



## Meeting

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

# Integration of the Cadastral and Registry Information System

**February 4, 2013**

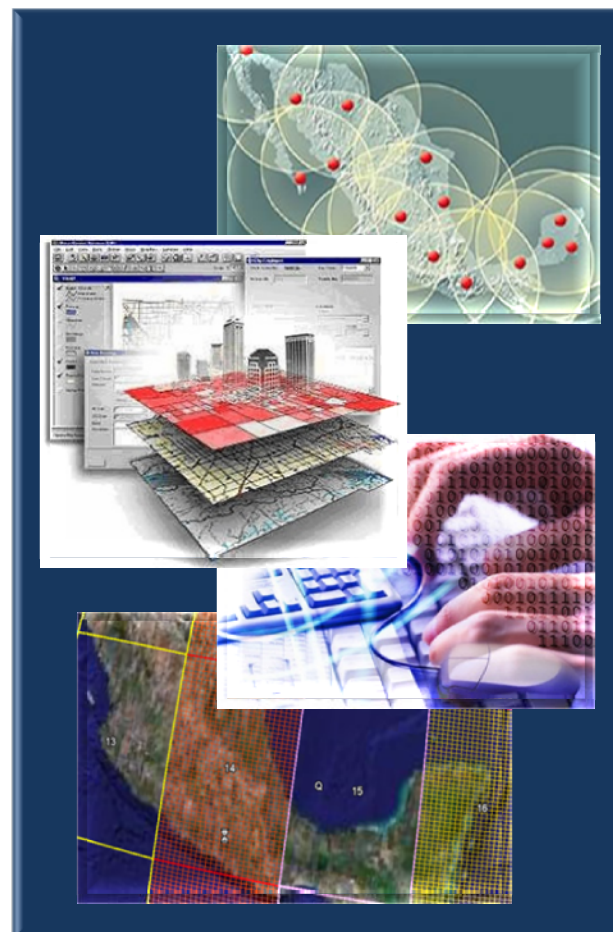
# Introduction

# 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

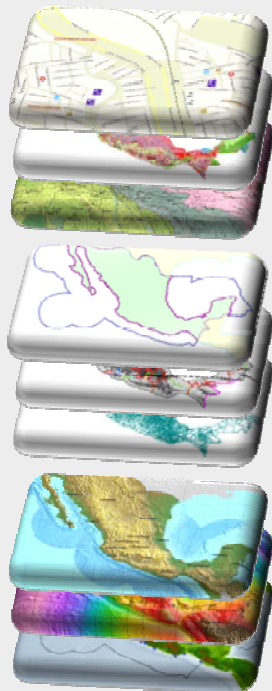
Parts of the System in charge of **producing, integrating and disseminating** information by specific topics



# SNIGMA components

## ➤ *Geographic*

### Datasets



Geographical names

Cadastral, Topographic,  
Natural Resources and  
Climate Data

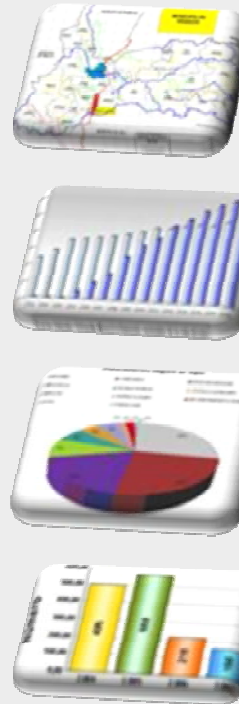
Land, Island and Submarine  
Relief

Coastal, International,  
State and Municipal Limits

Geodetic Reference Frame

## ➤ *Environment*

### Indicators



Atmosphere

Water

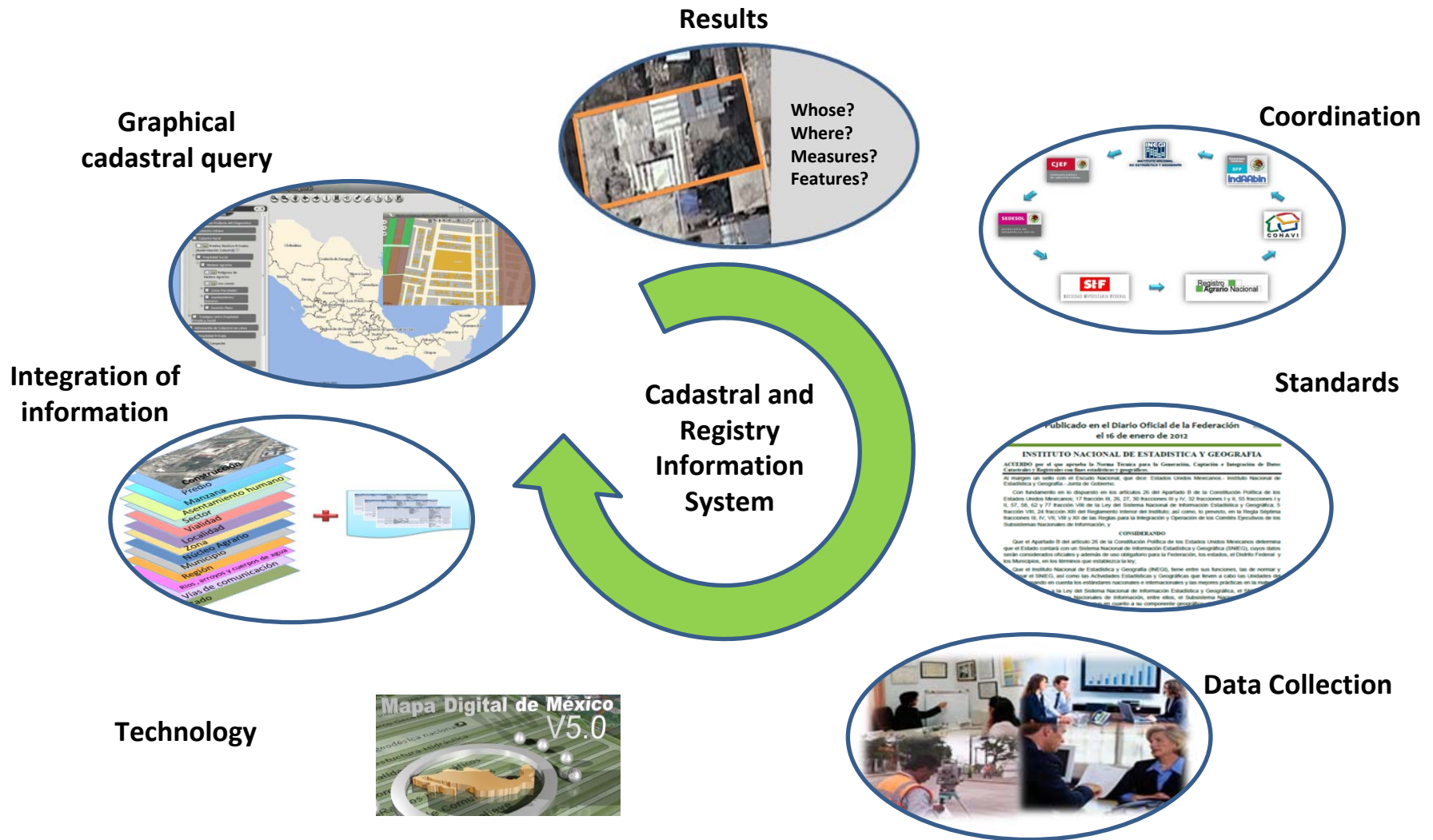
Soil

Biodiversity

Hazardous Waste

Solid Waste

# Process to integrate the Cadastral and Registry Information System



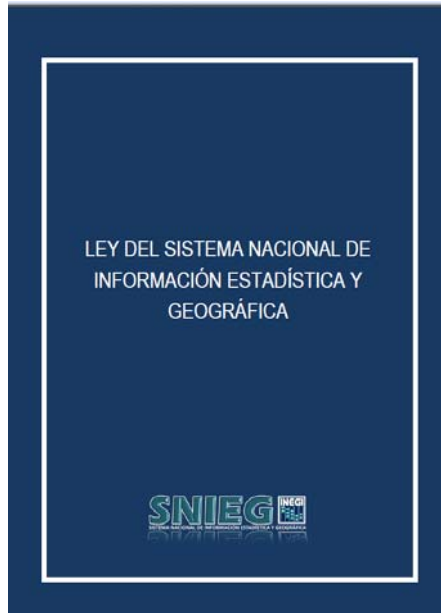
# Coordination

# Mexican Coordination within the SNIEG





# Regulation

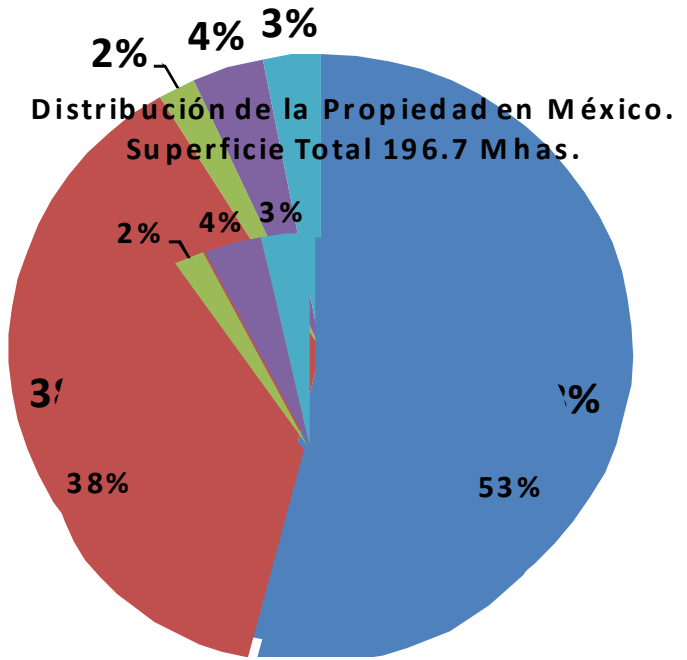


**ARTICLE 62.-** The Institute will promote the adoption of methods and technical standards in gathering data to be registered, in coordination with the authorities that manage directories of individuals or corporations, **cadastre, public property and commerce registry**, lists, inventories and other 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.

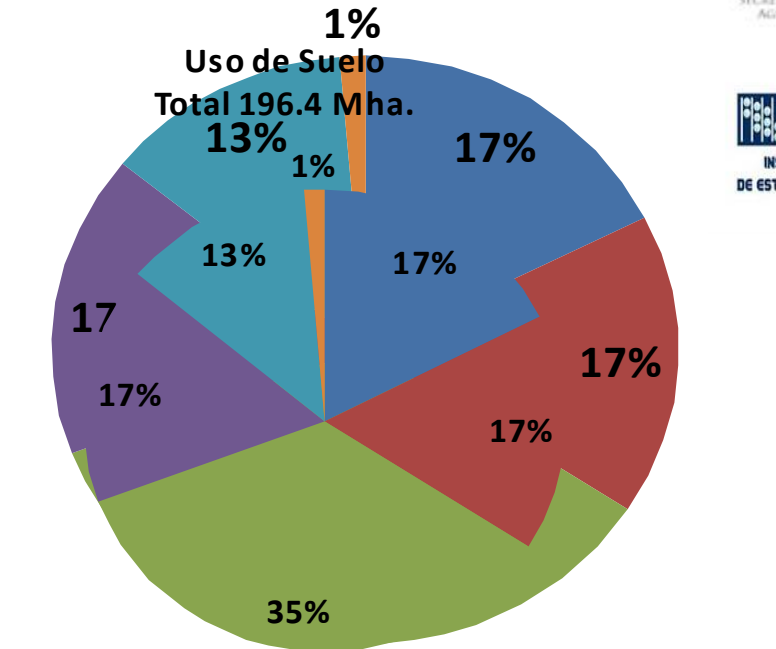
# LAND USE AND PROPERTY DISTRIBUTION IN MEXICO

## TOTAL AREA: 196 MILLION HECTARES



- 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
- Otros (Zonas Federales, Zonas Urbanas, etc): 5.8 Mha

Source: 1998 Historical Cadastre



- Forest: 34.5 Mha
- Jungle: 32.6 Mha
- Shrubland and other vegetation: 69 Mha
- Monte: Vegetación Diversa: 69 Mha.
- Agricultural: 32.6 Mha
- Pastureland: 25.1 Mha
- Human settlements (Urban: 1.1 and Rural: 0.5 Mha)

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

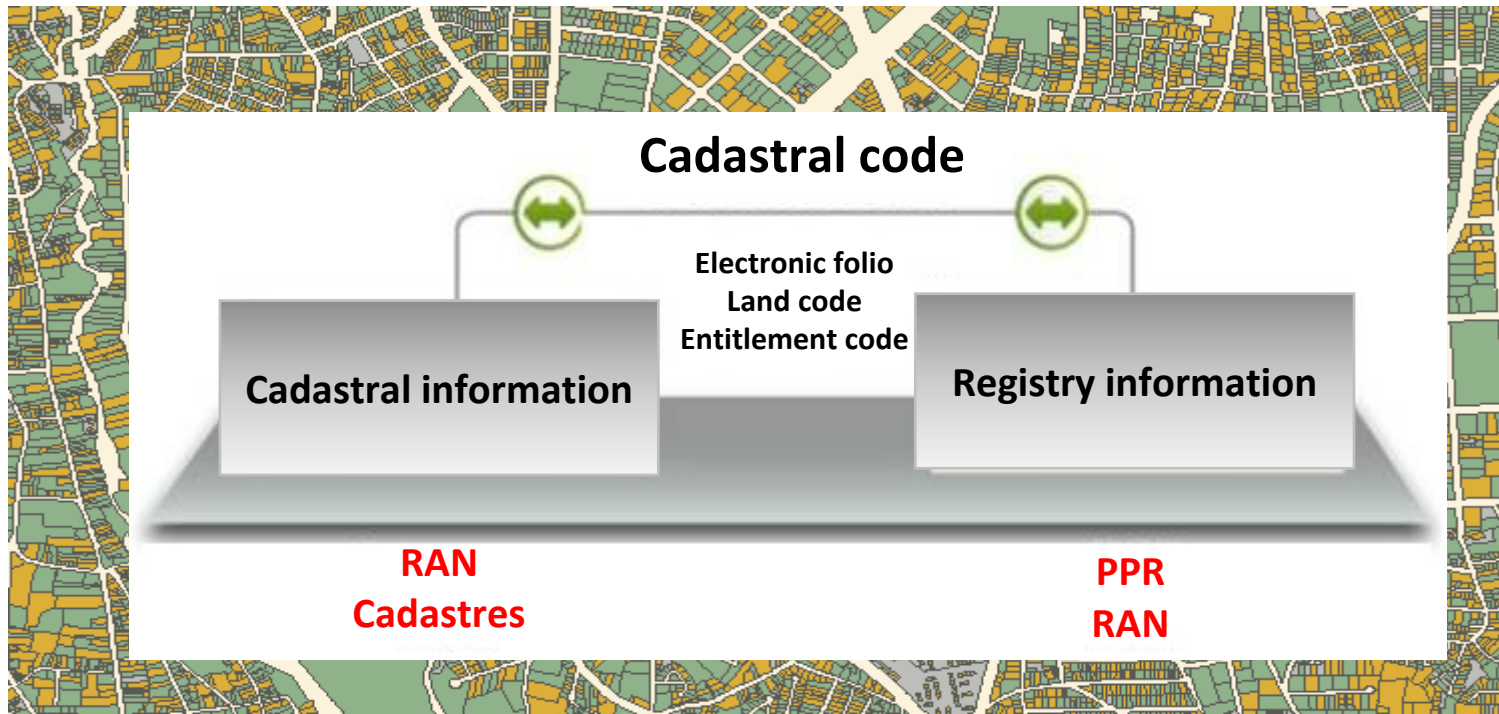
Program with Bank Public works BANOBRAS 2.5 Million parcels

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

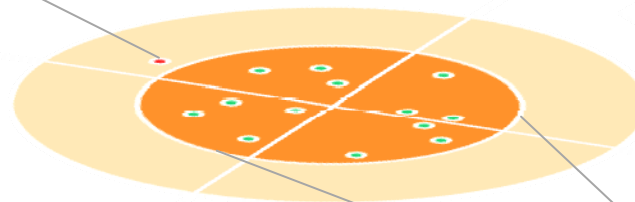
## Location Accuracy Standards

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



**Imprecise Survey Method**

Outside the precision range established by the standard



Within the range of accuracy established by the standard

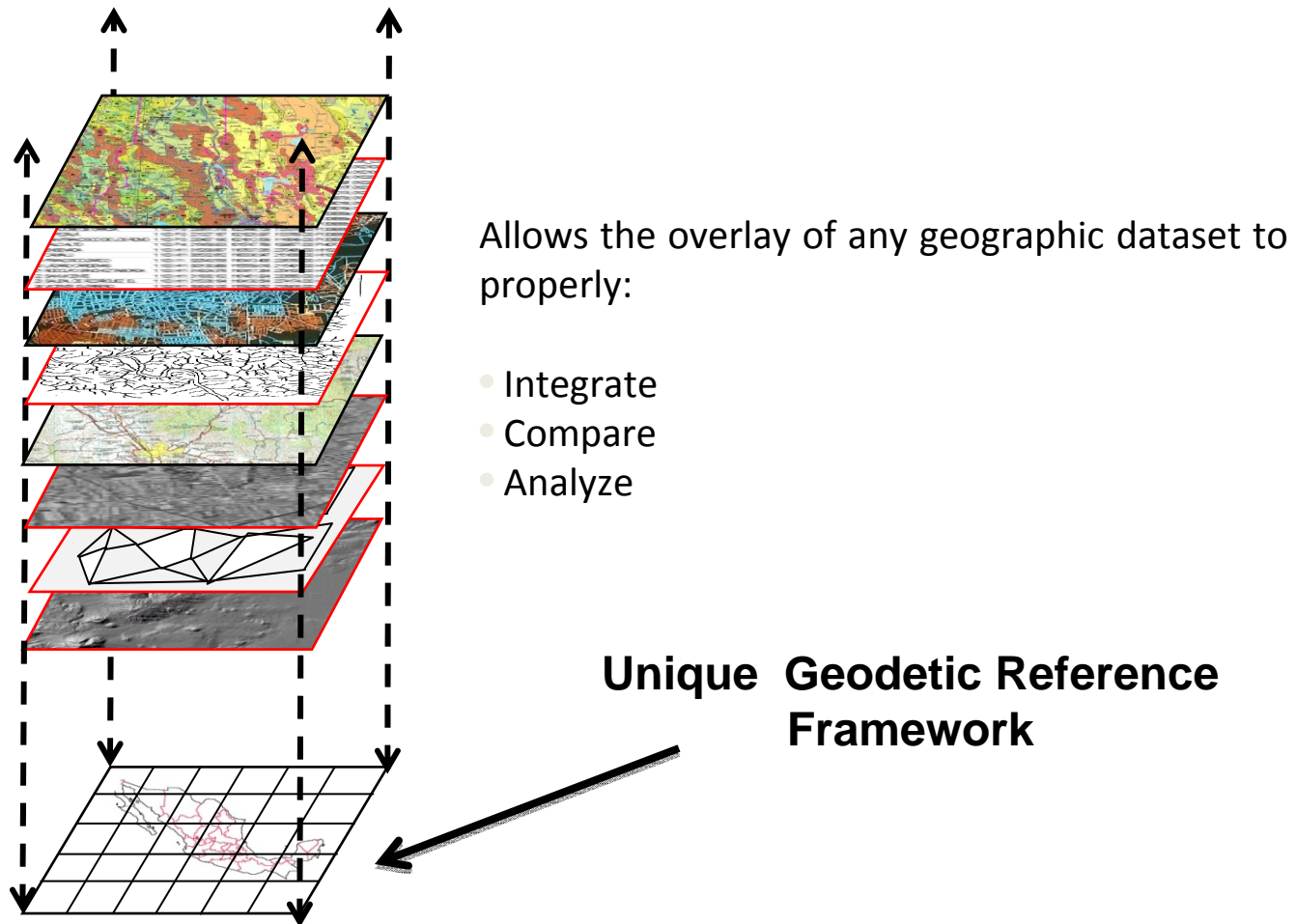


**Reliable Method of Survey**

# Technical standards

## National Geodetic System

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





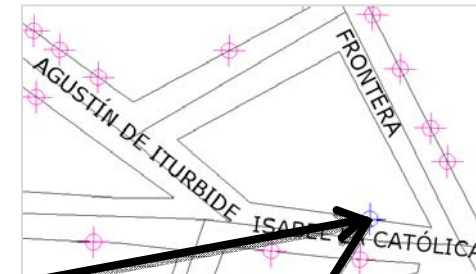
# Technical standards

## 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



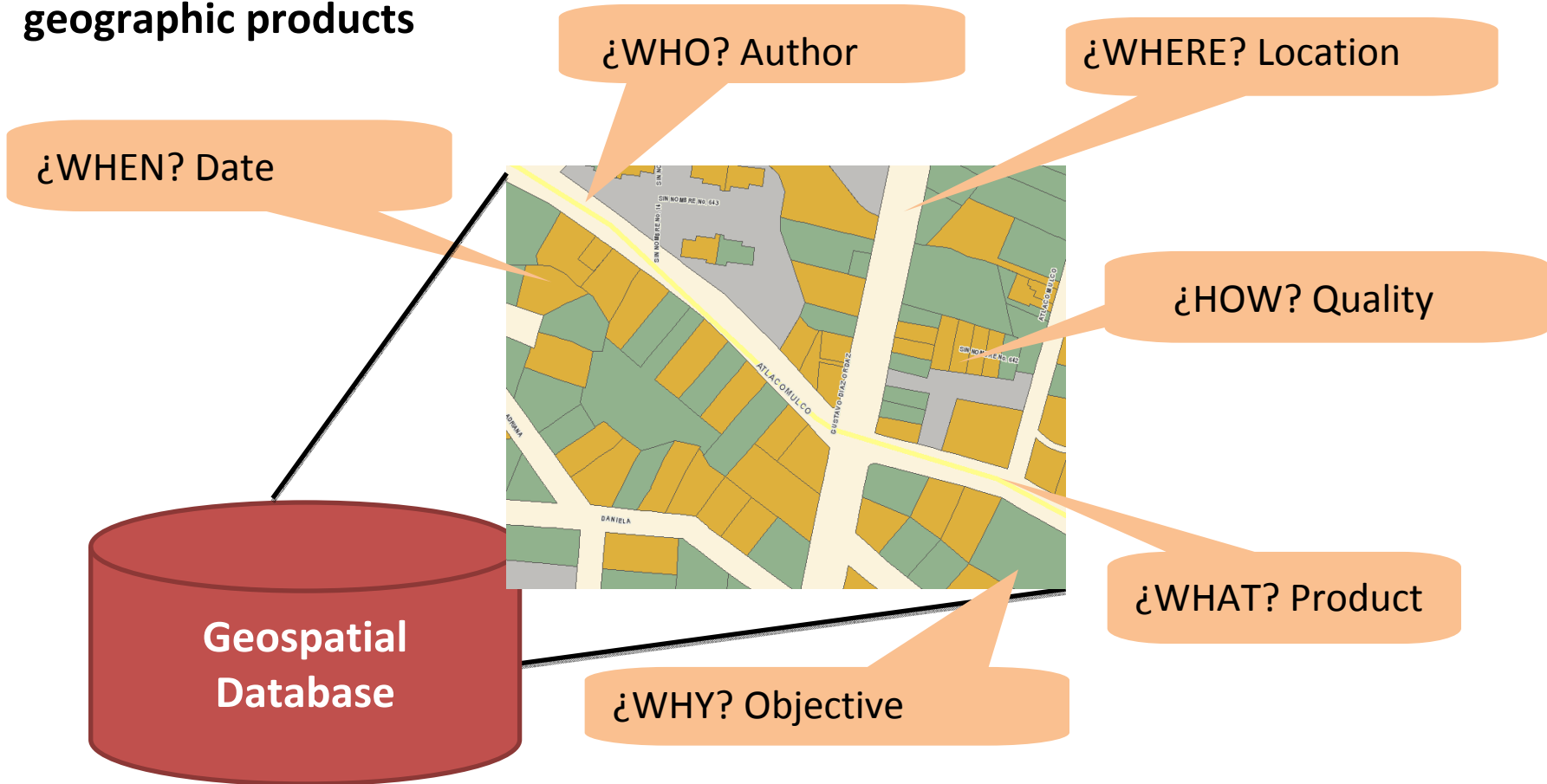
Church



# 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...”*

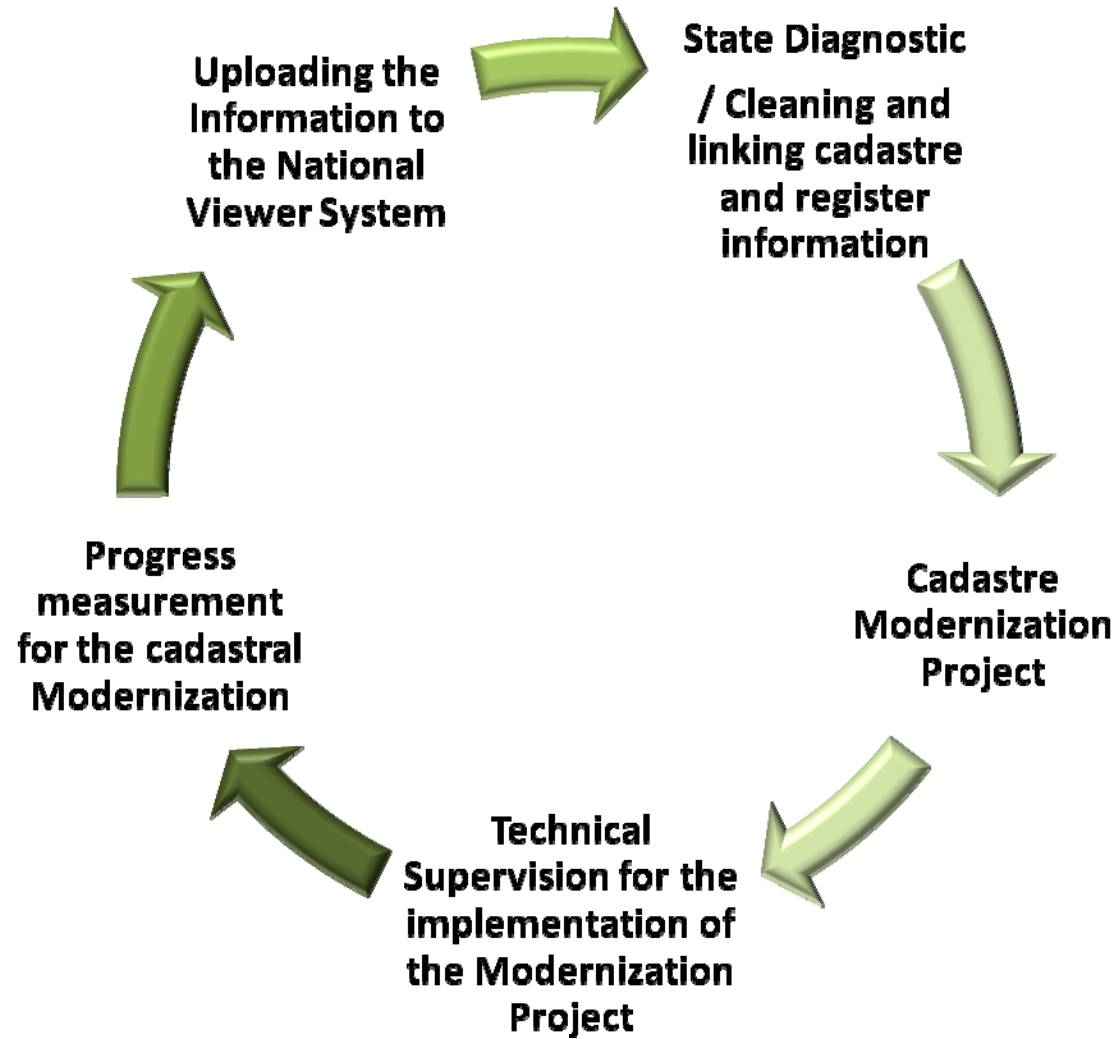
*In order to accomplish this, we seek to build a single property cadastre registry such that:*

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.

# INEGI activities



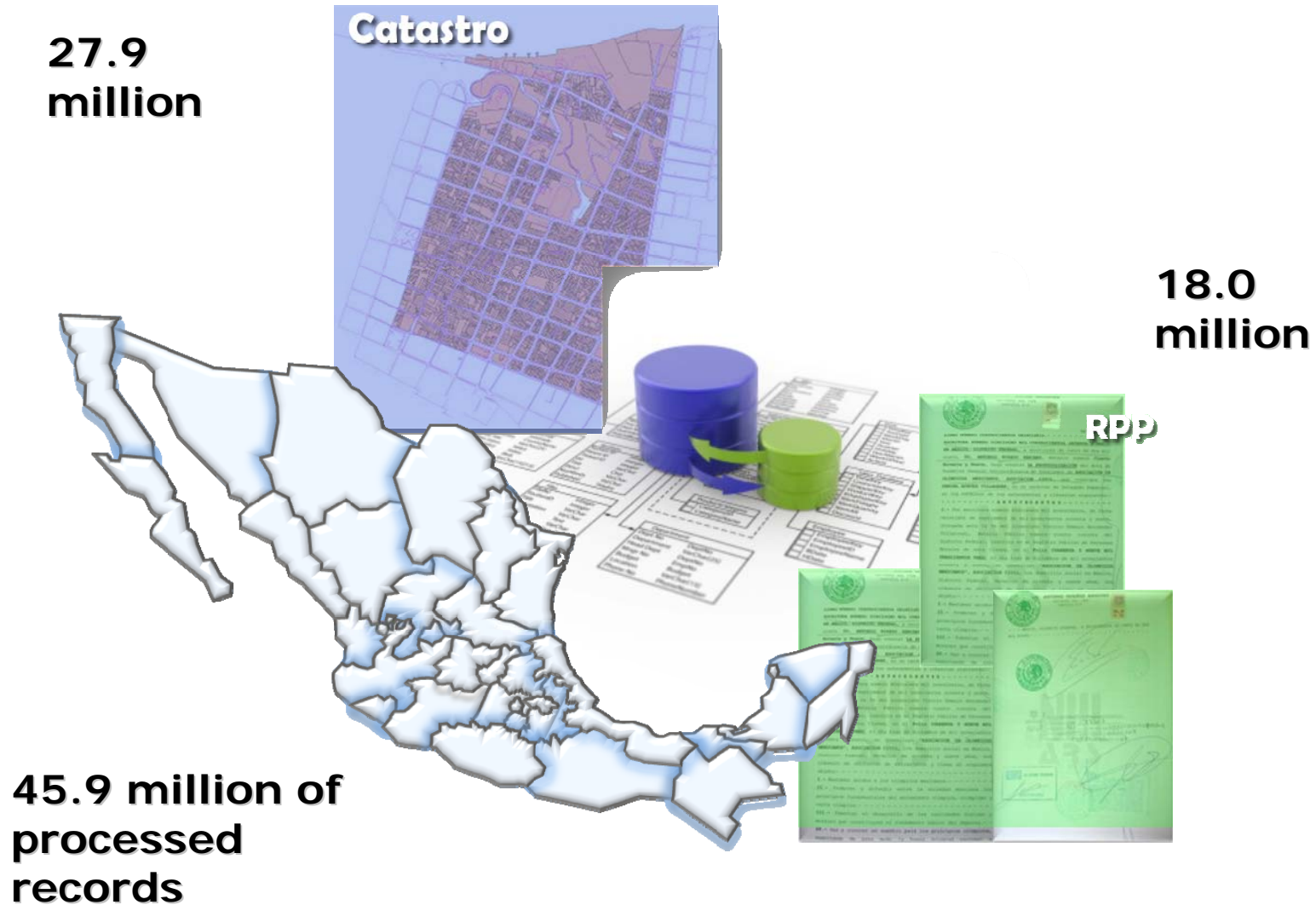
# State Cadastre Diagnostics

Recollect, analyze, evaluate and document the main findings



# Cadastral modernization programs

## Linking cadastre and registry information

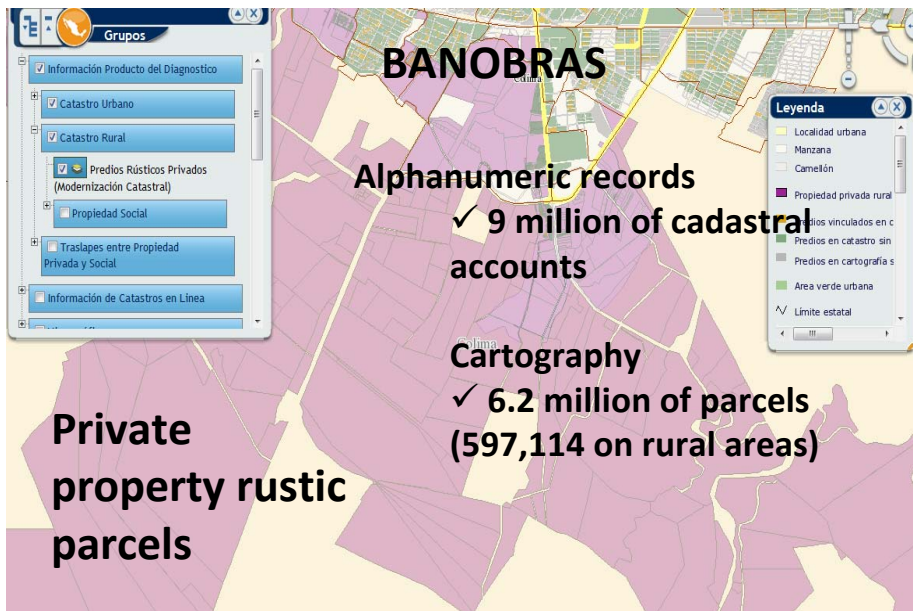




# Cadastral modernization programs

## 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)

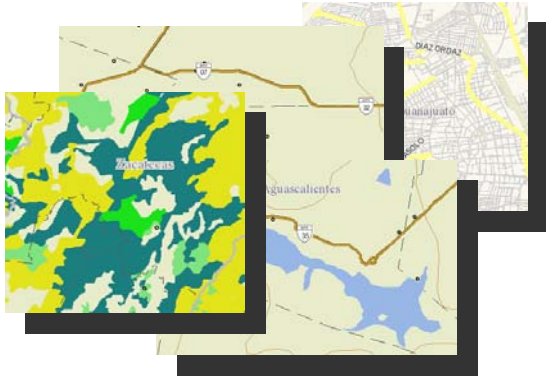
4 raster layers (more than 1 terabyte).



<http://gaia.inegi.org.mx/mdm5/viewer.html>

# Shared Information for Territorial Management

More than 150 layers of vector information



Private property cadastre



Social property cadastre



Raster Information

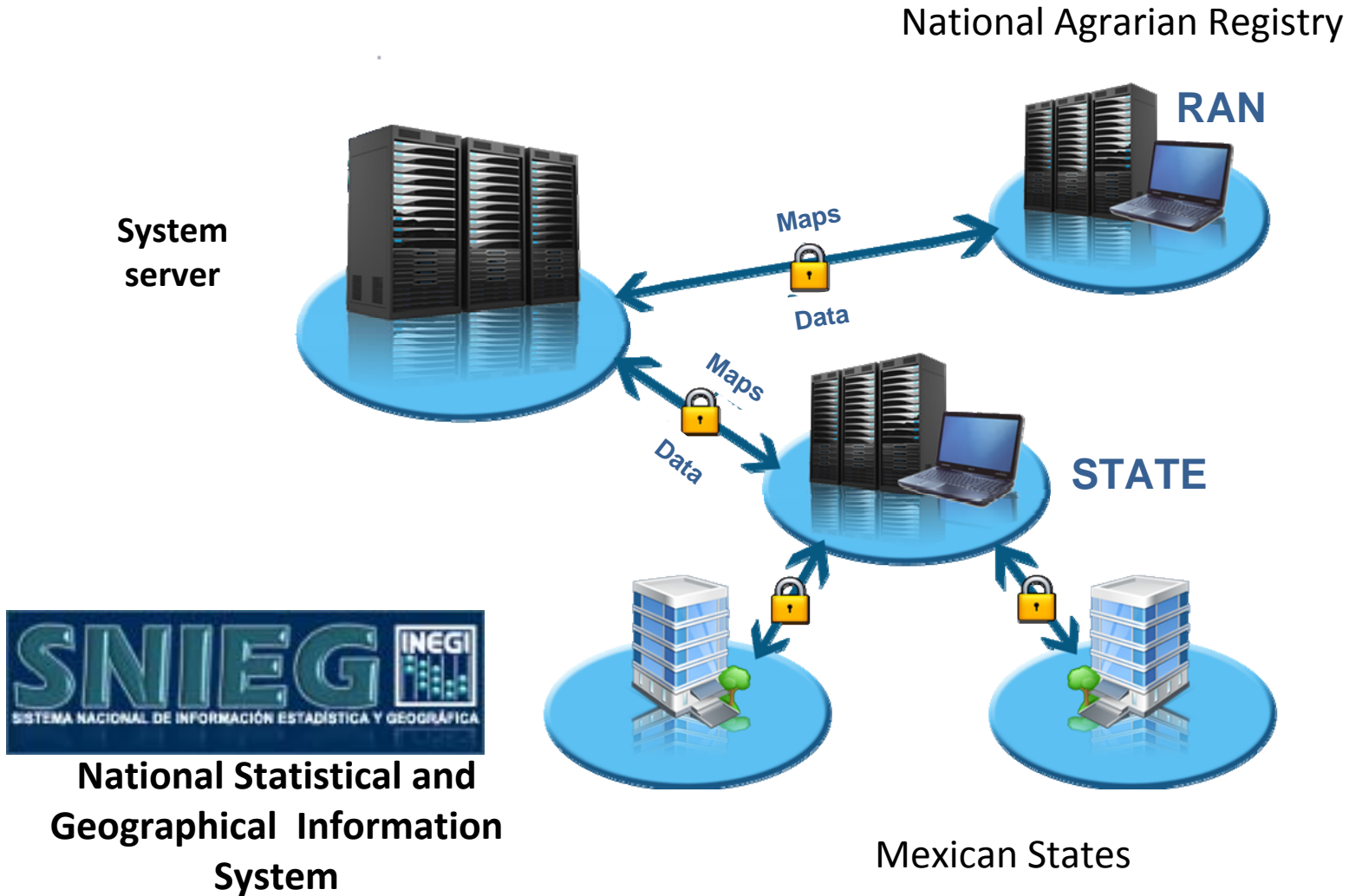


Statistical Information georeferenced



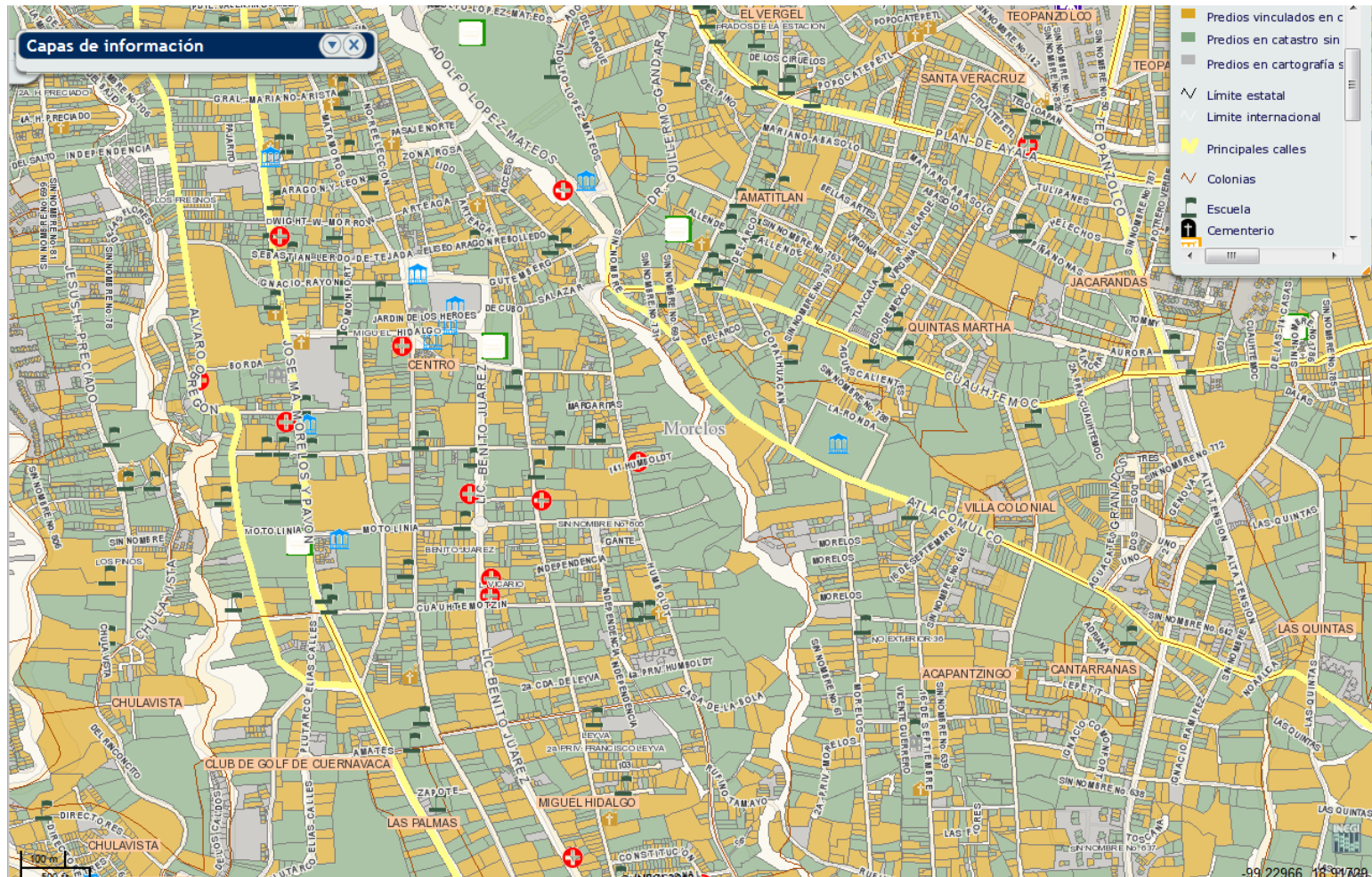
# Connectivity

- Distributed service architecture



# Queries to the System

# Parcels in Cuernavaca, urban area, state Morelos





# Query result of an urban parcel

**Sistema de Información Catastral y Registral**

Capas de información

**Vinculación catastral**

CURT      Clave Catastral 110004001023      Folio Real(RPP) 236781

I. Ubicación y Datos del Predio	II. Datos del propietario	III. Colindancias	IV. Datos Originales
<b>Clave catastral</b>	CATASTRO		RPP
<b>Folio Real</b>	110004001023		236781
<b>Municipio o Delegación</b>	CUERNAVACA	CUERNAVACA	
<b>Superficie total del terreno del predio</b>	4272.0	4530.0	
<b>Domicilio</b>	LEYVA 7 CENTRO CUERNAVACA	CALLE LEYVA CUERNAVACA	
<b>Nombre completo del propietario</b>	GOBIERNO DEL ESTADO DE MORELOS	GOBIERNO DEL ESTADO DE MORELOS	

99-22415 16-92347

# 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.



**Source:** CONAPO, SEDESOL, SEGOB. 2012 National Urban System Catalog based on the 2010 Housing and Population Census and the 2010 Geostatistical Framework V5.0.

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



Gobierno del Estado  
Libre y Soberano de  
Colima

## GOBIERNO DEL ESTADO DE COLIMA CONSTANCIA DE LA PROPIEDAD

### Datos del Registro Público de la Propiedad del Estado de Colima

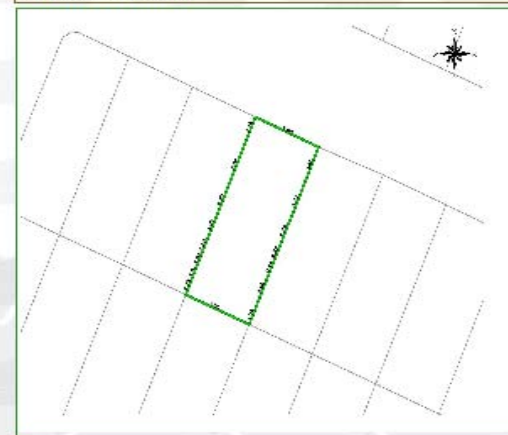
Folio Real:	128000-1
Superficie:	126.00 M2
Fecha de Registro:	21/09/1998
Fecha del último Movimiento:	30/06/1999
Último Movimiento:	CREDITO SIMPLE CON GARANTIA HIPOTECARIA
Libro:	1047
Documento:	48
Sección:	1
Propietario:	MARIA DEL ROSARIO SILVA GARCIA,

### Datos del Catastro Estatal de Colima

Clave Catastral:	10-01-18-335-020-000
Propietario:	SILVA GARCIA MARIA DEL ROSARIO
Domicilio:	PASEO DE BUGAMBILIAS S/N
Colonia:	JARDINES DE BUGAMBILIAS
Población:	VILLA DE ALVAREZ
Municipio:	VILLA DE ALVAREZ
Superficie:	126,07

Código Territorial: 06010U00118C075M0335AA020000

Objeto Territorial



Pagar Constancia

Ampliar Imagen

Consultar Folio

Ubicación del Predio en ambiente Real

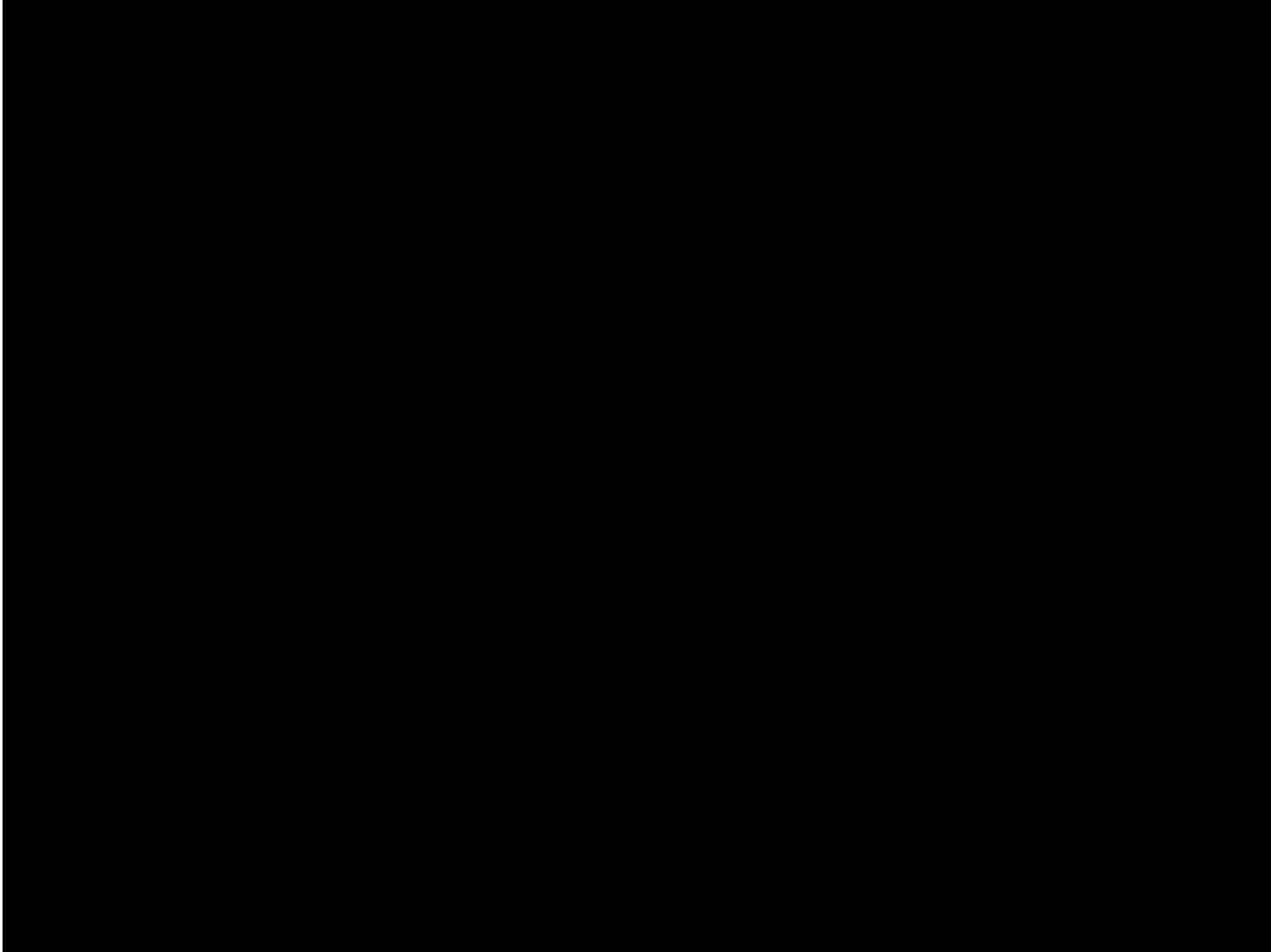
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[<<Regresar](#)



REGISTRO PÚBLICO DE LA PROPIEDAD Y EL COMERCIO DEL GOBIERNO DEL ESTADO DE COLIMA  
Domicilio: Calzada Galván y Aldama, Colonia Centro, Colima, Col. C.P. 28000  
Teléfono y Fax: (312) 3131814 contacto: [informacion@rppc.col.gob.mx](mailto:informacion@rppc.col.gob.mx)

# Cadastral 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...***

**+52 800 111 46 34**

**[www.inegi.org.mx](http://www.inegi.org.mx)**

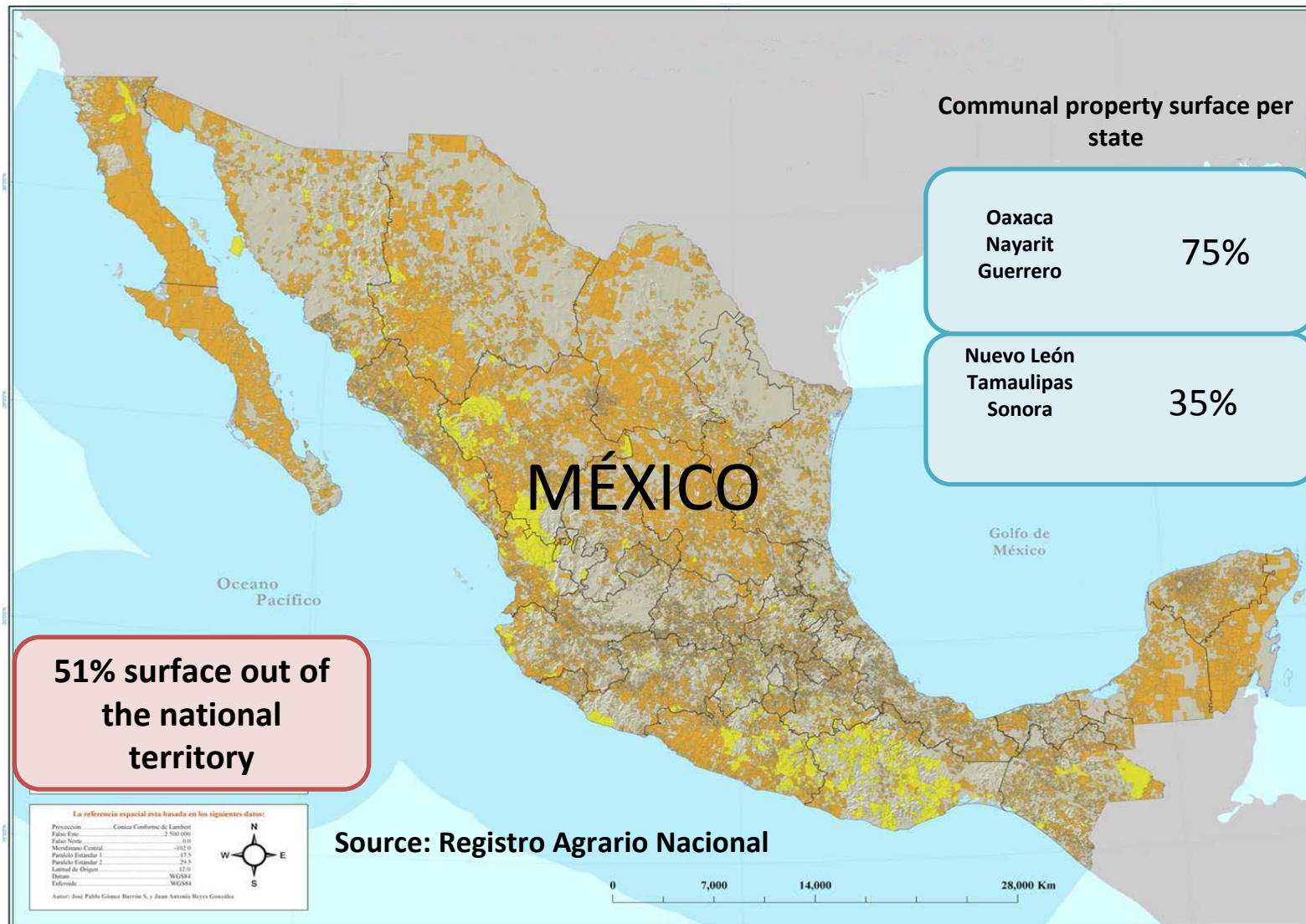
**[atencion.usuarios@inegi.org.mx](mailto:atencion.usuarios@inegi.org.mx)**

**iMeeting Mexico!**

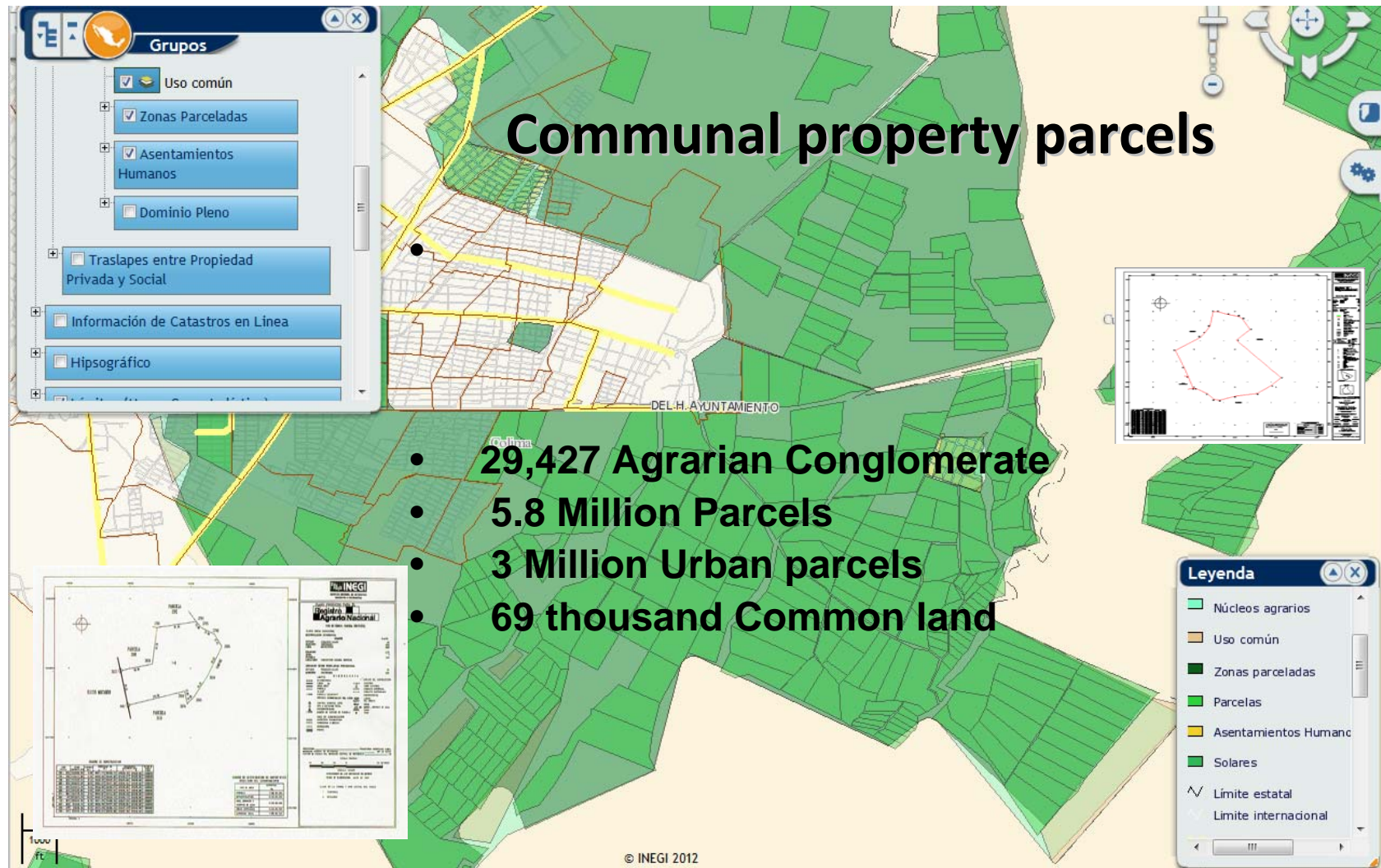


**EXAMPLE 2:  
PROGRAMME TO UPDATE  
INFORMATION AND RECORDS OF  
SOCIAL PROPERTY, NATIONAL  
AGRARIAN REGISTRY**

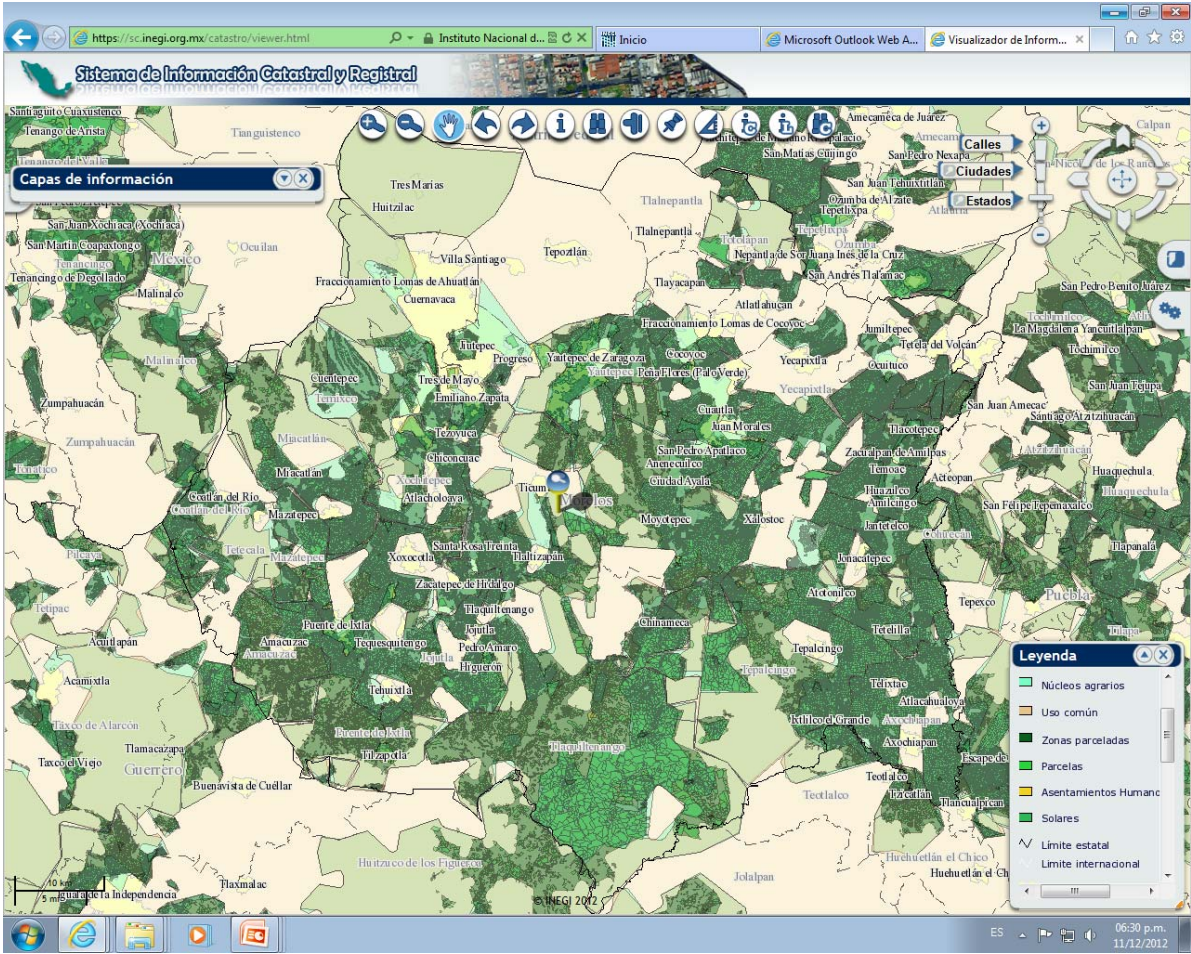
# Distribution of communal property



# National Agrarian Registry Information integrated by the system



# Information about communal property in Morelos state



# Query result of a parcel in communal property

The screenshot displays the 'Sistema de Información Catastral y Registral' web application. The main map shows a parcel highlighted in green, with a red pin indicating the query location. The 'Grupos' panel on the left shows the following checked items: Núcleos Agrarios, Polígonos de Núcleos Agrarios, Uso común, Zonas Parceladas, Asentamientos Humanos, and Dominio Pleno. The 'Leyenda' panel on the right shows the following items: Area verde urbana, Núcleos agrarios, Uso común, Zonas parceladas, Parcelas, Asentamientos Humanos, Solares, and Límite estatal. The 'Resultados' panel at the bottom shows the following data:

Clave del Municipio	Clave del Núcleo Agrario	Clave del Polígono del Núcleo Agrario	CUID	Clave de la Zona de la Parcela de acuerdo a la información capturada en la Aplicación Fase2	Clave de la Parcela de acuerdo a la información capturada en la Aplicación Fase2	Clave del Tipo de Predio	Claves del Uso del Suelo en la Parcela de acuerdo a la información capturada en la Aplicación Fase2	Claves de la Tierra en la Parcela de acuerdo a la información capturada en la Aplicación Fase 2	CURP	Nombres	Apellido Paterno	Apellido Materno	Fecha Certifi
18	116		1	1	5	A	T		MARIA	LOPEZ	LOPEZ		

The 'Resultados' panel also shows the following categories: Propiedad Privada [1], NÚCLEOS AGRARIOS [1], PARCELAS [1], and ZONA PARCELAS [1]. The map includes a scale bar (100 m / 500 ft) and a coordinate system (UTM, Zone 18N, Datum: WGS 1984, Spheroid: Everest, Units: Meter, Contour Interval: 100).