

Global Snapshot Cadastre 2025

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SUMMARY

In times of considerable global and national uncertainty, cadastres and the land administration functions of tenure, value, planning and development, continue to be important tools to support economic, social, and environmental sustainability. This paper provides a snapshot of the global status of cadastres, drawing upon selected country cases and technological developments to illustrate current advances and challenges. Specifically, it draws upon the current workplan activities of Commission 7 of FIG, focus around the UNGGIM's Framework for Effective Land Administration (FELA); Fit-for-Purpose Land Administration (FFPLA); 3D Land Administration, the ISO 19152 Land Administration Domain Model Standard; the increasing role of artificial intelligence (AI) and remote sensing in the domain; the integration of land administration function; the status of land administration education; and global monitoring and comparison of cadastral systems. Amongst these positive and significant developments, there is continuing evidence of challenges to establish, complete, and renew cadastres. Issues relating to good governance, sustainable financing, educational pathways and community awareness are key. In this regard, FIG can and should continue to play a leading role in global advocacy, professional network development, and knowledge development and dissemination.

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1. INTRODUCTION

In a period marked by global and national uncertainty, cadastres and broader land administration systems remain vital for supporting economic resilience, social stability, and environmental sustainability (FAO, UN-ECE and FIG, 2023). Secure tenure, accurate valuation, effective planning, and sustainable land development are foundational to well-functioning societies (Williamson et al, 2010). Recent years have seen significant innovation in this domain, with new frameworks, standards, and technologies reshaping how land rights are recorded, managed, and monitored (Bennett, 2023). At the same time, many countries continue to face long-standing challenges in establishing, maintaining, and modernising their cadastral systems. This paper provides a global snapshot of cadastral and land administration developments as of 2025, using a synthesis approach that considers reports, news briefs, documents, sessions, and outputs from the FIG Commission 7 between 2023-25. These were drawn from the FIG website and various conference websites. The papers draws on country examples, technical advances, and institutional reforms. After initial planning and drafting of sections, an iterative approach was used, making use of a generative AI tool (MS Co-Pilot), to refine and reduce the sub-sections to the most salient content. Careful proofing of each section was undertaken. Overall, the paper highlights activities and role of FIG Commission 7, including work on the UN-GGIM Framework for Effective Land Administration, Fit-for-Purpose approaches, 3D cadastres, ISO standards, the roles of AI and remote sensing, women's access to land, integrating land administration functions, land administration education, and comparative studies. These working group activities are used the frame the analysis and discussion. Finally, the work reflects on persistent challenges and opportunities for global collaboration and knowledge exchange.

2. FRAMEWORK FOR EFFECTIVE LAND ADMINISTRATION

FIG Commission 7's 2023–2026 work plan prioritizes the global uptake of the UN-GGIM's *Framework for Effective Land Administration* (FELA) (UN-GGIM, 2020), with Working Group 7.1 actively engaged in raising awareness and supporting implementation. A key initiative is the intended re-publication of the 2020 FELA document, tailored for the practitioner community to enhance accessibility and relevance. This is aimed for release in multiple languages in 2024 and 2025. Interest in FELA is growing, particularly across the Americas - most notably Latin America - through regional surveyor networks and UN-GGIM events. Awareness is also strong in the Asia-Pacific region, as observed during the 2024 Annual Meeting in Kuching, Sarawak, Malaysia. However, practical implementation or use remains a challenge. While tools like the EuroSDR-developed assessment framework offer valuable support, there is a clear need for additional, bottom-up instruments that can guide countries in aligning their systems with FELA principles. Commission 7 is well-positioned to facilitate this,

leveraging its global network to foster collaboration and innovation. Through these efforts, the Commission contributes to bridging the gap between strategic vision and operational reform in land administration.

3. FIT-FOR-PURPOSE LAND ADMINISTRATION

Fit-for-Purpose Land Administration (FFPLA) remains a cornerstone of FIG Commission 7's agenda, offering a pragmatic and inclusive pathway to secure land rights at scale. A major new publication is currently in development, combining insights from workshops, webinars, and conference sessions held across two FIG terms i.e. 2019-22 and 2023-26. This will be a significant contribution to FFPLA, following on from the 2014 FFPLA FIG publication, the 2016 *Guidelines for Country Implementation* supported by UN-Habitat, and the two-volume special issue published in *Land* journal in 2021 (See Enemark et al, 2021). The upcoming publication focuses on lessons learned from real-world implementation - what has worked, what has not - and explores the persistent challenges of scaling FFPLA approaches across diverse contexts. It will include newer examples of FFPLA application, for example, those from Indonesia, Benin, Ghana, amongst others. While the FFPLA concept continues to gain traction globally, particularly in regions with limited formal land systems, the need for practical tools to support implementation is clear. Commission 7 has a role to play here. Commission 7's work in this space is helping to refine FFPLA as both a technical and social innovation, grounded in evidence and responsive to local realities.

4. LAND ADMINISTRATION DOMAIN MODEL AND 3D LAND ADMINISTRATION

FIG Commission 7 has been a long-standing advocate for innovation in cadastral modelling, with over two decades of sustained work on the Land Administration Domain Model (LADM) and 3D cadastres. Recent international workshops, including the 2024 LADM Workshop (Van Oosterom et al, 2024), have continued to foster technical exchange and global collaboration. These events support the ongoing revision of ISO 19152, which is being updated to enhance modularity, support for marine and 3D cadastres, and alignment with broader geospatial standards. While scaled, national 3D cadastres are not yet prevalent, digital twins for targeted applications - such as city management, planning, and infrastructure development - are increasingly evident. These developments reflect a growing demand for spatially rich, interoperable land administration systems. Commission 7's sustained engagement in this domain is a powerful demonstration of how a global professional network can generate momentum, knowledge, and advocacy around a specific cadastral challenge. The community's contributions have helped shape both conceptual frameworks and technical standards (through FIG's direct involvement in ISO TC211 and OGC), ensuring land administration evolves in step with digital transformation and urban governance needs.

5. AI AND REMOTE SENSING IN LAND ADMINISTRATION

Remote sensing has radically impacted on land administration and cadastral design over the previous decades (Koeva et al, 2022), Similarly, Artificial Intelligence (AI) is now rapidly reshaping the land administration landscape, especially when combined with remote sensing technology, with growing interest in its application to feature extraction, automation, and service delivery. FIG Commission 7 has hosted sessions on AI at every Working Week and C7 Annual Meeting in recent years, reflecting the profession's increasing engagement with this evolving domain. The work aligns closely with initiatives by ISPRS, particularly in remote sensing and feature extraction, and looks ahead to the GeoInfo 2026 conference in Sofia, which is expected to showcase cutting-edge developments in geospatial AI (<https://conference.gate-ai.eu/ISPRS2026> - the event will also link up with FIG C7 WG7.3 and act as the next International Workshop on 3D and LADM). While scaled implementations remain limited, research and pilot projects - such as those in the Netherlands and several Australian states being used to expedite survey-accurate cadastral fabric rebuilds - demonstrate the potential of AI to support day-to-day operations, customer engagement in registration processes, and eventually, surveying and mapping. Commission 7's efforts in this area highlight the importance of sustained global collaboration to translate innovation into practice. As AI tools become more accessible and tailored to land administration needs, their integration into operational systems is likely to accelerate, offering new efficiencies and insights for governments, practitioners, and citizens alike.

6. WOMEN'S ACCESS TO LAND (AND ADMINISTRATION)

Women's access to land remains a critical issue in global land governance, and FIG Commission 7 has made it a central focus of its 2023–2025 agenda. A major initiative has been the comprehensive revision of FIG Publication No. 24, originally published over two decades ago (Marzatico and Balas, 2024). Much has changed since its release, and the updated version reflects contemporary realities, challenges, and opportunities for gender-inclusive land administration.

This revision has been informed by an extensive consultative process, with contributions from all FIG regions, member associations, and partners—particularly strong engagement from Africa. Sessions have been held at every FIG Working Week, Annual Meeting, and regional conference, including in the Pacific (Australia), North America (United States), Europe (Netherlands), Asia (Malaysia), and MENA (Morocco). A notable highlight was the 3rd Arab Land Conference in Rabat, Morocco, where Commission 7 contributed to discussions on gender equity in land governance. This has been truly great for advocacy, awareness raising, and knowledge development within the surveying community. Equally, the Working Group has been attending global and regional women's forums hosted by the UN, Africa Union, amongst others.

Support from global partners - including Stand for Her Land, the World Bank, and other donor agencies - has been instrumental in advancing this agenda. Another key initiative has been the Land Clinic, a platform for dialogue, peer learning, and practical support. Commission 7's work underscores the need for renewed advocacy, updated tools, and inclusive practices to ensure women's access to land is not just protected—but actively promoted.

7. INTEGRATING LAND ADMINISTRATION FUNCTIONS

The integration of land administration functions - tenure, value, use, and development - remains a central ambition for modern land systems (Williamson et al, 2010). FIG Commission 7 continues to advocate for holistic approaches that promote interoperability, shared data infrastructures, and coordinated service delivery. However, experience shows that efforts to integrate too early, without sufficient political will or technological capacity, often fail. Through member surveys and consultations, the Commission has identified persistent challenges, including miscommunication stemming from differing interpretations of key terminology. This reinforces the need to start small, smart, and modest - building incrementally toward integration. Notably, non-tenure drivers such as food security, agricultural productivity, and urban planning have proven to be powerful motivators for higher-level government engagement, sometimes catalyzing integration efforts more effectively than tenure reform alone. A strong example of integrated thinking and practice was observed during the 2024 Annual Meeting in Kuching, Sarawak, where local initiatives demonstrated how coordinated land functions can support broader development goals. Commission 7's work in this area underscores the importance of context-sensitive approaches and global collaboration in shaping integrated, responsive, and future-ready land administration systems.

8. LAND ADMINISTRATION EDUCATION

Education in land administration is foundational to building capable institutions and informed practitioners. FIG Commission 7, in collaboration with Commission 2, has led efforts to define and strengthen this domain, most notably through the Teaching Essentials for Responsible Land Administration (TERLA) framework. Developed under the Global Land Tools Network (GLTN), TERLA has helped establish land administration as a distinct and teachable discipline, offering a structured approach to curriculum development and capacity building. A recent FIG Working Group report revisits TERLA, evaluating its relevance and proposing updates to reflect contemporary challenges and opportunities (Hull et al, 2024).

While global frameworks like TERLA provide a valuable foundation, Commission 7's consultations and surveys reveal that local adaptation remains essential. Even with the same region – varied experiences from South Africa, Zimbabwe, and Namibia – demonstrate that one size certainly cannot fit all. Differences in legal systems, institutional arrangements, and cultural contexts mean that a one-size-fits-all approach is rarely effective. Striking the right balance between global generalities and local specifics is a persistent challenge. Miscommunication around terminology and conceptual boundaries continues to hinder progress. For education to serve both advocacy and professional development, a clear and coherent domain of land administration knowledge must be maintained - while remaining flexible enough to accommodate diverse national realities.

9. COMPARATIVE LAND ADMINISTRATION

Comparative land administration continues to be a strategic focus for FIG Commission 7, offering a structured way to understand and learn from the diversity of land governance systems globally. Recent work by the Commission's Working Group 7.8 has contributed to a peer-reviewed paper published in *Survey Review* (Stubkjær et al, 2025), exploring the governance of semantic resources and the potential for global repositories to support comparative analysis. This work builds on the legacy of the Cadastral Template and aligns with broader efforts to harmonize terminology and metadata through initiatives such as LADM and LandVoc. The paper highlights the importance of structured semantics in enabling meaningful comparisons across jurisdictions, while acknowledging the complexity of aligning diverse institutional and legal contexts. Commission 7 is actively exploring collaboration with initiatives like CaLAtThe to further this agenda. The goal is not to standardize systems, but to foster mutual learning, benchmarking, and innovation. Comparative frameworks can help practitioners and policymakers navigate complexity, identify best practices, and advocate for reform. As the global land administration community continues to evolve, shared understanding - grounded in robust semantic infrastructure - will be key to unlocking the full potential of comparative analysis.

10. DISCUSSION: CHALLENGES, OPPORTUNITIES, AND FIG C7

As of 2025, the ongoing work of FIG Commission 7 highlights both enduring challenges and emerging opportunities in land administration. Across all thematic areas - FELA, FFPLA, 3D, LADM, AI, integration, education, gender equity, and comparative analysis - a consistent message has emerged: progress requires both global coordination and local adaptation.

One of the most persistent challenges appears to be the gap between strategic ambition and operational capacity. Whether in integrating land functions, scaling application of digital tools, or implementing inclusive frameworks, many countries face constraints in political will, institutional readiness, and technical infrastructure. Miscommunication around terminology and conceptual boundaries also continues to hinder collaboration and implementation.

Yet, the opportunities are compelling. The global network of FIG - through its Member Associations, Working Weeks, Annual Meetings, regional conferences, and partnerships - has proven its ability to convene expertise, share knowledge, and advocate for reform. Initiatives like the revision of FIG Publication No. 24, the development of new FFPLA guidance publication, and the push for semantic clarity in comparative land administration demonstrate the Commission's capacity to lead.

Looking ahead, Commission 7 must continue to balance ambition with pragmatism, ensuring that tools, frameworks, and advocacy efforts remain grounded in the realities of practice. By fostering inclusive dialogue, supporting bottom-up innovation, and maintaining a clear domain of land administration knowledge, FIG C7 is well-positioned and can remain a key player to guide the profession through its next phase of evolution.

11. CONCLUSION

Land administration globally is evolving to meet challenges like climate change, urbanisation, and digital transformation. While frameworks and technologies are advancing, many countries

still face barriers in implementation and capacity. The need for inclusive, adaptable, and scalable systems is clear. FIG Commission 7 has responded with leadership across key areas - FELA, FFPLA, LADM, AI, education, gender equity, and comparative analysis. Through its working groups, publications, and global events, it has fostered collaboration, developed practical tools, and supported reform. The Commission's strength lies in balancing global frameworks with local realities. Its work between 2023 and 2025 shows that progress depends on both strategic vision and grounded, context-sensitive action. As land administration continues to intersect with broader development goals, Commission 7 remains well-positioned to guide the profession forward.

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BIOGRAPHICAL NOTES

Rohan Bennett is Chair, Commission 7 (2023-26) of the FIG. He is a Professor in Information Systems, specializing in geospatial, cadastral, surveying and land data science. He earned a PhD from the University of Melbourne in 2008, and holds other degrees in Science (Information Systems) and Engineering (Geomatics, Honors). Over two decades he has designed, developed, and delivered award winning undergraduate, postgraduate and tailor-made educational programs - working with leading institutions including Swinburne; University of Twente (Netherlands), Technical University of Munich (Germany); and the University of Melbourne. He has also collaborated and consulted extensively with developing contexts, helping to build academic capacity in government and universities across Eastern Africa, Eastern Europe, and South East Asia. He has won and led large-scale international research grants totalling over \$5M AUD. He has co-authored over 100 high-ranking journal papers, working at the intersection of system design, analysis and evaluation, with a specific focus on property registration and land information systems.

Paula Dijkstra is Director a.i. of Kadaster International responsible for the coordination of Kadasters international activities and international cooperation projects. Kadaster International provides worldwide advisory services in the domain of land administration, e-governance, geo-information services and SDI. Paula is working for the international department since 2011. She obtained a Master degree in Social Geography and a grade in cadastral data acquisition and 3D modelling. In her role as conference director she organised and hosted, together with the International Federation of Surveyors, the 1st virtual FIG e-Working Week. In 2025 Paula was selected as Chair Expert Group of Land Administration and Management for the UNGGIM.

Dr. Claudia Lindner is a Land Administration Advisor at Kadaster International, The Netherlands. She works broadly on strengthening land governance through participatory mapping, remote sensing, fit-for-purpose cadastral methods, and digital tools that enhance tenure security. Her academic and professional background includes roles in both research and implementation, notably being involved with the Institute for Geoinformatics, University of Münster, and the ITC at the University of Twente. She has presented on land administration ecosystems in forums like UNECE and FIG. Her work focuses on innovation, community engagement, and combining technological advances (e.g. UAVs, geospatial tools) with institutional design to make land administration more accessible, equitable, and sustainable.

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FIG Brazil Joint Land Administration Conference (3DLA2025, UN-Habitat STDM, FIG Commissions 7+8 AM)
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