

An Introduction to Cadastral-Registry Systems and their Modernization

By
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Introduction To The Cadastre-Registry Topic

To achieve the objectives and goals of international financial agencies, few topics are as important as the ones related to land policies.² The most relevant objectives are geared toward people who have been historically disadvantaged or underprivileged (indigenous groups, landless or near landless peasants), the environment, investment restrictions, inoperable markets, the rule of law, public administration and participation in a democratic society's benefits.

The underprivileged population lacks access to housing and land. This population is characterized by a high level of informality, for example possession of titleless land and housing, informal businesses, etc.

In Central America, the most pronounced implications of legal insecurity is found in the agricultural sector among the small and medium sized farmers. The peasant population is a factor in the preservation of the security and stability of a democratic system in the region.

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² Steven E. Hendrix, D. David Moyer y Ronald Strohlic, "La Reforma del Registro de la Propiedad en Guatemala: Informe de Situación con Recomendaciones" (June 1992) pages 4-5; Steven E. Hendrix, "Land Tenure in Guyana: A Rapid Appraisal Report with Recommendations on Policy Formulation and Registry Modernization for the A.I.D. P.L. 480 Program" (University of Wisconsin Land Tenure Center, June 1993) page 5.

Policies Related To Geographic Information And Public Registry

The efficiency of environmental policies often turns on the control its creators have over land access and water resources.³ Any attempt to develop practical and sustainable policies over the natural resources and land improvement is hampered until governments are able to supervise these resources. In this era of growing environmental concerns, it is important that governments succeed in undertaking this fundamental cause.

The enforcement of laws related to land issues is a problematic topic in the Latin American region. Home owners, especially those without titles, lack support and official recognition without an adequate physical infrastructure. However, titled owners risk invasion of their lands because of poor access to alternate resources by underprivileged classes. Accusations of corruption are abundant. The lack of titles and official ownership documents, which are frequently needed for certain services such as water, education, credit, electricity, sewage systems, police, firefighters, etc., is common. Unintentionally, the poor may not benefit from any of the services of a democratic society. Meanwhile, the formal property owners will be subject to increased land invasions, especially in the capital city, reflecting the deterioration of the applicability of the law.

A deficient and dysfunctional land registry system, present in many parts of Latin America, often limits long term land investments. In contrast, an efficient registry system is usually indispensable for the promotion of investments from internal and external sources. The government must promote external investments and prevent capital flight to encourage broad based sustainable economic growth.

³ Much of this information is a summary by Steven E. Hendrix, D. David Moyer and Ronald Stochlic, *La reforma del Registro de la Propiedad en Guatemala: Informe de Situación con Recomendaciones* (June 1992) pages 4-9; and Steven E. Hendrix, "Land Tenure in Guyana: A Rapid Appraisal Report with Recommendations on Policy Formulation and Registry Modernization for the A.I.D. P.L. 480 Program" (University of Wisconsin Land Tenure Center, June 1993) page 5.

The North American Free Trade Agreement (NAFTA) and the General Agreement on Tariffs and Trade (GATT) point toward freer markets. Despite the existence of these policies, land markets face institutional barriers, such as the lack of appropriate registries and cadastres, and small holders who lack access to credit and the ability to take risks. This study offers an analysis of the current institutional barriers present in registries. In addition, it offers suggestions for a plan of action that could lead to a better understanding of the land markets, easing the access to land by the use of a modernized land information system.

It is evident in many parts of Latin America the property registry system is in need of reform. However, the countries face an additional number of land problems. To reach appropriate decisions, these problems and particular issues require the analysis and synthesis of a variety of data. Thus, many individuals involved in the decision making process consider that a land cadastre of Multipurpose Land Information System/Geographic Information System (MPLIS/GIS) is the adequate tool to support such a process.

For a variety of purposes, policy makers need to have reliable data such as:

1. **Topography**
2. **Land tenure**
3. **Location of boundaries**
4. **Location of roads**
5. **Rights to public access and public roads**
6. **Availability and location of electric cables**
7. **Availability and location of telephone wires**
8. **Water, gas and sewage pipes**
9. **Size of lots**
10. **Zoning**
11. **Address information**
12. **Location of police services**
13. **Access to educational and health services**
14. **Location of natural water and rivers**
15. **Soil quality**
16. **Current lot owner**

Unfortunately, a central source of information related to all of the above mentioned data generally does not exist. Managers require time to collect all the necessary data, for example, to create a strategy for a new (urban) housing development or to renovate a pre-existing one. Policy makers need the basic information to:

1. **Identify limitations and opportunities**
2. **Monitor a project's progress**
3. **Evaluate progress and failure**
4. **Correct problems as soon as possible**
5. **Provide transparency of transactions**
6. **Increase level of public participation in the community and the private sector**
7. **Create public-private associations (network, guilds) to stimulate access to land**
8. **Prevent public and private land invasions.**

In Latin America there is a movement toward free markets in the agricultural sector as well as in the rest of the economy. The topic of agrarian reform is being dismissed by the press and politicians, who are focusing their attention on the commercial efforts needed for a more efficient land use.⁴ Since 1990, Nicaragua, Peru, Mexico, and Honduras have radically changed their agrarian reforms, by commercializing the agricultural properties.⁵ Other countries in Latin America and the Caribbean

⁴ Of interest, the liberal reforms of almost all of South America after its independence converted much of the communal land to individual land in the Nineteenth Century. In many cases, these reforms caused the dispossession of indigenous peoples. The customary tenure that still exists in the Andean regions and areas of Central America, is basically an accommodation and modification of the structures of pre-colonial tenure. See Eric. B. Shearer, Susana Lastarria-Cornhiel, and Dina Mesbah, *The Reform of Rural Land markets in Latin America and the Caribbean: Research, Theory and Policy Implications* (1991) page 11; Roger Plant, *Land Rights for Indigenous and Tribal People in Developing Countries* (1992) page 2. Henceforth, it is easy to understand why many indigenous groups have doubts about the temptations of "privatizing" land again.

⁵ For a summary of the legal, regional changes in the agrarian reforms, see Steven E. Hendrix, "Property Law innovation in Latin America with Recommendations" (University of Wisconsin Land Tenure Center, May 1993); and Steven E. Hendrix, "Modernization of Property Rights in Latin America" (prepared for the XXX Conference, Inter-American Federation of Lawyers, Committee V-Commercial Right and Proceeding, Santiago, Chile, April 19-24, 1993).

such as Bolivia,⁶ Ecuador⁷ and Guyana⁸ are re-evaluating their agrarian reforms and using the experiences of the other four countries as guides.

A modernization of norms and registry procedures has been considered in each country which has "reformed" its agrarian reform. Currently, Nicaragua is in the process of a registry and cadastral reform with the help of the World Bank. Honduras receives similar support from the United States Agency for International Development (USAID). Peru has proclaimed laws to eliminate several steps and experiment with the process of a parallel registry created by the Instituto Libertad y Democracia. Guyana is considering a registry reform as well as a freer land market.⁹

In Mexico, there are approximately 29,000 ejidos and agrarian communities. These include 3.5 million holders of communal lands who own 4.3 million homes or urban lots and 4.6 million plots, which are frequently divided in two or more smaller lots. In total, the lands of the ejido represent 50 percent of the country's total land and almost a fourth of the nation's population.¹⁰ Since 1930, approximately 600 of the 29,000 ejidos have received legal certificate of ownership. Thus, the majority of the ejidatarios

⁶ *Bolivia*: see Miguel Urioste F. de C., "Segundo borrador: anteproyecto de ley de comunidades y de nacionalidades" (March 1, 1990), in *Seminario: Comunidad Campesina y Legislación Agraria 1990*, Honorable Cámara de Diputados-República de Bolivia, pages 335-382 (May 1990); José Luis Roca, "Resumen de la exposición," en *Debate Agrario 18: Propuesta de Ley Agraria*, Instituto Latinoamericano de Investigaciones Sociales, pages 15-26 (April 1992); "Texto de la Propuesta de Ley Agraria," in *Debate Agrario 18: Propuesta de Ley Agraria*, Instituto Latinoamericano de Investigaciones Sociales, pages 103-44 (April 1992).

⁷ *Ecuador*: see Mónica Naves, "Marco de referencia para una nueva estructura legal de tenencia de predios rústicos" (February 2, 1992, manuscript from the "Conferencia de Tenencia de la Tierra," Quito, Ecuador); and Mónica Naves, "Futuro de comunas y cooperativas" (February 2, 1992, manuscript from the "Conferencia de Tenencia de la Tierra," Quito, Ecuador).

⁸ *Guyana*: Steven E. Hendrix, "Land Tenure in Guyana: A Rapid Appraisal Report with Recommendations on Policy Formulation and Registry Modernization for the A.I.D. P.L. 480 Program" (University of Wisconsin Land Tenure Center, June 1993) pages 11-14.

⁹ *Guyana*: Steven E. Hendrix, "Land Tenure in Guyana: A Rapid Appraisal Report with Recommendations on Policy Formulation and Registry Modernization for the A.I.D. P.L. 480 Program" (University of Wisconsin Land Tenure Center, June 1993).

¹⁰ Memorandum from Dr. Joseph R. Thome, University of Wisconsin Law School, to Dr. John Bruce, Land Tenure Center et al., August 24, 1992, noting observations from Dr. Arturo Warman, Director de la Procuraduría Agraria, al Palacio Presidencial, Mexico, July 27, 1992.

(members of the ejidos) lack any document to prove their new rights. Former President Carlos Salinas de Gortari engaged in granting titles to all the ejidatarios before leaving his post.

In Ecuador, a new program of registry and title reform is underway with automatic approval of transfers and subdivisions of reformed lands.¹¹ In Guatemala, the National Institute of Agrarian Transformation (Instituto Nacional de Transformación Agraria [INTA]), allows the conversion of INTA titles to definite fee simple titles after a certain number of years.

In almost all of Latin America, each country has various responsible governmental bodies to implement land policies. For example, in Saint Lucia, 18 governmental entities used geographic information in a significant manner.¹² Among the governmental bodies usually found are: a registry, an agrarian reform agency and possibly a colonization office, a cadastre office, a planning ministry, a ministry of the environment and a ministry of mines. These are the governmental agencies directly responsible for the creation and implementation of land related policies.

The public registry is used to register transfers of real property and to normalize their transactions. In contrast, a "cadastre" is used to delimit the property boundaries in geographic terms. In other words, the registry records the documents, while the cadastre describes the property to produce an inventory of lands located throughout the country.¹³ Ideally, the registry should be coordinated with the cadastre so that land owners' documents can be cross referenced with the cadastral maps.

The Fiscal Cadastre

Taxes on real property are an issue related to registries and cadastres. Governments need to urgently consider the

¹¹ DAI, "Ecuador Land Titling Project Evaluation," (Bethesda, Maryland, December 1990) page 19.

¹² Grenville Barnes, "A Comparative Evaluation Framework for Cadastre-Based Land Information Systems (CLIS) in Developing Countries" (University of Wisconsin Land Tenure Center, 1990) page 113.

¹³ Personal interview with Jesús Antonio García y Marino Ostos Flores from the National Cadastre Office (December 9, 1991, Caracas).

establishment of a tax as a tool to finance projects and encourage the community to maintain the cadastral maps.

It is important to note that a property tax will not solve all problems in the agrarian sector. It is sufficient to say that after researching many Latin American, Asian and African jurisdictions, Professor John Strasma of the University of Wisconsin-Madison found that in those countries that did not have a property tax neither did they have reliable and current cadastral information. In addition, the revenue from the tax had to be shared among local community residents. This creates an incentive for the community to ensure the plans are updated. Thus if a successful modernization of the registries and cadastres is expected it is important that governments consider this mechanism.

The property tax has other positive effects beyond that of supporting a cadastre. First, the lack of a property tax results in subsidies to less efficient producers, usually large estate holders (latifundistas), who are not obliged to use the land to its fullest potential, because they pay no taxes.

Second, inefficient land use negatively affects the agricultural production level and creates an artificial barrier in the land markets which hurts the historically underprivileged who seek land.

Third, communities are deprived of resources to finance health or education programs, housing and food security by the lack of a property tax. For example, in the United States, the individual States usually pay the bulk of educational expenses through property taxes. This is a resource untapped in much of Latin America.

Fourth, the lack of local resources creates the need to solicit funds from the central government, which may in turn, distribute these funds inefficiently.

Fifth, the absence of a property tax contributes to the unsustainable use of natural resources and the environment.¹⁴

¹⁴ An excellent chapter in reference to the positive effects of property tax is found in: Sheldon Annis et al, *Poverty, Natural Resources and Public Policy in Central America* (1992) pages 143 et seq. (chapter 5 "Land Taxation, the Poor and Sustainable Development" by John D. Strasma and Rafael Celis).

It is obvious that a property tax depends on the existence of a cadastre and a cadastre depends on the existence of a property tax. For example, Guyana has neither current cadastral information nor a geographic information system. Consequently, the government has only been successful in recovering about US\$0.05 per acre annually in rent of state properties to private citizens.¹⁵ This indicates the need to implement a cadastral modernization along with a fiscal property modernization, much like Chile has done.

Summary Of A Registry-Cadastre System In History And Law

Systems Development

The need for a registration and cadastral information system has a long history.¹⁶ Since the Assyrian-Babylonian and ancient Egyptian eras, the concept of "publicity" of a transaction was important.¹⁷ The Roman emperor, Diocletianus, mandated an imperial cadastre for fiscal purposes.¹⁸ Similar projects took place in China (circa 700AD) and in southern India, under Raja the Great in 1000AD. In England, William the Conqueror created a written national inventory in 1085 which resulted in the creation of the "Doomsday Book," which is considered the origin of the concept of the "cadastre."¹⁹ Incredibly, that work was completed in only one year. It was not until the end of the 16th century, however, that technologies for land surveying and mapping were developed.

¹⁵ Guyana: Steven E. Hendrix, "Land Tenure in Guyana: A Rapid Appraisal Report with Recommendations on Policy Formulation and Registry Modernization for the A.I.D. P.L. 480 Program" (University of Wisconsin Land Tenure Center, June 1993) page 22.

¹⁶ Much of the information presented here comes from chapter 3 of "Historical development of structure and function of cadastral and land registration systems" in Gerhard Larsson, *Land Registration and Cadastral Systems* (1991).

¹⁷ See for example, John Romer, *Testament: The Bible and History* (1988) page 25, where he reveals that archaeologists discovered that ancient Syrians placed their contracts in a public place to publicize transactions.

¹⁸ While they built a type of cadastre, the Romans did not have land registration. See Barry Nicholas, *An Introduction to Roman Law* (1992) pages 104-5.

¹⁹ Grenville Barnes, "A Comparative Evaluation Framework for Cadastre-Based Land Information Systems (CLIS) in Developing Countries" (University of Wisconsin Land Tenure Center, 1990) page 7.

Through this long history, a "deed" registry system was established. The recording of a deed usually was conducted in the presence of a notary public or in a court. The registrar as an agent without obligation to confirm the authenticity of the contents. Registration was optional. Without norms to identify property tax, the interested party would include their own description of the lot. Therefore, due to variable lot descriptions, it was impossible to organize the archives except by the date of the document or by the name of the interested party.

There is a difference between deed registration and land registration. The registration of a deed only makes note of a document. It does not necessarily prove who the owner is, unless it is noted in the transaction. The information found in a deed, may or may not coincide with previous deeds. Therefore, errors may be consistently duplicated from deed to deed.²⁰ This is in contrast with "title" registration systems.

According to Gerhard Larsson, there were four different phases in the development of land registration in non-cadastral countries²¹:

1. Sporadic and voluntary deed registration. Deeds had a verbal land identification. There were no rules to normalize and formulate land surveying. It was not organized by lot or parcel but by date as in many parts of the United States, when property insurance was added. The insurance companies maintain their own maps and land surveys; Example: Guyana "Transport" system.²²
2. Continuation of number 1 above except with a mandatory deed registration.
3. Sporadic, mandatory "title" registration. That is, the land has to be registered with a land survey. From that date on, each new transaction needs to be registered. The registration is guaranteed and insured by the state. During that phase, there are usually two types of legislation. One is applicable to the Deeds Registry system, while the other is

²⁰ Peter F. Dale y John D. McLaughlin, *Land Information Management* (1990) page 22.

²¹ Gerhard Larsson, *Land Registration and Cadastral Systems* (1991) page 23.

²² Guyana: Steven E. Hendrix, "Land Tenure in Guyana: A Rapid Appraisal Report with Recommendations on Policy Formulation and Registry Modernization for the A.I.D. P.L. 480 Program" (University of Wisconsin Land Tenure Center, June 1993) page 16.

applicable to the Title Registry system. (For example Land Registry Act of 1925, in England, and a Land Registry system in Guyana²³.)

4. Mandatory and systematic "title" registration. All land within a certain area is identified and registered.

Europe

In western Europe, all the cadastres are based, one way or another, on the French system (l'ancien cadastre), defined by Napoleon at the beginning of the 19th century²⁴. The cadastres contain two principal elements. One is the written description. The other is a map which shows the location and the boundaries of all units of land. Each unit has an individual cadastral number in order to join the two sources of information.

Originally, the cadastres were used for tax collection. But in Germany, Austria, Switzerland and The Netherlands, a strong link between the cadastre and the property tax (grundbuch in German) developed. Therefore, given the assigned land number, the lot descriptions and the maps, it was possible to use this information in all registries of those jurisdictions with a degree of certainty.

In contrast, in France, the cadastre has not progressed as well. The cadastre is not comprehensive. It does not have the same legal strength and the link with the registries is missing. Generally, it is used for fiscal purposes, but it is fair to say that in all of western Europe the cadastral maps are used for multiple purposes. In addition, they all have complete documentation for the entire country and the information is continually updated. Another system in other countries, such as Germany, incorporates information from building constructions in the network.

In Sweden, the government has been more successful in integrating registration and cadastral information. For example,

²³ Guyana: Steven E. Hendrix, "Land Tenure in Guyana: A Rapid Appraisal Report with Recommendations on Policy Formulation and Registry Modernization for the A.I.D. P.L. 480 Program" (University of Wisconsin Land Tenure Center, June 1993) page 17.

²⁴ Much of the information here is a summary of chapter 4 in "Cadastral and land registration systems in Europe," presented by Gerhard Larsson, *Land Registration and Cadastral Systems* (1991).

one governmental agency, the Central Board for Real Estate Data, functions as a cadastral institution as well as a registry for property tax. All information is computerized. Regional cadastral and registry offices collect the data and transmit them to the Central Board via computer.

In Portugal, Spain and Italy, the Napoleonic influence was strong. Spain in particular does not have a comprehensive, national cadastral system and the link between cadastre and registry is weak. The registered documents in the property registry do not always reference the cadastral units. The link refers to the owner's name not the cadastral unit. Obviously, this causes many problems in integrating the system.

Greece is on its way to establishing a new, comprehensive, national cadastral system.

In Eastern Europe, the cadastral information is changing. Originally these countries had traditional cadastres, but these have been used recently for environmental purposes or for agricultural land management. Currently there is a movement to "re-invent" the cadastres, with projects such as the one in Albania being undertaken with assistance from the University of Wisconsin-Madison, USAID and the World Bank.

Africa and the Middle East

In northern and western Africa, which experienced French influence, the cadastres typically are not comprehensive. Their coverage falls short of the national territory. In the majority of cases, the registration of a plot of land is voluntary. In contrast, for instance, in the Middle East, the government of Qatar has created a single institution, the Center for Geographic Information Systems²⁵, to manage all the geographic information. The other governmental geographic information agencies use the compatible data base available at the Center.

Latin America

In Latin America like in Spain and Portugal, the registry-cadastre systems are generally not comprehensive. The registries

²⁵ Qatar, "The Center for Geographic Information Systems," (Qatar, 1992).

function to publicize transactions²⁶ but do not guarantee the contents of the deeds²⁷. Therefore, the deed registration normally proceeds without reference to the cadastre and without an assigned identification number. A registry-cadastre link was established in Saint Lucia for the first time in 1980.²⁸

Currently, Bolivia has a voluntary deed registration system, that only gives notice of the transactions. The Cochabamba Registry Office computerized sections of their archives, which meant the Finance Ministry had to acquire computers. The registry had the computers for four years, but has since lost them to other governmental units. Bolivia does not use plot numbers, but with the support of USAID and the World Bank the new government is planning to renovate the procedures and agencies associated with the administration of land documentation.

Traditionally in Latin America and the Caribbean, the descriptions of plots have provided information about adjacent plot owners and sometimes information of the physical boundaries as in San Vicente, for example:

All that lot piece or parcel of land situated at Lower Lomas (Windward) in the State of Saint Vincent, being three and one half (3 1/2) lots more or less and being abutted and bounded on the North by lands of the Hulda Small, on the South by lands of Always Boyea, on the East by a river and on the West by land of Alwyn Boyea, or howsoever otherwise the same may be butted, bounded, known, distinguished or described.²⁹

²⁶ Peru: Ruben Guevara Manrique, *Derecho Registral* (1990) page 89; Victorino Herrera Cavero, *Derecho Registral y Notarial* (1987) page 22-25.

²⁷ Argentina: Fernando Fuego Laneri, *Teoria General de los Registros* (1982) page 192-199.

²⁸ Grenville Barnes, "A Comparative Evaluation Framework for Cadastre-Based Land Information Systems (CLIS) in Developing Countries" (University of Wisconsin Land Tenure Center, 1990) page 119.

²⁹ J. David Stanfield, "Rural Land Market Implications of Titling and Registration Programs in the Latin America and Caribbean Region" (University of Wisconsin Land Tenure Center, 1991) page 5.

Ecuador is one of the few countries in Latin America that requires a mandatory registration, i.e. inscription of titles.³⁰ The Ecuadorian Agrarian Reform Law created the Ecuadorian Institute of Agrarian and Colonization Reform (Instituto Ecuatoriano de Reforma Agraria y Colonizacion [IERAC]). It is an autonomous institute in the Ministry of Agriculture. The IERAC title and award procedures are complicated and inconsistent. In addition, bureaucracy hampers the system which frequently includes up to nine steps in each of the four function levels: executive, assessment, assistance and operations. This has contributed to a low titling level.³¹ However, newfound efforts have created an impetus at IERAC. The public registry now references cadastral information and documents at IERAC by computer.

In Ecuador, at least until 1991³², and Guatemala (until the autogolpe or "self-coup")³³ both had a public registry system with a registrar for profit. In the Ecuadorian case, the registrars of each sector were named by the Supreme Court.³⁴ In Guatemala, at least until the self-coup of 1993, the registrar was named by the president. In Ecuador, at least until 1990, there was no national cadastre law. Therefore, there were no consistent efficient method or procedure for the development of a cadastre.³⁵

In contrast to countries such as Venezuela, which has a registry office in each municipality, Guatemala only has two centralized registries. This situation hinders the decentralization of power and inhibits the registration of plots in the system.³⁶

³⁰ Grenville Barnes, "A Comparative Evaluation Framework for Cadastre-Based Land Information Systems (CLIS) in Developing Countries" (University of Wisconsin Land Tenure Center, 1990) page 93.

³¹ Grenville Barnes, "A Comparative Evaluation Framework for Cadastre-Based Land Information Systems (CLIS) in Developing Countries" (University of Wisconsin Land Tenure Center, 1990) page 85.

³² DAI, "Ecuador Land Titling Project Evaluation" (December, 1990) page 38.

³³ This was true at least till the self coup of 1993. The Guatemalan Registrar's annual (income, revenue) has reached an average of US\$400 to US\$500. See Steven E. Hendrix, D. David Moyer y Ronald Strohlic, "La Reforma del Registro de la Propiedad en Guatemala: Informe de Situación con Recomendaciones" (June 1992) page 18.

³⁴ DAI, "Ecuador Land Titling Project Evaluation" (December 1990) page 38.

³⁵ DAI, "Ecuador Land Titling Project Evaluation," (Bethesda, Maryland, December, 1990) page 39.

³⁶ Steven E. Hendrix, D. David Moyer y Ronald Strohlic, "La Reforma del Registro de la Propiedad en Guatemala: Informe de Situación con Recomendaciones" (June, 1992) page 12.