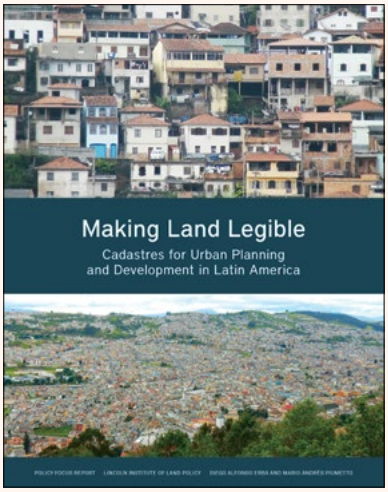
NEW LINCOLN INSTITUTE POLICY FOCUS REPORT

Making Land Legible

Cadastres for Urban Planning and Development in Latin America

By Diego Alfonso Erba and Mario Andrés Piumetto



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THE TRADITIONAL TERRITORIAL CADASTRE—a public land registry typically used to track ownership and property taxation—is being reimagined throughout Latin America as a powerful tool to promote fiscal stability and to guide urban planning initiatives, such as building resilience in the face of climate change, according to this new report published by the Lincoln Institute of Land Policy.

Advances in technology and data crowdsourcing have made this new multipurpose cadastre possible, say Diego Alfonso Erba and Mario Piumetto, authors of *Making Land Legible: Cadastres for Urban Planning and Development in Latin America*. Cities in Colombia, Brazil, and other Latin American countries have successfully implemented the multipurpose cadastre and demonstrated its benefits to policy makers, write the authors, who are both veteran land surveyors with years of experience in research and practice in this burgeoning field.

In much of Latin America, cadastres are structured under the orthodox model imported from Europe long ago. This model has several limitations: it accounts only for economic, physical, and legal characteristics; it is typically restricted to private properties; much of the information may be out of date and incomplete; and it does not encompass key parcel-level data needed for urban policy decisions—such as information on transportation, infrastructure, and utility networks—which tends to be scattered in different formats among several disconnected institutions.

A multipurpose cadastre is based on a partnership of stakeholders committed to generating extensive, precise, detailed, and up-to-date information about a city. It shares alphanumeric data and maps as well as human and financial resources, and it can be implemented at the national, regional, or local level at reasonable cost. Unmanned aerial vehicles, or drones, equipped with cameras can be used to provide extensive information quickly.

A multipurpose cadastre is built within a spatial data infrastructure system. Its component parts are updated continuously with data obtained from urban observatories and other sources. Both systems can be implemented with free software applications.

Orthodox land cadastres are implemented by public agencies using Geographic Information Systems (GIS) and updated with information from periodic surveys. In contrast, a multipurpose cadastre is built within a spatial data infrastructure system. Its component parts are updated continuously with data obtained from urban observatories and other sources. Both systems can be implemented with free software applications—one of the keys to the success of the multipurpose cadastre model.

Latin America is a unique testing ground, with vast uninhabited areas and extensive urban sprawl, the Amazon jungle and increasing deforestation, and tremendous wealth and crushing poverty existing side by side. Part of the legacy of colonization is a lack of accurate records that has enabled illegal land occupations to this day and strongly conditioned urban policies—particularly those related to tenure security and tax collection practices.

Although multipurpose cadastres do not define land policies, they are a key instrument for that purpose. The data integration provided by the model is the most direct way to identify and

monitor the economic, physical, legal, environmental, and social characteristics of parcels and their occupants. Planners need this information to manage the growth of cities, define strategies for financing urban development, reduce informality, and analyze the impact of government interventions. The information is also critical for disaster preparedness and adaptation to the impacts of climate change.

Making Land Legible: Cadastres for Urban Planning and Development in Latin America describes the evolution of cadastres and surveys communities that have adopted the multipurpose model and the benefits they have experienced. The authors also spell out best practices to facilitate a shift to multipurpose cadastres, including building land value observatories that involve the greatest number of partners possible; implementing assessment methods based on econometric and geostatistical models that can correlate assessment maps with the real estate market; mandating the georeferencing of parcels and requiring updated blueprints on each real estate transaction; and incorporating data on public properties and informal settlements in cadastre maps.

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The complex urban reality in Zacatecas, Mexico, combines religious, commercial, historical, and residential land uses, all of which must be represented and registered in a territorial cadastre. © Diego Erba.