:** AGUASCALIENTES
- **STATE NAME:** AGUASCALIENTES
- **BETWEEN ROADS:** FRONTERA AND AGUSTÍN DE ITURBIDE
- **BACK ROADS:** NONE
Technical standards

Development of Geographical Metadata

Establishes a layout to standardize the documentation of statistical data and geographic products
Data Collection
PROGRAMME TO UPDATE INFORMATION AND RECORDS OF CADASTRE AND PUBLIC PROPERTY REGISTRY
Objectives: Modernization program of public records and cadastral property

“...provide legal certainty to Mexican families through unification of cadastre and public property registers information from all the national lands...”

In order to accomplish this, we seek to build a single property cadastre registry such that:

I. It integrates in a single database information from:
   - Public Property Registers
   - Municipal or state Urban and Rural Cadastres
   - National Agrarian Register and Cadastre

II. The federation will have access to the integrated system, and can query the information according to its needs, always protecting the information’s integrity and confidentiality.

* 4th Mexican Government Report 2010
State Cadastre Diagnostics

R collect, analyze, evaluate and document the main findings
Cadastre modernization programs
Linking cadastre and registry information

27.9 million

18.0 million

45.9 million of processed records
Cadastre modernization programs

Private property parcels information

- Cadastral parcels: 22.9 Million
- Public Registry parcels: 12.2 Million
- Linked records: 4.6 Million
Technology
Implemented technologies

- Based on Mapa Digital de México V5.0 platform
- Free software solid components
- Communication standards
Digital Map of Mexico

Online system created for query and analysis of geographic and statistical information generated by INEGI.

158 vector information layers

More than 66 million geographical objects (approx. 74 GB)

4 raster layers (more than 1 terabyte).

Shared Information for Territorial Management

More than 150 layers of vector information

Private property cadastre

Raster Information

Social property cadastre

Statistical Information georeferenced
Connectivity

- Distributed service architecture
Queries to the System
Parcels in Cuernavaca, urban area, state Morelos
Query result of an urban parcel
General results
DISTRIBUTION OF METROPOLITAN AREAS AND CITIES

The 384 cities that comprehends the National Urban System are defined as the set of cities whose population is over 15 thousand inhabitants.

Based on that information, 72.5% of the population inhabits in these cities and the remaining 27.5% lives in localities whose population is less than 15 thousand inhabitants, which are considered semi-urban and rural.


The metropolitan areas definition was taken from the Interinstitutional Group SEDESOL, CONAPO and INEGI
Measuring

General results are obtained for each state through the application of 150 parameters and their proper weighing. Then a summary for each component and its reference value is generated.

The evaluated components are:

- Legal Framework.
- Cadastral Processes.
- Information and Communication Technologies.
- Cadastre link with Public Property Register (RPP).
- Cadastral Function Professionalization.
- Service Efficiency.
Programme benefits
Cadastre and Register Information System
Expectations

• Sustain coordination with Units of State to integrate information of both areas, urban and rural, through the SNIEG and to characterize the national territory.

• Consolidate the Cadastral and Registry Information System in order to have an updated inventory of urban and rural private property.

• Define terms and specifications so that after uploading the cadastre and register information online, full access is immediately granted for all levels in the SNIEG.
Because we provide information for everybody...

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¡Meeting Mexico!
EXAMPLE 2: PROGRAMME TO UPDATE INFORMATION AND RECORDS OF SOCIAL PROPERTY, NATIONAL AGRARIAN REGISTRY
Distribution of communal property

51% surface out of the national territory

Source: Registro Agrario Nacional
National Agrarian Registry Information integrated by the system

Communal property parcels

- 29,427 Agrarian Conglomerate
- 5.8 Million Parcels
- 3 Million Urban parcels
- 69 thousand Common land
Information about communal property in Morelos state
Query result of a parcel in communal property