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## Diego Alfonso Erba

**LAND LINES:** *What is a territorial cadastre?*

**DIEGO ERBA:** The institution of a territorial cadastre does not exist in the United States, at least not in the same way as in many countries around the world. Although the term “cadastre” has more than one meaning, in general there is consensus that it comes from the Greek *catastichon*, which can be translated as “a list of parcels for taxation.”

This kind of list exists in the U.S., but the profile of the institutions that manage the data are different from those in Latin America and in many European and African countries, where the territorial cadastre encompasses economic, geometrical, and legal data on land parcels and data on the owners or occupants. The institutions that manage this data, also often named territorial cadastres, are closely connected with the Registry of Deeds or Register of Land Titles because their data complements each other and guarantees land property rights. These longstanding connections reflect the cadastral heritage of Roman and Napoleonic legal systems.

**LAND LINES:** *Why do urban public administrators need to know about territorial cadastres?*

**DIEGO ERBA:** The cadastre and the register should be connected for legal reasons, if not for practical reasons, and there are many models of how cadastres could or should relate to public institutions. Unfortunately, the norm is still an isolated or nonintegrated cadastre, which dramatically reduces its potential usefulness as a tool for urban planning and land policy.

For example, irregular settlements (slums) are generally developed on public or environmentally protected areas, or even on private parcels, and are neither taxed nor registered in territorial cadastre databases. These areas are represented in cadastral cartography as “blank polygons” as if nothing happened inside them. The paradox is that data and cartography about irregular settlements normally exist, but that information is often in institutions that are not related to the cadastre and consequently are not registered.

There is a growing perception of the cadastre’s importance as a multipurpose information system serving not only the legal and financial sectors of cities, but also all of the institutions that make up the “urban reality,” including public services agencies, utilities, and even certain private providers of urban services. The move to this new concept and improved urban information systems has not been easy or without resistance in developing countries, however.

**LAND LINES:** *Why is a multipurpose cadastre so difficult to establish and use?*

**DIEGO ERBA:** The implementation of a multipurpose cadastre typically requires administrations to allow for more horizontal exchanges of information. It also frequently requires changes in the legal framework and the establishment of more fluid relationships between the public and private agents to share standardized data and ensure continuous investments to keep the databases and cartography up-to-date.

This sounds like a simple process, but in practice it is not easy because many administrators still consider that “the data is mine,” and they are not ready to collaborate. At the same time, some overly zealous administrators convinced of the potential value of a multipurpose cadastre may skip stages and jump from a traditional cadastre to a multipurpose model without due attention to effectively implementing the exchanges of information.

Even when operated privately, territorial cadastres are treated as a public service, which means they depend on public funding and political decisions for approval to update the land valuation system or the cartography. At the same time, this kind of public service is not visible and therefore is not as interesting for the politicians who wish to demonstrate their accomplishments through more tangible projects such as a new bridge or school.

The updating of cadastral data impacts land value and consequently the

amount of property taxes, which is not popular with voters. Nevertheless, new government administrators who seek to improve their jurisdiction's fiscal status may decide to update the cadastre in an attempt to increase property taxation revenues. This has a strong political impact at the beginning of the official's term, but the data on property value may not

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be touched for years afterwards and will grow more and more inaccurate compared to the actual market value. In many Latin American jurisdictions legislation imposes the obligation of cadastral updates on a regular basis, although compliance is inconsistent.

Another frequent mistake is to consider that the solution is to implement a modern geographic information system (GIS) to manage the cadastral data. In the ideal situation we would like to see integrated systems that use coordinated and standardized databases, but some municipalities are ill-equipped, and those that do have sufficient infrastructure do not have enough well-prepared employees to accomplish the tasks. The notion that "one size fits all" is not really applicable to a region in which there are such significant differences among jurisdictions. I like to say that the problem with cadastral institutions is not hardware or software but "people-ware." Even when financial

resources exist, the lack of trained professionals and technicians is a significant obstacle.

**LAND LINES:** *In this context, is it possible to consider a multipurpose cadastre for Latin America?*

**DIEGO ERBA:** It is possible, but the concept is still new and frequently is not well understood. There are many good cadastral institutions in Latin America, as in some Colombian and Brazilian municipalities and in some Mexican and Argentinean states. In some jurisdictions the fusion of the territorial cadastral with public institutions and geotechnological systems generates cadastral institutes that are better structured in terms of budget and technical staff and consequently are better able to identify illegal settlements and monitor the increment of land value using modern tools.

However, from my viewpoint the region still does not have a full-fledged operational multipurpose cadastre. A common assumption is that implementing a multipurpose cadastre requires adding social and environmental data to the existing alphanumeric databases available in the traditional territorial cadastral, which consider economic, geometric, and legal aspects of the parcel, and then connecting all that data with a parcel map in GIS. While this is very important it is not essential, because the implementation is not a technological problem as much as a philosophical one. Most municipal administrations do not think about putting institutions that traditionally manage different social (education and health), environmental, and territorial (cadastre) databases under the same roof.

**LAND LINES:** *How is your work with the Lincoln Institute helping to broaden awareness about territorial cadastral?*

**DIEGO ERBA:** I have been working with the Program on Latin America and the Caribbean since 2002 to explore the relationships among multipurpose cadastral and the program's four topical areas: large

urban projects; land valuation and taxation; informal settlements and upgrading programs; and value capture. It is always a challenge to tailor the curriculum for educational programs, but we believe strongly that it is important to facilitate the widespread sharing of knowledge in each country and to prepare public officials and practitioners with different levels of expertise. The participants, including cadastre administrators, urban planners, lawyers, and real estate developers, gain a common language and vision of the urban cadastral applications, and they can start a process to improve the system in their own countries.

Our pedagogical strategy for this year involves the dissemination of knowledge through a combination of distance education and traditional classroom courses at different levels. We plan to develop training seminars followed by a tailored distance education course in those countries that demonstrate the conditions necessary to implement this new vision of the multipurpose cadastre. Finally, we will organize a regional classroom course for the best distance education students in three neighboring countries.

This plan contrasts with many training programs offered by other international institutions, which contemplate concepts and the use of tools that may not be applicable in countries with different legal frameworks and technological levels. We will begin this cycle with seminars in Chile and Peru, working with the Chilean Association of Municipalities and the Institute of Regional Economy and Local Government in Arequipa, Peru. These and other partners in Latin America have committed to disseminate and increase local capacity on these issues.

Another component of our strategy is the dissemination of resource materials. We will be publishing two books later in 2006 about the concepts and implementation of cadastral systems that can be applied in most countries. One book describes in detail the cadastral system in each Latin American country, and the other concep-

## Distance Education for Latin America

The Institute's Program on Latin America and the Caribbean has invested in distance education to increase participation in our online courses, prepare students for our weeklong programs, and supplement classroom courses, thus making the topics of study available to a wider range of participants. The courses are offered on a widely used international platform (Moodle), which allows participants to choose a preferred language for the menus.

The Latin America Program currently offers four online courses of seven to twelve weeks each, and some courses are offered more than once per semester. Most of the contents are presented in Spanish, and some sessions are also available in Portuguese. The courses are intensive and interactive, and they include weekly assignments, a forum for exchange among students and faculty, and periodic evaluation of participants' work.

### Geographic Information Systems (GIS) Applications for Urban Studies

This seven-week course covers concepts about GIS, alphanumeric databases and the most appropriate cartographic tools for each kind of urban study. Participants are required to perform spatial analysis in a GIS environment using data from several sources, oriented to developing thematic maps and useful databases for the implementation of new land policies that promote urban development.

### Application of Multipurpose Cadastres in Defining Urban Land Policies

This seven-week course covers legal frameworks, land valuation, and land taxation systems, and geotechnologies used in different Latin American jurisdictions. Participants are required to identify the virtues and shortcomings of the cadastral system in their jurisdictions, and to develop a proposal containing the administrative, legal, and technological changes necessary for an effective information system to develop new land policies promoting sustainable urban development.

### Urban Land as a Source of Financing in Latin American Cities

This twelve-week course examines diverse policies for the generation and distribution of land value increments. The curriculum includes the analysis of regulatory, participatory, and fiscal instruments that mobilize land value increments to finance urban goods and services for different sectors of the population, especially lower-income groups. The course integrates experiences from different parts of the world, with a special emphasis on the Latin American context.

### Urban Land Markets in Latin American Cities

This course is designed to provide a twelve-week examination of the structure, function, and regulation of Latin American land markets and their relationship to the economic, social, urban, and environmental problems of cities. It analyzes the motivations and consequences of diverse policies and practices that have been implemented in the region, and considers a number of experiences from other parts of the world and their potential adaptation to Latin America.

**For more information about these and other online courses offered by the Lincoln Institute, go to <http://www.lincolinst.edu/education/leo.asp>.**

tualizes the juridical, economical, geometrical, environmental, and social aspects of the multipurpose cadastre, highlighting the relationship between the territorial cadastre and the four topical areas of the Institute's Latin America Program.

In 2005 we made a DVD, which is currently available in Spanish and Portuguese. It includes a documentary film about multipurpose cadastres and some taped segments from classes and discussions on the relationships between the multipurpose cadastre and complex urban issues.

**LAND LINES:** *What is the long-term goal of the multipurpose cadastre?*

**DIEGO ERBA:** The problems that have been raised here should not discourage urban administrators from reorganizing their cadastres and their legal land policy frameworks in their cities and countries. On the contrary, they should try to change the reality by developing new laws that shows the spirit of an updated land policy. Data on Latin American cities exist, but they are fragmented and not standardized.

The best way to build a multipurpose cadastre is to integrate all the public and private institutions that are working at the parcel level and to develop a unique identifier to define standards for the alphanumeric and cartographic databases. It is a very simple and clear concept, but its implementation is not. To reach that objective it is necessary for administrators, practitioners, and citizens to understand the cadastre's potential for improving land management practices and the quality of life in urban areas. Many times simple solutions can help to solve complex problems such as those presented by cadastral systems. 