

## BUILDING ON AN EXPERIENCE, THE PARTICIPATION OF INEGI IN PROCEDE A CASE STUDY IN MEXICO

Aguascalientes, Aqs. October 27, 2004

### NATIONAL CONTEXT

- Mexico features a heterogeneous geography and a great potential in natural resources that is evident in its extraordinary biologic and ethnic diversity
- Is approximately 2 million square kilometers. Besides, Mexico has an exclusive economic zone of over 3 million square kilometers

### NATIONAL CONTEXT

- 97 million people lived in Mexico, 51% women and 49% men.
- Urban population is 75%; and rural is 25%
- The economically active population amounts to little more than 44%
- 16 million are involved in agriculture and livestock-raising activities.

### THE HISTORICAL DEVELOPMENT OF FARMING IN MEXICO

- Several pre-Hispanic civilizations had diverse forms of land control and land access
- Colonial period, farming featured the adaptation of aboriginal land rights to the legal framework brought by the conquerors
- During the second half of the 18th century, the Crown granted land to a privileged sector and thus gave rise to the "hacienda"

### THE HISTORICAL DEVELOPMENT OF FARMING IN MEXICO

- 20th century, revolutionary fight tinted with a farm zest. Article 27 of Constitution launched the land redistribution and land reform
- 3 million peasants were benefited, 26,000 ejidos were created and land was reconvened to 2,000 communities
- In the early 90's, a new legal farming framework aimed at fostering larger investments and capitalization that may result in increased rural production and productivity

### THE HISTORICAL DEVELOPMENT OF FARMING IN MEXICO

**Three types of land tenure in Mexico:**

- Private: 74 millions hectares
- Social: 103 millions hectares
- Public: 23 millions hectares

## PROCEDE, PROGRAM FOR GRANTING LAND RIGHTS AND LAND PLOTS REGISTRATION



- The new Agrarian Law give origin to "Procuraduría Agraria" and "Registro Agrario Nacional"
- PROCEDE provide security of tenure by granting certificates of parcel rights and common use rights
- Social Property: 29,942 agrarian cores.



## INVOLVED PUBLIC INSTITUTIONS



- Secretaría de la Reforma Agraria – Coordination Institution
- Procuraduría Agraria – take care of farming people rights
- Registro Agrario Nacional – Control land tenure of social property
- Instituto Nacional de Estadística, Geografía e Informática – made technical works.



## THE ROLE OF INEGI IN PROCEDE



- Is in charge of operative technical tasks, that is, the identification, delimitation and geographic location of land in the farm cores
- Produce cartographic products to support the issuing of legal documents than provide security of tenure
- Genera los productos cartográficos correspondientes
- INEGI uses the "Normas Técnicas para la Delimitación de las Tierras al Interior del Ejido"; (Technical Guidelines to Set Land Boundaries inside the Ejido)



## THE ROLE OF INEGI IN PROCEDE



- Direct Method: GPS and total stations
- Indirect Method: aerophotografic materials and Photogrametric Stations
- Method selection and application mainly depends on features such as: vegetal cover density, ejido owners' requests, availability of aerial photographs, and the average size of land parcels.



## THE ROLE OF INEGI IN PROCEDE



- New Geodetic Reference System and established the "Red Geodésica Nacional Activa"
- Produce automated cartography and build a database with social property information
- Generate derived information on natural resources, land cover and infrastructure.



## THE ROLE OF INEGI IN PROCEDE




- Provided consultancy services to experts and officers from different countries, e.g., China, Jamaica, Peru, Guatemala, Honduras and El Salvador
- Over 82,000 geodetic vertexes spread in the field
- 25,000 farm cores with data from over 74 million cards listing the characteristics of the rights and land of individuals
- Developed the "Sistema de Información Geográfica de Núcleos Agrarios" (SIGNA, Farm Cores Geographic Information System).



## HOW PROCEDE INTEGRATES INTO MEXICO

### SPATIAL DATA INFRASTRUCTURE (IDEMex)

- IDEMex: is the initiative put forth by Mexico to organize, manage and share geospatial data
- integration of cadastral datasets into different layers associated to spatial datasets considered in IDEMex
- This offers land information users the chance to build topologic relationships between geographic objects and to overlap topics.



## HOW PROCEDE INTEGRATES INTO MEXICO

### SPATIAL DATA INFRASTRUCTURE (IDEMex)

- INEGI has suggested the creation of the "Clave Única del Registro del Territorio", CURT (Identification Number of Land Registration). This ID will give access to all cadastral data contained by IDEMex
- One of the institutional flows to disseminate the information contained in IDEMex is materialized in the development of IRIS (*Información Referenciada geoespacialmente Integrada en un Sistema, Geospatially Referenced Information Integrated into a System*).



## HOW PROCEDE INTEGRATES INTO MEXICO

### SPATIAL DATA INFRASTRUCTURE (IDEMex)

#### CHARACTERIZATION OF SOCIAL PROPERTY

- On average 68% is devoted to common use, parceled area accounts for almost 31% and only 1% corresponds to human settlements
- 65% of parceled land is for agriculture, 21% for cattle or farming and 11% for livestock; the remaining 3% is mining areas, natural protected areas and water reserves
- Land used for human settlement is predominantly occupied by housing, 77%; vacant plots account for 18%; public services land 3% and the remaining 2% holds areas for industrial, commercial, development reserves and mixed use.




## HOW PROCEDE INTEGRATES INTO MEXICO

### SPATIAL DATA INFRASTRUCTURE (IDEMex)

#### CHARACTERIZATION OF SOCIAL PROPERTY

- In parceled areas, agriculture mainly relies on rainfall rather than on irrigation systems
- Legal holders, over 50% have a land parcel while 23% have two parcels and the remaining 21% have three or more parcels
- National average is being 1.2 parcels the nationwide average.



## PROGRAM'S ACCOMPLISHMENTS

- Fostered institutional strengthening and its experiences in several geographical issues
- 82.6 million hectares, which represent 4.9 million parcels and 2.5 million plots
- Developed technical standards as a base for interoperability of cadastral systems
- Enhanced knowledge of Mexico's Geography



## CHALLENGES FOR THE PROGRAM

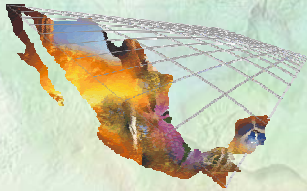
- Mechanisms and plans to keep data updating
- Promote and foster the benefits derived from being part of the program
- Promoting certification of professional competence
- Guaranteed the use and interpretation of cadastral data are appropriate and consistent along time.



## VISION



- To move forward and integrate public and privately owned land information
- To integrate data produced by the different Unites across the country into IDEMx
- To support intelligent decision making towards the development of large-scale projects of national interest.



**THANK YOU!**

**MARIO ALBERTO REYES IBARRA**  
**GENERAL DIRECTOR OF GEOGRAPHY, INEGI**

**[mario.reyes@inegi.gob.mx](mailto:mario.reyes@inegi.gob.mx)**  
**[www.inegi.gob.mx](http://www.inegi.gob.mx)**