

MODERNIZATION OF REAL ESTATE REGISTRATION IN BRAZIL IN LIGHT OF THE **LADM: ADVANCES AND CHALLENGES FOR** SPATIAL LAND GOVERNANCE

Authors:

Alan Maragno | UDESC | alanmaragno.adv@gmail.com Francisco Henrique de Oliveira | UDESC | francisco.oliveira@udesc.br Renan Furlan de Oliveira | UFSC | renan.furlan@ufsc.br Jaap Zevenbergen | UT | jazevenbergen@utwente.nl

INTRODUCTION

- ✓ Brazil faces persistent challenges in spatial land governance due to its late property formalization. The process began with Budget Law No. 317/1843, which created the General Mortgage Registry, later expanded into the Real Estate Registry.
- ✓ The Public Records Law (No. 6,015/1973) modernized the system with individual property registries, but many still lack spatial accuracy, limiting integration between registries and cadastres.
- ✓ To overcome this, the National Council of Justice (CNJ) and the National Real Estate Registry Operator (ONR) adopted measures aligned with the LADM.
- CNM (Provision 143/2023): unique parcel identifier;
- SIG-RI (Provision 195/2025): mandatory georeferenced polygons;
- ✓ Real Estate Registry Map: public ONR platform integrating CNM and spatial data.
- ✓ These actions advance Brazil toward a transparent, secure, and interoperable land administration model consistent with international standards.

THEORETICAL BASIS: REAL ESTATE REGISTRY EVOLUTION

- ✓ Colonial origins: Land distribution through sesmarias created disorganized property control.
- √ 1843: Budget Law No. 317 established the General Mortgage Registry, the first national property control system.
- ✓ **1973:** Public Records Law (No. 6,015) introduced individual property registration (matriculation system).
- ✓ Persistent issue: Lack of spatial data and integration between registries and cadastres.
- ✓ 2020: Creation of ONR (National Real Estate Registry Operator) unified 3,500 offices nationwide, promoting innovation and digitalization.

LADM AND BRAZILIAN CONTEXT

- ✓ **LADM (ISO 19152:2012, updated 2024–2025):** Conceptual model defining relationships between People Rights Restrictions Responsibilities Spatial Units.
- ✓ Purpose: Standardize land data semantics, support governance and interoperability.
- √ Brazilian convergence:
- CNM (2023): Unique parcel identification aligns with LADM's Spatial Unit package.
- SIG-RI (2025): Integration of georeferenced polygons matches LADM's Spatial Representation.
- ONR Map: Public interface linking legal and geographic data.
- √ These advances mark Brazil's transition from analog to spatially enabled land governance.

ANALYSIS AND DISCUSSION

- ✓ Integration between CNM, SIG-RI, and the ONR Map:
- 1 CNM provides a unique national identifier for each parcel (ISO/IEC 7064 algorithm).



2 - SIG-RI mandates registration of georeferenced coordinates for properties.



Registration of the polygon on the platform

3 - ONR Map integrates legal (registry) and spatial (polygon) data layers.



REGISTRO DE IMÓVEIS DA COMARCA DE BIGUAÇU - SC

Mauricio Passaia - Oficial Titular Livro N° 2 - Matrícula N° 60.019

CNM Nº 108423.2.0060019-65

FICHA 01

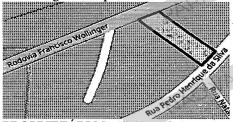
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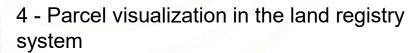


IDENTIFICAÇÃO DO IMÓVEL: um terreno com a área de **819,29m²** (oitocentos e dezenove vírgula vinte e nove metros quadrados), situado na Rua Pedro Henrique da Silva, n. 395, e na Rodovia Municipal Francisco Wollinger, bairro Jordão, na Cidade de Governador Celso Ramos, nesta Comarca de Biguaçu/SC, com a seguinte descrição: frente, face a Sudeste, em 1 (um) lance, partindo do vértice denominado '0=PP', georreferenciado no Sistema Geodésico Brasileiro, DATUM - SIRGAS 2000, MC-51°W, coordenadas Plano Retangulares Relativas, Sistema UTM: E= 737.232,926 m e N= 6.971.006,399 m, segue com o azimute de

219°35'13", na extensão de 15,11 metros até o vértice 'V1' (E=737.223,307 m e N=6 confrontando com a Rua Pedro Henrique da Silva. À direita, face a Sudoeste, medindo 5' (três) lances, partindo do vértice 'V1', segue com o azimute de 311°43'27", na extensão de 1 vértice 'V2' (E=737.205,010 m e N=6.971.011,069 m); daí segue com o azimute de 312°45'3 31,75 metros até o vértice 'V3" (E=737.181,697 m e N=6.971.032,626 m), confrontan matriculado sob o n. 2.080; daí segue com o azimute de 343°57'44", na extensão de 1,41 m 'V4' (E=737.181,308 m e N=6.971.033,980 m), confrontando com terras de posse de Adils face a Noroeste, em 1 (um) lance, partindo do vértice 'V4', segue com o azimute de 65°12'5 15,20 metros até o vértice 'V5' (E=737.195,104 m e N=6.971.040,350 m), confrontand Municipal Francisco Wollinger. À esquerda, face a Nordeste, medindo 50,82 metros, er partindo do vértice 'V5', segue com o azimute de 131°36'51", na extensão de 26,69 metros (E=737.215,060 m e N=6.971.022,623 m); daí segue com o azimute de 132°14'33", na (metros até o vértice 'O=PP' (E=737.232,926 m e N=6.971.006,399 m), início da descrição, co imóvel matriculado sob o n. 16.732, fechando assim o perímetro do polígono acima descrito do imóvel: inscrição imobiliária n. 02.11.007.0179.001.

Abaixo segue o croqui do imóvel acima descrito:





Mapa do Registro de Imóveis





CONCLUSION

- ✓ Brazil's Real Estate Registry modernization aligns with **LADM principles**, especially unique parcel identification and spatial representation.
- ✓ CNM and SIG-RI bridge legal and spatial information, reinforcing transparency and interoperability.
- ✓ The entire modernization process is **fully funded by registrars**, without any public investment, ensuring institutional sustainability.
- ✓ Despite regional inequalities and technical barriers, Brazil demonstrates significant progress toward a **data-driven**, **standardized**, **and internationally compatible** land administration model.







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