FIG REPORT

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NO 87

Fit-for-Purpose Land Administration:
Status, Success, and Scaling

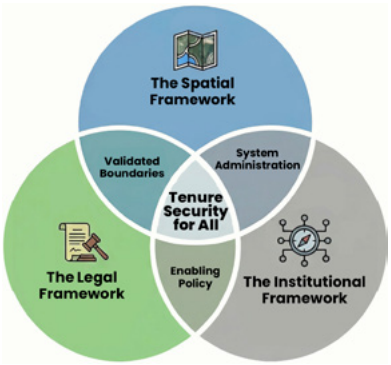

FIG Commission 7 – Cadastre and Land Management

The Federal Polytechnic Ado-Ekiti (FPA)
INTERNATIONAL FEDERATION OF SURVEYORS (FIG)
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FIG PUBLICATION NO. 87

Fit-for-Purpose Land Administration:
Status, Success, and Scaling

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Left: Identifying boundaries from aerial imagery by students of the Federal Polytechnic Ado-Ekiti and residents of the Olanrewaju Community, Erifun, Ado-Ekiti, Ekiti State. (Photo Credit: Israel Oluwaseun Taiwo)

Centre: The Fit-for-Purpose Land Administration Conceptual Model
(Photo Credit: Israel Oluwaseun Taiwo, NotebookLM & AMC Graphix)

Right: Digitized Land parcels from UAV Image covering the Olanrewaju Community, Erifun, Ado-Ekiti, Ekiti State, Nigeria. (Photo Credit: Israel Oluwaseun Taiwo)

The left and right images have been used earlier in:
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CONTENTS

FOREWORDS

Land Administration is basically about people. It is about the people to land relationship and the policies, institutions that govern this relationship. In many developed countries these systems are well developed and provide a kind of backbone in society in support of efficient land markets and effective land use management. In most developing countries, however, such systems are sparsely developed and serve mainly the elite.

The concept of Fit-For-Purpose Land Administration (FFPLA) is now seen as a gamechanger in many developing countries for establishing affordable and flexible systems providing secure land rights for all and supporting sustainable management of land and natural resources.

The FFPLA approach was originally developed by FIG and the World Bank and was launched at the FIG Congress in Kuala Lumpur, Malaysia June 2014 (FIG Publication No. 60). This original version was focused mainly on building the Spatial Framework while in 2016 the concept was further developed in cooperation with the Global Land Tool Network (GLTN/UN-Habitat, Report 2/2016) to include the full interaction between the spatial, legal and institutional framework in support of the Sustainable Development Goals. This full scale FFPLA approach is now being implemented in a range of developing countries throughout the world.

This current publication of FIG Commission 7, WG 2, provides a valuable insight into the evolution over the past 10 years since the FFPLA concept was first launched. This includes the status of the FFPLA concept as well as lessons learnt from a wide range of case studies covering various regions of the world. The publication also investigates strategies for how the FFPLA approach can be further improved and mainstreamed in support of providing secure land rights at scale. Finally, the publication provides some recommendations for the future as well as a vision and call for action towards 2030.

The authors are to be congratulated in their efforts to undertake the studies and providing this valuable publication. It is hoped that it will facilitate the further use and implementation of the FFPLA approach in many developing countries throughout the world.

Emeritus Professor Stig Enemark
FIG Honorary President

It is with great enthusiasm that we present this FIG publication to the global land management and cadastre community. Nearly a decade in the making, it reflects the continued evolution and application of the Fit-for-Purpose Land Administration (FFPLA) philosophy and its accompanying toolkit. Since the release of the first FIG publication on the subject (FIG Publication 60) in 2014, followed by implementation guidelines in 2016 (GLTN/UN-Habitat), the approach has become an important reference point for land administration projects, technology developers, and practitioners worldwide.

During this period, FIG and Commission 7 have actively supported the advancement of the concept – serving as advocates, conveners, and contributors. Working with national Member Associations, private sector partners, and development organisations, we have sought to promote awareness and facilitate implementation. FIG Congresses, Working Weeks, and Annual Meetings have provided important platforms for the community to share experiences, lessons, and emerging opportunities.

This publication, prepared through the dedicated efforts of Working Group 7.2 and supported by long-standing advocates of the approach, brings together key lessons from the past decade. It does not attempt to document every implementation of FFPLA. Rather, it presents a collection of short case insights intended to illustrate practical applications and inspire those countries seeking to accelerate the development of effective land administration systems. It also looks ahead, unpacking the key issues of FFPLA-at-scale and FFPLA-sustainability.

Above all, the publication reinforces a central principle: land administration projects are not ends in themselves. They must be delivered within reasonable timeframes and costs, generate tangible social, environmental, and economic benefits, and remain capable of being updated, upgraded, and maintained over time.

Prof. Rohan Bennett
Chair FIG Commission 7

Around the world, rapid urbanization, climate-induced disasters, conflict and displacement are placing unprecedented pressure on land and housing systems, with tenure insecurity disproportionately affecting women, youth, Indigenous Peoples, and the urban and rural poor. For UN-Habitat, secure land tenure and responsible land ad-

ministration are essential to achieving the SDGs and to implementing the 2026–2029 Strategic Plan, which prioritizes adequate housing, land, basic services, climate action and resilience in rapidly urbanizing contexts. The Global Land Tool Network (GLTN) advances this agenda by bringing together governments, civil society, academia and professional bodies to promote responsible, inclusive and pro-poor land governance, ensuring that legitimate tenure rights are recognized and protected across diverse contexts.

In 2016, GLTN helped develop the Fit-for-Purpose Land Administration (FFPLA) Guiding Principles, expanding the concept into a comprehensive and integrated spatial-legal-institutional frameworks. These principles now guide land policy and reform processes across multiple regions, informing national land policies in Nepal, Zambia, Uganda, DRC and beyond. Through its normative tools, such as the Social Tenure Domain Model (STDM), gender-evaluation criteria, tenure-responsive land-use planning and participatory enumeration, GLTN has helped improve tenure security for hundreds of thousands of households. Over the last six years alone, more than 400,000 households in countries including Uganda, Nepal, Namibia, DRC, Lebanon, among others, have had their socio-economic and spatial data documented to support decision-making and the recognition of diverse tenure rights. GLTN's role as a co-custodian of SDG indicators 1.4.2 and 5.a.1 further embeds FFPLA thinking within global monitoring systems, with nearly half of all UN Member States now reporting on these indicators.

Yet major challenges persist. Weak institutions, outdated laws, fragmented land information systems, insufficient financing and entrenched inequalities continue to hinder the scaling of FFPLA approaches. Climate change, land degradation and forced displacement are accelerating tenure insecurity faster than conventional land administration systems can respond. Meeting these challenges requires strong legal frameworks, empowered local institutions, interoperable digital systems, sustainable financing and meaningful community participation.

This publication provides an important reflection on a decade of FFPLA in practice. It highlights key lessons, innovations and emerging priorities from country experiences across Africa, Asia and Latin America, and offers guidance on how FFPLA can be mainstreamed into national systems.

It will be important for governments, development partners, civil society and professional communities to accelerate the adoption and institutionalisation of FFPLA by recognising that secure land rights are essential for climate resilience, peacebuilding, gender equality and sustainable urban development.

This publication is a timely contribution to our shared ambition: **a world in which everyone enjoys secure land rights**.

Ombretta Tempra
Chief, Land, Housing and Informal Settlement Section
Global Solutions Division, UN-Habitat

Land is far more than a simple commodity; it is a foundational resource for survival. Livelihoods, dignity, and stability of every human being on Earth depend on it. For billions of people—particularly women, youth, and the most vulnerable, the absence of secure land rights translates into a constant cycle of vulnerability, exclusion, and poverty. Today's global challenges, from rapid urbanization and conflict to climate-induced disasters and displacement, place unprecedented pressure on households whose connection to their land is not yet formally recognized.

This publication reflects a decade of profound transformation, shifting land administration from a rigid, elite-focused exercise into a flexible alternative for establishing secure rights for all. Evidenced by successful implementation stories in diverse contexts like Rwanda, Mozambique, and Nepal, it provides undeniable evidence that documenting land rights can be achieved rapidly, affordably, and inclusively. It moves beyond technical theory to offer a strategic roadmap for scaling these successes, ensuring that gains are not lost but are instead embedded within national systems to build long-term trust.

This work serves as a clarion call to action for governments and communities to dismantle the systemic barriers of the past and prioritize the empowerment of every citizen. It also serves as an educational tool to reshape minds towards a more sustainable approach to land administration. We at the School of Environmental studies of the Federal Polytechnic Ado-Ekiti are proud to have one of us joining several other experts in the International Federation of Surveyors to actualise the desirable change necessary for everyone to enjoy secure land rights as a foundation for global peace, equality, and prosperity.

Arc. Dr Anthony Peter
Dean School of Environmental Studies
The Federal Polytechnic Ado-Ekiti

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Our deepest appreciation goes to the following contributors who provided invaluable input:

Expert Consultation
During the first work term, interviews were administered to 19 leading experts in the land administration domain by Paula Dijkstra, Christiaan Lemmen, and Emma Fokt. The insights from these experts – Anthony Gakobo, Dimitris Rokos, Emmanuel Nkurunziza, Charisse Griffith-Charles, Frank Pichel, Jossam Potel, Leive Bjarte Mjos, Simon Ulvund, Frank Byamugisha, Mila Koeva, Zerfu Hailu, Clarissa Augustinus, Budi Martono, Julian Quan, Marisa Balas, Brent Jones, Matt Delano, Fabrice Kossou, and Pedro Nel Ospina – formed a foundational component of this work.

Workshop Contributions
The publication significantly benefited from the opinions and expertise shared by speakers across four workshops (one physical and three virtual).

- **2024 Ghana FIG Working Week (Physical Workshop):** We thank Emeritus Professor Stig Enemark, Dr Israel Oluwaseun Taiwo, Christelle van den Berg, Salah Abukashawa, Markus Koper, Brent Jones, Marisa Balas, and Rafic Khouri.
- **2025 Virtual Workshops:**
  - **FFPLA 1.0 on Innovations in Fast-Tracking Land Registration:** Associate Professor Simon Hull, Amir Bar-Maor, Daniel Stone, Emeritus Professor Stig Enemark, Royal Mabakeng, and Dr Israel Oluwaseun Taiwo.
  - **FFPLA 2.0 on Overcoming Resistance to Fit-for-Purpose Land Administration:** Mr Kees de Zeeuw, Ms Frances Birungi, Dr Rosalie Kingwill, Prof. Eugene Chigbu, Ms Royal Mabakeng, and Dr Israel Oluwaseun Taiwo.
  - **FFPLA 3.0 on Building Capacity and Collaborative Approaches for Effective Land Administration:** Dr Emily Brearley, Prof. Jaap Zevenbergen, Dr Keith Clifford Bell, Prof. Moses Musinguzi, Dr Mekonnen Tesfaye Metaferia, Dr Ogochukwu Uju, Ahmed Hemoudi, Royal Mabakeng and Dr Israel Oluwaseun Taiwo.

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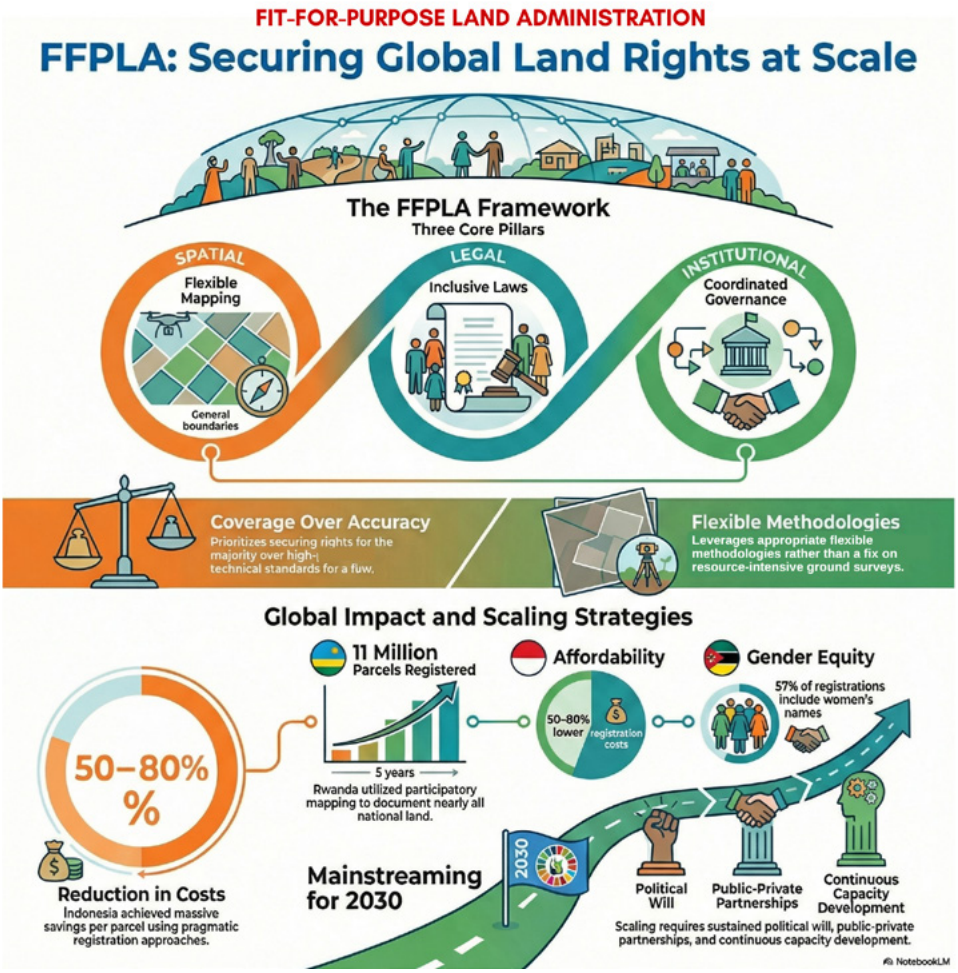
AI Usage

The authors acknowledge the use of Gemini in analysing the initial draft of the anonymised interviews, ChatGPT in writing outlines for the initial draft and NotebookLM in image generation.

GRAPHICAL ABSTRACT



Fit-for-Purpose Land Administration: Status, Success and Scaling.

1 INTRODUCTION

1.1 The Global Need for Fit-for-Purpose Land Administration

Land is a foundational resource underpinning livelihoods, economic development, and social stability. Despite its critical importance, there still exist global differences in tenure security, with developed economies generally having better land tenure security than low and middle-income countries. For millions of people, this lack of secure land rights translates into vulnerability, poverty, and exclusion from development opportunities.

In response to these challenges, the Fit-for-Purpose Land Administration (FFPLA) approach emerged as a pragmatic, cost-effective, and scalable concept. While the management of cadastral information typically requires high precision and significant resources, the FFPLA approach prioritises flexibility, inclusivity, participation, affordability, reliability, attainability, and upgradability to ensure land rights for all [1], especially for marginalised communities. Rooted in the principles of sustainability, transparency, and participation, this approach aligns seamlessly with the 2030 Sustainable Development Goals (SDGs), particularly Goal 1 (No Poverty) and Goal 5 (Gender Equality).

The SDGs emphasise equitable access to resources, including land, as a cornerstone for sustainable development [2–4]. Yet, the gap between global targets and current achievements is stark. Often, resource-intensive and time-consuming traditional land administration systems cannot address this gap alone [1, 5]. FFPLA's innovative methodologies – employing participatory mapping, incremental improvements, and accessible technologies – offer a scalable alternative to bridge this divide [6–8].

In general, the phrase Fit-for-Purpose stands for any appropriate intervention and of a necessary standard for its intended use.

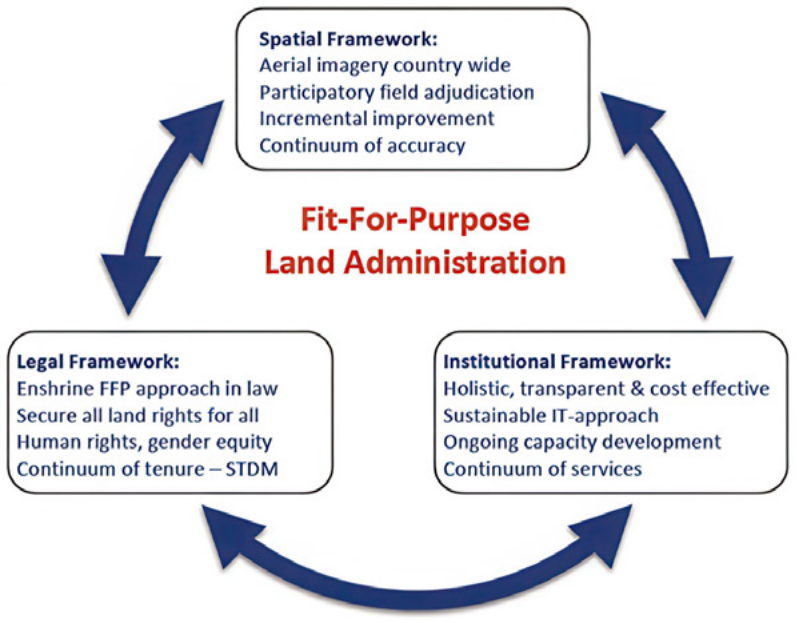


Figure 1: *The FFPLA concept [9].*

For building Fit-for-Purpose Land Administration Systems (FFPLA), the focus on purpose means: sufficiently identifying the land parcels typically through aerial images, then recording the people to land relationship through a participatory process, and, eventually, providing the services needed for supporting efficient land markets and effective land use management.

Compared to traditional requirements for building cadastral systems, the FFPLA approach is fast, flexible, affordable, participatory and easy to upgrade over time.

1.2 Frameworks Supporting FFPLA

The FFPLA approach is built on three core frameworks:

1. **Spatial Framework**: The use of cost-effective, participatory mapping techniques underpins FFPLA. Incremental improvement, rather than immediate perfection, is prioritised, as seen in Kenya's use of general boundaries for rapid registration [9, 10].
2. **Legal Framework**: Legal reforms enshrine FFPLA principles, providing legitimacy to tenure arrangements and integrating customary rights. For example, Ethiopia's reforms enabled rural communities to receive certificates acknowledging communal land rights [11].
3. **Institutional Framework**: Establishing centralised or well-coordinated institutions is key to FFPLA implementation. This involves redefining roles, fostering collaboration, and ensuring continuity amid political changes as seen in Rwanda's nationwide land tenure regularisation program [9].

1.3 The Evolution of the Fit-for-Purpose Concept

The FFPLA approach has evolved significantly since its inception, as documented in the landmark FIG Publication 60, *Fit-for-Purpose Land Administration* of 2014 [1]. That publication situates land administration in a fit-for-purpose context, advocating for a paradigm shift from traditional, rigid systems to flexible, people-centred solutions. Over the years, the concept has been applied across diverse contexts, from before post-conflict reconstruction in Rwanda to rapid urban expansion in Indonesia. The *Fit-for-Purpose Land Administration Guiding Principles for Country Implementation* of 2016 [9] also offers complementary insights that land administration should be designed to meet societal needs rather than aiming for technical perfection, offering further guidance on practical implementation and adaptability in diverse contexts.

This publication builds on these foundations, examining the status of FFPLA today, acknowledging its successes, and exploring pathways for further scaling.

1.4 Objectives

This publication seeks to achieve three primary objectives:

1. **Document and update the Current Status of FFPLA**: By analysing survey data, interviews, and case studies, this publication provides an overview of FFPLA's

global adoption and progress. A comprehensive overview of concepts and country implementations is contained in a 2021 Land Journal publication[1].

2. **Extract Lessons from Implementation Stories**: Drawing on diverse experiences – from Africa to Southeast Asia – the publication highlights the factors driving success, and the challenges encountered in FFPLA projects. Insights were obtained from published results and new data.

3. **Propose Strategies for Scaling**: With ambitious targets for global land tenure security by 2030, the publication outlines practical strategies for mainstreaming FFPLA.

1.5 Methodology and Structure

This publication includes:

- **Interviews**: Insights from 19 land administration experts, representing diverse regions and stakeholder roles, have been analysed to uncover common themes and challenges. The names, regional perspectives and background of the experts interviewed at the time of interview are listed in Appendix.
- **Case Studies**: Regional and country-specific examples illustrate the practical application of FFPLA principles and provide context-specific lessons.
  Experiences were gathered from:
  - Land Journal Special Issue on "Providing Secure Land Rights at Scale".
  - Responses were received during interviews with experts involved in FFPLA implementations.
  - Responses to the survey on "An Analysis of Land Demarcation Practices in Africa at the Emergence of FFP".
  - Case stories.
- **Workshop Insights: Lessons from the FIG Commission 7.2 workshops themed:**
  - *"Adapting, Adopting and Evolving Approaches to Land Administration; Towards Effective Upscaling of FFP Approaches"* held during the 2024 FIG Working Week.
  - FFPLA 1.0: *Innovations in Fast-Tracking Land Registration* **–** 27th March, 2025.
  - FFPLA 2.0: *Overcoming Resistance to Fit-for-Purpose Land Administration* – 31st July, 2025.
  - FFPLA 3.0: *Building Capacity and Collaborative Approaches for Effective Land Administration* – 27th November, 2025.
  - FFPLA 4.0: *Upscaling Fit-for-Purpose Land Administration Approaches* – 26th March, 2026.
- **Existing Literature**: Building on the foundational *FIG Publication 60, Guiding Principles for Country Implementation,* and other academic and professional reports, this publication situates FFPLA within broader global discussions on land rights and sustainable development.

The publication is structured into the following chapters:

1. **Introduction**: Contextualises FFPLA within global land administration challenges and the SDGs.

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1 Enemark, S.; McLaren, R.; Lemmen, C. Fit-for-Purpose Land Administration – Providing Secure Land Rights at Scale. Land 2021, 10, 972. https://doi.org/10.3390/land10090972

2. **Current Status of FFPLA**: Provides analysis of current adoption levels and frameworks.
3. **Implementation Stories and Lessons Learned**: Showcases success stories, challenges, and lessons from diverse regions and technology implementers.
4. **Strategies for Scaling FFPLA Approaches**: Explores strategies and tools to mainstream FFPLA approaches.
5. **Conclusion**: Summarises key findings and offers recommendations for future efforts.

1.6 A Call to Action

As global populations grow and pressures on land intensify, the need for inclusive, equitable, and sustainable land administration systems becomes ever more urgent. FFPLA is not a quick fix, but an approach for addressing these challenges. By embracing its principles and scaling its implementations, stakeholders can move closer to realising a world where land rights are secure for all. This publication is a step toward that vision, inviting practitioners, policymakers, and researchers to join the conversation and contribute to the global effort.

2 WHAT IS THE STATUS OF FIT-FOR-PURPOSE LAND ADMINISTRATION?

Principles and elements of the FFPLA approach have gained traction worldwide as practical solutions to address land tenure challenges. However, its implementation varies significantly across regions, shaped by socio-political, economic, and cultural contexts. This chapter examines the status of FFPLA implementations globally, providing insights into adoption levels, challenges, and key frameworks underpinning its application.

2.1 Survey Results: Insights into FFPLA Adoption

FFPLA approaches, though not tagged with the nomenclature FFPLA, have been applied for centuries in several countries all over the world. Following the FIG Publication 60 in 2013, leveraging its principles can be traced to over 25 countries, with notable projects in Africa (Mozambique, Kenya, Uganda and Benin), Southeast Asia (Indonesia, Philippines), and Latin America (Colombia, Brazil) [12]. These efforts reflect a growing recognition of FFPLA as a viable paradigm for administering land. Figure 2 shows some implementations of the concept across regions.

Figure 2: *The last decade has seen the emergence of fit-for-purpose land administration as the default approach being implemented. (Adapted from [12])*

During the survey conducted with 19 experts involved in land administration projects using the FFP approach, representing diverse regions, stakeholder roles, implementation levels, and backgrounds, as shown in Figure 3, a standard topic list was used for each interview, along with tailored questions based on the expert's involvement in FFPLA. Transcripts were reviewed, and common themes were identified. Relevant interview segments were then linked to these themes and structured under the three frameworks of the FFPLA concept. The trends revealed are categorised as shown below:

1. **Spatial Frameworks**: Advances in geospatial technology, including GNSS, drones and mobile apps, have enhanced FFPLA's technical feasibility [13, 14].

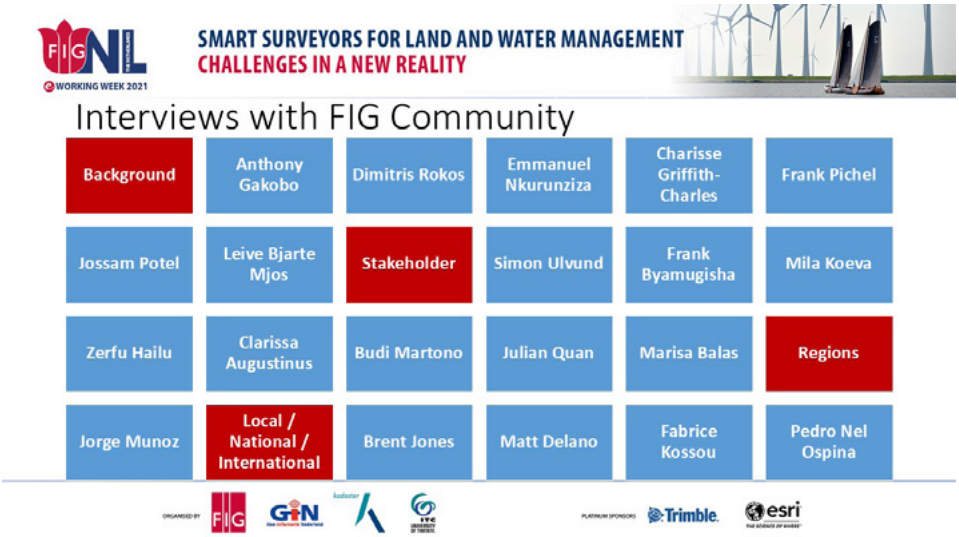

Figure 3: *Overview of the interviewed experts. As presented during FIG e-Working Week 2021.*

Countries like Benin [15] and Kenya [10] have leveraged these tools to map large areas cost-effectively; however, maintaining spatial data remains a challenge. There is a need for continuous subsequent mapping.

> Marisa Balas: "With the paper process there was a rejection rate of 56%. The introduction of a mobile app with external GPS reduced rejection rate to < 1%."

2. **Legal Frameworks**: Enshrining FFPLA into law is fundamental to national-scale implementations. While some countries have amended laws to align with FFPLA principles [11], others face delays due to entrenched legal systems. Customary tenure systems, often excluded from formal frameworks, present additional complexities but also opportunities for inclusivity. Customary and informal land tenure systems need to be harmonised into the formal legal system, outdated laws need to be reformed to align with current needs, and stakeholders need to understand and be involved in the process.
3. **Institutional Frameworks**: Many countries have embraced FFPLA by integrating the approach into existing institutional structures. For instance, Rwanda's National Land Centre centralises land functions across ministries, ensuring cohesive implementation [16, 17]. However, institutional resistance and fragmentation remain barriers in some contexts.

2.2 Key Achievements of FFPLA

The progress made through the FFPLA approach can be better appreciated when viewed in light of the broader principles of the Framework for Effective Land Administration (FELA). While FELA provides the global reference framework for administering land, FFPLA stands as the practical approach translating these principles into action on the ground.

1. **Rapid Scaling of Land Recordation in Low-Resource Contexts:** One of the most notable achievements of FFPLA is its ability to enable the rapid creation of land records using flexible and affordable methods. Rwanda's Land Tenure Regularisation Programme (2009–2013), which secured rights for over 11 million parcels [17], demonstrates how FFPLA approaches such as participatory mapping and general boundaries can quickly establish nationwide land information systems. This reflects how FFPLA operationalises the broader FELA vision of accessible and scalable land data systems.
2. **Advancing Inclusivity and Gender Equity:** FFPLA has shown strong potential in ensuring that land administration systems serve all members of society. In Mozambique, targeted sensitisation and community engagement under FFPLA implementation resulted in 57% of registered land rights including women's names, directly addressing long-standing gender disparities. This illustrates how FFPLA contributes to the people-centred land governance ideals [18, 19], also emphasised in FELA.
3. **Enhancing Cost-Effectiveness and Affordability:** A defining strength of FFPLA is its focus on affordability without sacrificing functionality. By applying general boundary approaches and using remotely sensed imagery, countries such as Indonesia have reduced per-parcel registration costs by 50–80%. This demonstrates how FFPLA supports financially realistic pathways for expanding land administration, especially in developing contexts.
4. **Supporting Broader Sustainable Development Goals:** FFPLA implementation has also shown tangible links to improved land governance and development outcomes. In Benin, FFPLA-supported initiatives have helped resolve land disputes and strengthened land use planning, contributing to improved agricultural productivity and environmental stewardship [12, 15, 20]. These examples reinforce the role of FFPLA as a practical vehicle for achieving the broader land governance outcomes envisioned under FELA and the SDGs.

2.3 Challenges Facing FFPLA Implementation

While the FFPLA concept has demonstrated significant value in improving land tenure security, its implementation continues to face challenges that are deeply rooted in broader land governance environments. Framing these challenges through the Framework for Effective Land Administration (FELA) helps clarify that many of the obstacles are systemic, relating to governance, legal, institutional, and technological dimensions. In this context, FELA provides the structure for understanding the challenges, while FFPLA offers practical, adaptable approaches to address them.

1. **Governance and Institutional Framework – Resistance to Change**: One of the most persistent challenges is institutional and professional resistance. In several regions, governments and land professionals are reluctant to transition from conventional, highly precise cadastral systems due to long-standing investments, entrenched procedures, and concerns about professional relevance.

   In parts of the Caribbean, for example, lawyers and surveyors have opposed FFPLA, perceiving it as a threat to established professional roles. Similar concerns have been expressed in parts of Africa, where resistance stems from fears of job loss, perceived reductions in data quality, misalignment with existing

legal frameworks, and uncertainty about how flexible approaches might affect dispute resolution. In many cases, resistance is reinforced by limited awareness of FFPLA principles rather than by evidence of poor outcomes. These instances highlight the necessity of structured change management, capacity development and good governance, demonstrating how FELA and FFPLA complement one another.

2. **Legal and Policy Framework – Legislative Rigidity:** FFPLA relies on legal frameworks that allow flexibility, incremental improvement, and recognition of a continuum of tenure. However, many countries operate under rigid land laws designed around fixed boundaries and high technical standards. Reforming such legislation is often slow and politically complex. The difficulty of aligning outdated legal systems with more flexible, fit-for-purpose approaches reflects broader policy and regulatory constraints under the FELA framework.
3. **Geospatial Framework – Technological Barriers:** While FFPLA treats technology as an enabler rather than a requirement, integrating modern tools into existing systems can still be challenging. Technologies such as UAVs, mobile data collection platforms, and satellite imagery expand possibilities for efficient data capture, but they require training, infrastructure, and system interoperability. The challenge, therefore, lies not in the absence of high-end technology, but in ensuring that appropriate technologies are sustainably integrated into national geospatial infrastructures – a key concern shared by FELA.
4. **Social and Cultural Framework – Customary Tenure Integration:** In many countries, land governance operates through both formal and customary systems. FFPLA is well-suited to recording legitimate tenure in diverse forms, yet integrating customary tenure into formal systems remains institutionally and politically sensitive. Achieving this requires legal recognition, community engagement, and culturally responsive approaches.
5. **Resource and Operational Sustainability – Long-Term System Maintenance:** Although FFPLA is intentionally designed to reduce costs and operate within limited capacity environments, sustaining land administration systems over time remains a major challenge. Initial data capture is often supported by projects or external funding, but maintaining and updating records requires long-term institutional commitment, stable financing, and continuous capacity development.

   Brent Jones: "It is one thing to collect data, but another to maintain it. If it is not maintained at a local level, the national solutions won't work."

   In resource-constrained settings, record updating is frequently neglected. For instance, delays in updating cadastral information in Rwanda have led to reliability gaps. This highlights that while FFPLA lowers the entry barrier to establishing systems, operational sustainability – including data maintenance, staffing continuity, and institutional embedding – remains a systemic challenge. This aligns with FELA's sustainability perspective.
6. **Political and Strategic Framework – Policy Disruptions and Misaligned Priorities:** Political transitions and shifting policy priorities can disrupt FFPLA

initiatives. Changes in government leadership may affect funding, institutional continuity, and reform momentum. Furthermore, when land administration projects are framed primarily as tools for taxation rather than for securing tenure, public trust may erode, and resistance may increase.

Emmanuel Nkurunziza: "Political support is necessary. If you solve that you have a large part."

Similarly, sidelining land professionals instead of engaging them as partners and enablers can weaken implementation. Ensuring that FFPLA initiatives remain people-centred, tenure-focused, and institutionally embedded is therefore essential for resilience and long-term success.

2.4 Recommendations for Navigating Challenges

To address the challenge of misplaced priorities, the FFPLA implementation should:

1. **Engage Stakeholders Early**: Early involvement of communities, professionals, and policymakers ensures buy-in and minimises resistance.
2. **Emphasise Incremental Improvements**: Countries should adopt phased approaches, starting with basic tenure security and gradually enhancing systems.
3. **Leverage Public-Private Partnerships**: Collaboration between governments, private sector actors, and NGOs can mobilise resources and expertise.
4. **Promote Legal Reforms**: Aligning legal frameworks with FFPLA principles is essential for legitimacy and scalability.
5. **Invest in Maintenance**: Sustainable systems require regular updates, robust infrastructure, and dedicated resources.
6. **Prioritising citizen empowerment**: Clearly articulating and consistently emphasising the project's primary goal as empowering citizens through secure land tenure. This narrative should be communicated from the outset to build trust and garner public support, rather than focusing on taxation or fiscal cadastre.

2.5 Current Shifts in FFPLA Adoption

1. **Increasing Shift Toward Digital Systems**: Countries like Benin and Uganda are transitioning from paper-based systems to digital platforms, enhancing transparency and accessibility. However, digital inclusion remains a concern, particularly in remote areas.
2. **Focus on Capacity Development**: Capacity development is essential for scaling FFPLA. Training local communities, para-surveyors, and government officials ensures that systems are sustainable and context-appropriate. Short-term training is necessary to implement FFP approaches in land administration. However, a long-term capacity-building initiative is also required to develop a new generation of land professionals with a deep understanding of FFP approaches to land administration and ICT management.

Frank Pichel: "Recommendation for future implementers is to not be afraid to keep pushing the boundaries of technology."

3. **Responsible Application of Public-Private Partnerships**: Collaboration between governments, private sector players, and civil society has proven effective. Initiatives implemented by Meridia in Ghana have demonstrated how private investment can complement public efforts, reducing costs for landowners.
4. **IGIF/NSDI Focus and Use Cases – going beyond tenure**: The integration of FFPLA within national spatial data infrastructures (NSDI) and the UN's Integrated Geospatial Information Framework (IGIF) marks a shift from viewing land administration purely as tenure mapping to a broader geospatial governance tool. Countries are increasingly embedding FFPLA data within NSDI platforms to support land use, taxation, infrastructure, and environmental monitoring – thus positioning FFPLA as a foundation for integrated national development rather than a standalone tenure solution.
5. **Links with Land Use Planning (LUP):** Land Use Planning is now seen as a direct extension of FFPLA because accurate, up-to-date, and inclusive land data underpin effective planning. The "fit-for-purpose" principles – flexibility, affordability, and scalability – are being applied to LUP to enable participatory and data-driven spatial planning. This linkage strengthens land governance and ensures that land allocation aligns with sustainable development goals.
6. **Automation and AI influence:** Automation and artificial intelligence are redefining how FFPLA is implemented. Automated feature extraction from satellite and UAV imagery, AI-assisted boundary recognition, and machine learning for land use classification are reducing costs and time while improving accuracy. These technologies also facilitate continuous updating of land information systems – moving FFPLA from project-based to dynamic, real-time management.
7. **Ecosystem Approach – not just one vendor:** Rather than relying on single-vendor, proprietary systems, the emerging trend is toward an open, ecosystem-based approach that combines government, academia, private sector, and community innovation. This encourages interoperability, open standards, and shared platforms – making FFPLA more sustainable, adaptable, and resilient to technological and institutional change.

3 WHAT CAN WE LEARN FROM FFPLA STORIES?

The FFPLA approach has been adopted across diverse contexts, addressing land tenure challenges in resource-constrained settings. This chapter delves into success stories and lessons from country-specific case studies and technology implementers. These experiences provide actionable insights for future implementations in an FFPLA context.

3.1 Case Stories of FFPLA Implementation

Each story begins with a brief introduction to the country's FFPLA implementation. This is followed by actions, strategies and innovations leveraged, with a concluding statement depicting key lessons learnt.

The case stories are categorised by the specific framework success they best illustrate, as shown in Figure 4.

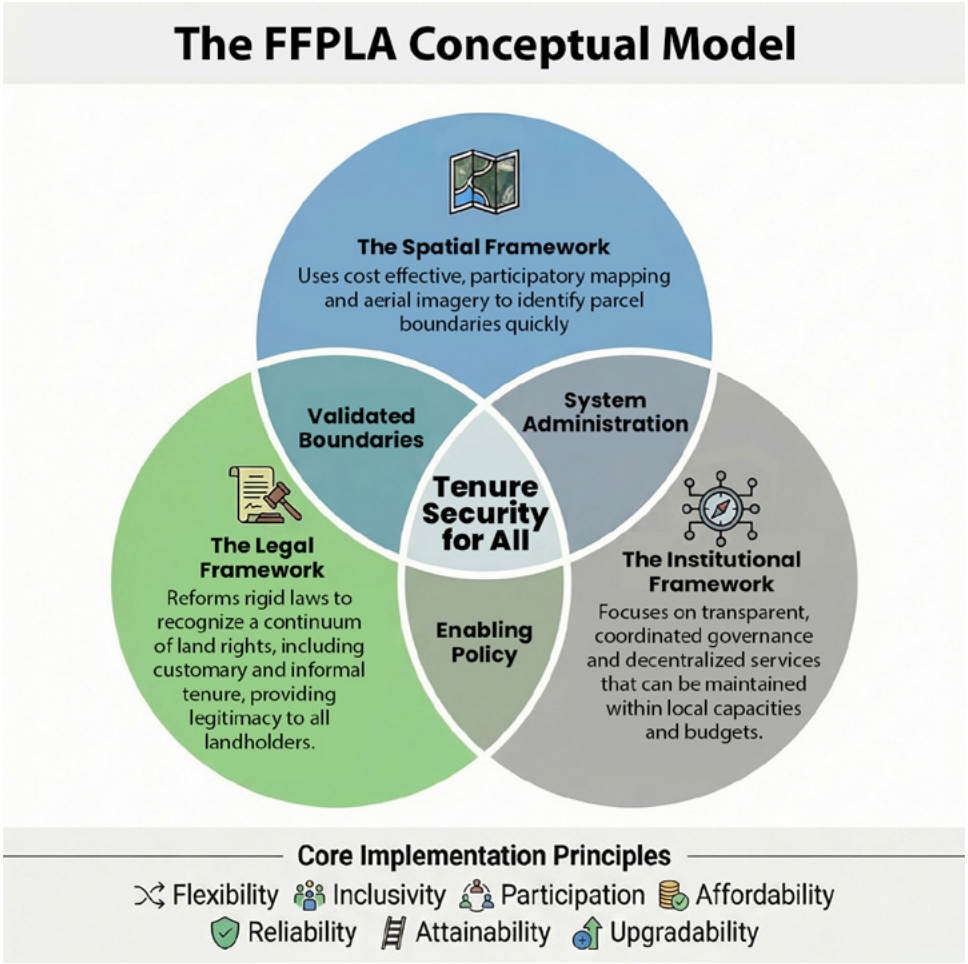

Figure 4: *Frameworks and Principles Supporting FFPLA for Global Tenure Security.*

Institutional Framework and Political Will

Rwanda: Post-Conflict Reconstruction through FFPLA

In the aftermath of the 1994 genocide, Rwanda faced a critical need to rebuild its land administration system. The country implemented a rapid and large-scale land tenure regularisation program that pioneered many of the core methodologies which would later form the basis of the FFPLA principles. This experience, which informed the design of the FFPLA concept, demonstrated that:

- **Scaled Rapidly**: Rwanda undertook a large-scale land registration programme that recorded rights for more than 11 million parcels within approximately five years [16]. The process relied heavily on community participation, local adjudication, and accessible procedures that enabled widespread involvement across rural areas.
- **Prioritised Inclusivity**: A deliberate strategy of inclusivity was adopted, ensuring that women and vulnerable groups were involved in the process and recognised in land records. However, implementation challenges remained in certain areas, including the exclusion of some categories of secondary spouses.
- **Facilitated Conflict Resolution**: Rwanda demonstrated that large-scale land registration could be implemented using simplified, participatory, and low-cost methods while still producing nationally recognised land records. Community-based dispute resolution mechanisms, particularly the Abunzi mediation system, were used to resolve boundary and ownership disputes quickly and locally, strengthening social legitimacy. The integration of community adjudication with formal registration systems was a notable institutional innovation that later informed FFPLA approaches [11, 16].

Key Lesson: Rwanda's experience shows that strong political commitment, combined with participatory and locally embedded approaches, can deliver transformative results even in post-conflict environments. It also highlights the importance of balancing inclusivity with legal clarity to ensure that no groups are unintentionally excluded.

Photo 1: *Enumeration Exercise in Rwanda. (Photo Credit: Kadaster International)*

Indonesia: Accelerating Land Registration through Pragmatic Approaches

In 2026, Indonesia's land administration evolved into a more decentralised and digitalised framework. With the expiration of old rights evidence as a valid legal instrument, the Complete Systematic Land Registration (PTSL) program prioritises the conversion of remaining customary claims into formal certificates [29]. This transition is supported by a shift toward electronic land certificates (e-certificates) and blockchain-based verification, ensuring that land security remains a foundational pillar for attracting investment and reducing tenure conflicts.

The effort towards a complete system is driven by strong political will and a focus on the security of land with subsequent integration of land value, land use, and development data.

- **Scaling Up:** The government implemented the PTSL programme to accelerate parcel registration, aiming for 126 million parcels in the system [30].
- **Increasing Efficiency:** A shift from fixed to general boundary approaches was adopted to improve registration efficiency. Increased agreement among landowners, strong political backing and championed policy reforms ensured that land tenure security remained a national priority, linked to economic development and investment.
- **Leveraging Aerial Imagery to Complement Data:** Indonesia leveraged aerial photography and digital technologies to complement field data collection. The transition toward electronic land certificates and integration with broader spatial data infrastructures supported system modernisation and interoperability.

Key Lesson: Leveraging political support, adopting streamlined, pragmatic approaches such as the PTSL program and considering general boundaries significantly accelerates land registration efforts to achieve large-scale coverage [31–33].

Legal Framework & Inclusivity

Nepal: Securing Land Tenure for Marginalised Communities

Nepal's land governance challenges are rooted in centuries of feudal systems and caste-based exclusion, which have historically marginalised women, Dalits, and indigenous peoples. The urgency for reform was heightened by the 2015 earthquake, which revealed that tenure insecurity was a major barrier to housing reconstruction and rehabilitation. In response, the 2015 Constitution introduced explicit guarantees for equitable land access, establishing the mandate for a modern, fit-for-purpose approach.

- **Legislative and Policy Foundations:** In 2016, a partnership between UN-Habitat, the Global Land Tool Network (GLTN), and the Ministry of Agriculture, Land Management and Cooperatives supported the development of a national land policy. This collaboration led to the 2019 Nepal National Land Policy and landmark legislative reforms in 2020, including the 8th Amendment to the Land Act and the 18th Amendment to the Land Regulation. These reforms institutionalised the Land Commission and established legal procedures for recognising the rights of the landless and formalising long-term informal settlers.
- **Decentralised and Participatory Strategy:** The FFP-LA Country Implementation Strategy, launched in 2018, defines a clear framework where municipalities are empowered to identify landless households and conduct verification. A core innova-

tion is the use of community volunteers to support participatory enumeration and recordation. Furthermore, the strategy prioritises joint titling to enhance women's access to and control over land, ensuring that the registration process is socially inclusive and addresses historical gender disparities.

- **Scaled and Inclusive Recordation:** Nepal utilises high-resolution satellite imagery and participatory mapping to facilitate rapid, low-cost registration. The approach enables the free provision of land to Dalits and Sukumbasi, while informal settlers receive land at subsidised rates. By 2026, the implementation covered 750 out of 753 municipalities, with more than 1.15 million households recorded and over 9,000 land ownership certificates issued. This large-scale effort has improved disaster resilience and strengthened municipal planning [38].

Key Lesson: Nepal's experience confirms that constitutional and legal mandates provide the essential foundation for operationalising FFPLA at scale. By combining these mandates with local government empowerment and participatory tools, the approach enables low-cost, inclusive registration that protects the most vulnerable while ensuring social legitimacy through community-driven verification.

Photo 2: *Parcel identification using satellite imagery at Belaka.*
(Photo Credit: UN-Habitat)

Colombia: Peace Accords Driving Land Formalisation

Colombia's 2016 Peace Agreement [34] ignited a major push to formalise 10 million hectares of land: 7 million through formalisation by 2026, and 3 million via redistribution. However, the land administration system in Colombia is fragmented: the cadastre and land registry operate separately, with different mandates and procedures [34, 35].

- **Promoting Equity through Political Will:** National programmes were launched to formalise millions of hectares of land, combining adjudication, registration, and redistribution efforts. These initiatives sought to reach underserved rural populations affected by conflict.

- **Promoting Access and Addressing Fragmentation:** Community participation and low-cost, field-based methods were emphasised to ensure accessibility and inclusiveness. Efforts were also directed toward improving coordination between the cadastre and land registry, addressing long-standing institutional fragmentation.
- **Enabling Decentralisation and Recognition of Rights Continuum:** Decentralised data collection approaches empowered local communities and para-surveyors to contribute to land information gathering. Integrating recognition of both formal and informal rights represented an important step toward more inclusive land governance, tailored towards local realities.

Key Lesson: FFPLA approaches offer a participatory and practical path to meet peace commitments and reach underserved communities. Peace agreements can be powerful drivers for implementing comprehensive land formalisation programs, and international funding often supports and mandates the adoption of participatory approaches [34]. A holistic approach is recommended as insufficient attention to fragmentation and inequality can hinder the progress of land administration.

Uganda: Walking the Boundary

In Uganda, 80% of the land is held under customary tenure, yet for decades, these rights remained almost entirely invisible within the national land information system. Families who occupied land for generations relied on oral history and physical markers, such as boundary trees; however, when an elder died or a tree was removed, the record of the land relationship often vanished with them, leaving households vulnerable to disputes.

- **Legislative and Policy Foundations**: Uganda's legal framework has long been a pioneer in recognising diverse tenure types. The 1995 Constitution granted customary tenure co-equal standing with freehold and leasehold systems. This was further supported by the 1998 Land Act, which established a decentralised, community-driven registration pathway anchored by parish-level Area Land Committees (ALCs) and District Land Boards. Despite these progressive laws, implementation was stalled for twenty years because the technical tools had not yet caught up to the legal mandates.
- **Decentralised and Participatory Strategy:** Various implementations across Uganda, supported by the Ministry of Lands, Housing and Urban Development (MLHUD) and diverse international and local partners, have bridged this gap by moving along a "fit-for-purpose accuracy continuum". The strategy centres on empowering community volunteers and ALC members to conduct participatory boundary demarcation using handheld digital tablets and available GNSS receivers [39, 40]. This methodology requires community members to walk their own boundaries in the presence of neighbours and local officials, ensuring that the digital tools record a pre-existing social agreement rather than replacing it.
- **Scaled and Inclusive Recordation**: Recent implementations use satellite-corrected positioning technology, capturing boundary polygons with high precision – often achieving sub-metre accuracy – alongside landholder identity, photographs, and witness attestations [39]. This streamlined digital workflow allows the data to be validated and integrated into Uganda's National Land Information System. In specific project areas, thousands of Customary Certificates of Occupancy have been issued with zero boundary overlaps, achieved at a remarkably low cost.

Key Lesson: Uganda's experience demonstrates that technology records agreement; it does not replace it. By utilising affordable, high-precision tools within a decentralised legal framework that empowers local communities, countries can rapidly formalise customary rights at a national scale without requiring expensive, traditional surveying for every parcel. This case proves that social legitimacy and technical accuracy can work hand-in-hand to provide secure tenure for all.

Photo 3: *Community members gathered for participatory parcel demarcation, Ivukula Village, Namutumba District, January 2024. (Photo Credit: Cadasta Foundation)*

Spatial Framework & Participatory Innovation

Ethiopia: Large-Scale Land Documentation

Ethiopia represents one of the most significant examples of large-scale land documentation aligned with fit-for-purpose principles. The country's approach evolved from text-based systems toward spatially enabled frameworks, illustrating how FFPLA concepts can be scaled progressively in line with national capacity [9, 36].

- **Rural to Urban Land Documentation:** Ethiopia undertook nationwide rural land documentation covering millions of households. The process focused on rapidly recording land rights using simplified field procedures and strong community involvement. More recently, efforts have expanded into urban areas, where initiatives aim to formalise land rights and strengthen spatial frameworks, including in informal and slum settlements.
- **Locally Acceptable Methods Aids Affordability:** A key strategy was the use of general boundaries and locally appropriate methods to enable fast, low-cost registration. Community participation played an essential role in boundary identification

and dispute resolution [36, 37]. The approach emphasised affordability, scalability, and incremental improvement, ensuring that land documentation could proceed despite limited financial and technical resources.

- **Affordability Aids Scalability:** Ethiopia demonstrated that large-scale land registration can be achieved at very low cost – approximately USD 8 per parcel in rural areas – through simplified processes and fit-for-purpose technologies [9,36]. The gradual transition from textual records to spatial frameworks represents an innovation in system evolution, showing how accuracy and technical sophistication can be improved over time rather than required at the outset.

Key Lesson: Ethiopia's experience confirms that large-scale, low-cost land documentation is achievable when systems are designed around local realities [9, 11, 36, 37]. It also highlights that urban environments introduce greater legal, technical, and social complexity. Upgrading systems and formalising rights in informal settlements require incremental improvement, legal adaptation, and sustained institutional commitment – all central principles of FFPLA.

Mozambique: Empowering Communities through Technology

Mozambique's FFPLA project aimed to register 5 million customary land within a short timeframe and limited resources [22]. Innovations of FFPLA initiatives at the community level included:

- **Design of Simplified and Harmonised Processes:** Combining community delimitations and individual land registrations, supported by clear guidelines and norms that improved quality, reduced costs and time, and prioritised sensitisation programs – resulting in more land registrations, including in women's names [19, 23, 24]. Customary land rights were acknowledged and integrated into formal frameworks, enhancing legitimacy [22, 25].
- **Participatory Registrations:** Active community participation strengthened local land administration, generated more accurate and complete data, and allowed for community validation and complaint mechanisms.
- **Use of Fit-for-Purpose Technology:** Affordable, easy-to-use digital tools accelerated data collection and processing. At the same time, community members were trained to use mobile applications for mapping and data entry [22].

Despite its promising results, the approach has been interrupted due to limited funding and insufficient institutional support, threatening the continuity of systematic land registration, the retention of trained personnel, and the operationalisation of the IT infrastructure, including the SiGIT system.

Key Lesson: Combining technology with local knowledge and gender-sensitive approaches can significantly enhance the effectiveness of land administration [1, 9]. Yet, for long-term sustainability, national leadership and financial commitment are essential to ensure that technical capacities, local expertise, and ICT infrastructure are maintained beyond donor-funded phases.

Kenya: Piloting FFPLA with Technology

Kenya's pilot projects aimed to test the FFPLA approach within its existing adjudication projects. Key strategies included utilising FFPLA methodology within the adjudication process, in collaboration with existing institutions.

- **Stakeholder Collaboration:** The pilot was implemented as part of ongoing adjudication activities involving close collaboration with existing land sector institutions. Field teams worked directly with landowners and neighbouring parcel holders to document boundaries and resolve disputes on the ground. Stakeholder participation extended to local communities, adjudication officers, Ministry of Lands officials, and representatives from the Institution of Surveyors of Kenya (ISK). Completed maps were publicly displayed in community venues to allow for validation and transparency[21].
- **Participatory Approach:** A strong participatory strategy underpinned the pilot. Landowners were trained to operate GNSS receivers and were directly involved in boundary demarcation. Two observations were recorded for each boundary – one with the parcel owner and one with the neighbour – to promote mutual agreement and minimise disputes [10]. Data correction was undertaken collaboratively, with surveyors providing technical guidance while landowners defined their own boundaries. This approach ensured social legitimacy while gradually adding spatial components to existing records.
- **Technology Implementation:** The pilot introduced a mobile-based data collection system that combined the ESRI Collector application with a hybrid GNSS receiver connected via Bluetooth. Integrated satellite imagery supported the identification of visible boundaries, and the system functioned both online and offline, allowing flexibility in varied field conditions. This demonstrated how affordable, adaptable technologies can support FFPLA implementation without requiring highly complex infrastructure

Key Lesson: The pilot demonstrated that combining appropriate technology with participatory methods can produce reliable and socially accepted land information [7]. However, its long-term impact was constrained by the absence of a strong supporting legal and institutional framework and by shifts in political priorities. The experience underscores that technology and community engagements alone are insufficient; sustainable FFPLA implementation also requires institutional integration, legal backing, and political continuity. It further highlights the risks of fragmented institutional mandates and the importance of coordinated frameworks.

Benin: Addressing Land Conflicts through Digitisation

Benin's transition from a fragmented and local-oriented paper-based system to a digital land administration system highlights the transformative potential of FFPLA [15] in several key areas:

- **Data Maintenance:** Ensuring data accuracy and continuity, authorities initiated digitisation of land records and introduced processes to keep the land register updated after initial data capture. Efforts focused on improving record reliability and reducing inconsistencies that had previously contributed to disputes.
- **Cost Reduction:** Simplified and time-efficient procedures were adopted to make land registration more accessible, particularly for low-income communities [15]. Capacity development programmes were implemented to train local officials and community members to manage and maintain the evolving system.
- **Building Trust by Ensuring Data Accuracy:** Digitisation revealed inconsistencies in historical records and provided an opportunity to correct them, reducing conflicts and improving trust in the system. The development of basic but functional

digital maintenance processes represented an important step toward sustainable land information management.

Key Lesson: Maintenance of land registry, digitisation, paired with strong local capacity development, can effectively address longstanding land administration challenges and foster more equitable access to land rights [15, 27, 28].

Fabrice Kossou: "Simplified and time-efficient processes reduced registration costs, making services more accessible to low-income communities."

3.2 Lessons Learned from FFPLA Stories

The original lessons presented in *Fit-for-Purpose Land Administration* [1] established the core principles that have since shaped land administration reforms across the globe. These lessons emphasised inclusivity through participatory approaches, flexibility in technical and legal frameworks, affordability through simplified methods, and the importance of political and institutional support. They highlighted that land administration systems should be designed to meet societal needs using practical, scalable, and adaptable solutions rather than rigid, high-precision standards from the outset. The continued relevance of these principles is evident in the country experiences presented in this volume, where they remain the foundation upon innovations that are more recent and long-term sustainability considerations are built.

1. **Participation is Key**: Engaging local communities, especially marginalised groups, ensures that land administration systems are inclusive and widely accepted. Rwanda's participatory mapping and Mozambique's focus on gender equity are exemplary in this regard.

Photo 4: *Field Data Collction in Rwanda. (Photo Credit: Kadaster International)*

2. **Political Will is a Catalyst**: High-level commitment, as seen in Indonesia, can drive rapid progress. Advocacy efforts should focus on building and maintaining political support.
3. **Capacity Development Ensures Sustainability**: Investing in training for surveyors, para-surveyors, government officials, and local communities builds the foundation for sustainable systems. Benin and Rwanda's experiences highlight the importance of knowledge transfer.
4. **Flexibility Drives Success**: Adaptability – whether through general boundary approaches or the use of mobile technology – is critical for addressing diverse challenges. Countries like Benin have demonstrated how flexible solutions can resolve complex issues.
5. **Technology as an Enabler**: Innovations such as UAVs, mobile mapping applications, and digital platforms have transformed land administration. However, these tools must be paired with the necessary training and infrastructure investments.
6. **Simplicity in Data Collection:** FFPLA thrives on the principle of collecting *only what is necessary*. Limiting data attributes to those essential for tenure, use, and value reduces costs, simplifies validation, and accelerates implementation. Data models should remain lean but flexible enough to accommodate future enhancements.
7. **Strategic Partnerships Strengthen Delivery:** Collaborations among government institutions, private sector actors, technology providers, and civil society create a robust ecosystem for FFPLA. Each partner brings unique value – innovation, resources, local knowledge, or policy leverage – ensuring more efficient implementation and scaling.
8. **Keep Standards Simple and Practical:** Overly complex technical or legal standards can hinder adoption. Instead, fit-for-purpose standards should emphasise interoperability, usability, and incremental improvement. Clear, simple guidelines promote consistency while allowing local adaptation and innovation.

3.3 Governing FFPLA for System Endurance

The lessons here do not seek to replace or reinterpret the core ideas presented from earlier sections, based on prior publications. Instead, they build on them by reflecting on a decade of practical application across diverse country contexts. These insights come from:

- Systems that have moved beyond pilot phases
- Countries facing post-implementation realities
- A decade of operational experience

They focus on system longevity, institutional embedding, financial sustainability, and periodic renewal – central to effective land administration and governance. These lessons extend the initial implementation approach into the domain of system endurance.

Emerging Lessons	Connection to Administration & Governance	Country Examples
1. Business Models over Donor Projects: Sustainability Requires Business Models, Not Just Projects	Many FFPLA initiatives began as donor-supported projects with strong short-term results. However, sustaining land administration systems requires a clear and locally appropriate business model. Financial sustainability must be designed into the system from the outset. Countries are progressing by: – Linking FFPLA to land-based revenue streams, – introducing realistic service fees aligned with citizens' ability to pay, and – exploring Public–Private Partnerships (PPPs) for system services.	Indonesia demonstrated cost-effectiveness by reducing per-parcel registration costs by 50–80% using pragmatic approaches. In Ghana, private investment via organisations like Meridia, collaborating with licensed surveyors, has complemented public efforts to reduce costs for landowners, showcasing a functional Public-Private Partnership (PPP) model.
2. Institutional Embedding Matters More Than Initial Speed	Early FFPLA successes often focused on rapid coverage. New evidence shows that long-term impact depends on how deeply systems are embedded within national institutions. Where systems remain project-driven or externally managed, gains may stagnate. Where responsibilities, budgets, and workflows are absorbed into permanent government structures, systems are more likely to endure. The emerging lesson is that institutionalisation is as important as initial implementation.	Rwanda demonstrated cohesive implementation by centralizing its land functions within the National Land Centre, integrating the FFPLA approach into existing institutional structures. Colombia is actively directing efforts to improve coordination between the fragmented cadastre and land registry systems, addressing long-standing institutional challenges.
3. Social Legitimacy Determines Long-Term System Use	Initial registration may succeed technically, but systems endure only when citizens trust them and see value in using them. Countries where landholders continue to update records, use certificates for transactions, and engage with the system demonstrate that social legitimacy is the foundation of operational sustainability.	Rwanda strengthened social legitimacy by using community-based dispute resolution mechanisms, such as the Abunzi mediation system, to quickly resolve boundary and ownership disputes locally. Mozambique also enhanced community trust by integrating a gender-sensitive strategy and ensuring 57% of registered land rights included women's names.
4. Continuous Renewals and Governance: Land Administration Systems Need Periodic Renewal, Not Just Maintenance	Experience now shows that maintaining records is only one part of sustainability. Over time, systems face: – Technological obsolescence – Changing user expectations – Expanding data needs – Legal and policy reforms	Ethiopia progressively scaled its FFPLA implementation by evolving its approach from text-based records toward a spatially enabled framework, demonstrating how technical sophistication can be improved incrementally over time rather than required initially. This suggests that land administration should be treated as evolving infrastructure, requiring major

Emerging Lessons	Connection to Administration & Governance	Country Examples
		system upgrades or redesigns every 5–10 years. FFPLA's principle of incremental improvement supports this, but implementation planning must now explicitly include cycles of redevelopment, not just continuous updating.
5. Shifting Professional Practices: Professional Roles Are Evolving, Not Disappearing	Initial resistance to FFPLA often stemmed from fears that simplified approaches would marginalise professionals. Over time, experience shows that professional roles are shifting rather than shrinking. Surveyors and land professionals increasingly: – Oversee quality assurance rather than collect all data themselves – Manage geospatial infrastructures – Provide advanced services built on foundational FFPLA datasets The emerging lesson is that FFPLA transforms professional practice, creating higher-value roles rather than eliminating them.	In the Kenya pilot, surveyors shifted their roles toward providing technical guidance and quality control, collaborating with landowners who were directly involved in defining their boundaries during participatory demarcation.
6. Purpose - Led Digitisation: Digital Transformation Must Remain Fit-for-Purpose	Many countries are now moving toward fully digital land administration systems. However, experience shows that overly complex digital solutions can recreate the same barriers FFPLA sought to remove. Successful countries maintain: – Simple, interoperable systems – Modular upgrades rather than full replacements The lesson is that digitalisation should follow FFPLA principles, not override them.	Benin's transition from a paper-based system to a digital land administration system streamlined processes and developed basic but functional digital maintenance, enhancing transparency and accessibility.
7. Data Maintenance Is a Governance Issue, Not Only a Technical One	Keeping land records current has proven to be one of the most difficult long-term challenges. Experience shows that data updating fails not because of technology gaps alone, but due to: – Unclear institutional mandates – Weak service delivery incentives – Low public awareness of update requirements Thus, sustainable updating depends on clear governance arrangements, simple procedures, and incentives for citizens to report changes – not just technical system capacity.	Benin authorities initiated digitisation and developed processes to keep the land register updated after initial data capture, focusing on improving record reliability and reducing inconsistencies, which were key to reducing disputes and building trust.

4 HOW CAN WE FURTHER SCALE FFPLA IMPLEMENTATIONS?

4.1 From Pilots to Large-Scale Implementation

Scaling FFPLA implementations is crucial for addressing global land tenure challenges and achieving the 2030 SDGs. The preceding chapters have laid out the foundational principles of FFPLA, highlighted key lessons learned from diverse contexts and provided implementation stories from various regions. This chapter shifts focus to the practical key strategies and emerging trends, enabling tools necessary to scale FFPLA beyond initial pilots and isolated projects, while paving the way for mainstreaming the approach and achieving nationwide implementation.

The transition from a pilot to a large-scale implementation represents a fundamental shift in focus and methodology. Pilots are typically small-scale, designed to test new approaches and technologies within limited geographic areas or specific population groups. Their primary goal is learning and iteration, allowing for flexibility, adaptation, and refinement based on lessons learned. Resources are often constrained, and intensive guidance and technical assistance are common. Examples of such pilots have been experienced across Rwanda, Mozambique, Benin, Indonesia, Colombia, and Kenya. A typical example was in Makueni County, Kenya, where the principles of FFPLA were applied, and a mobile application was developed for data collection.

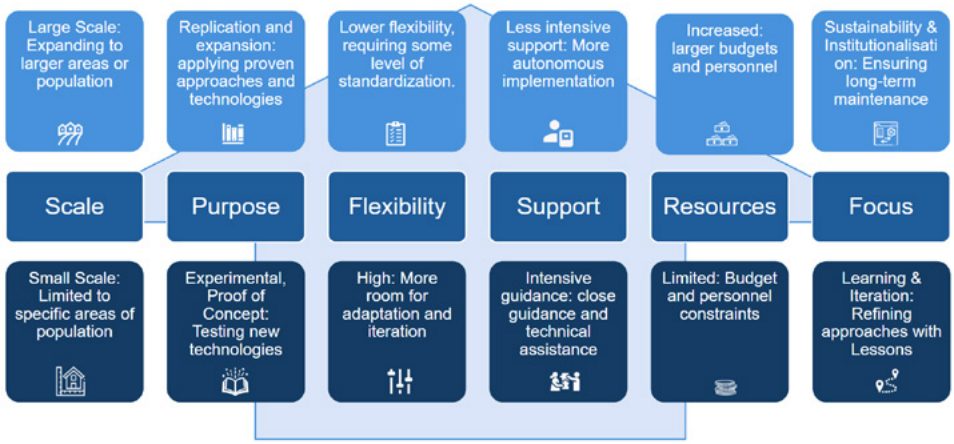

Figure 5: *From Pilots to Large-Scale Implementation of Fit-for-Purpose Land Administration.*

In contrast, scaling up involves replicating and expanding these proven approaches and technologies to cover larger areas and populations. This requires strong political will and institutional support. The focus shifts from learning to standardisation and consistency in procedures, necessitating less intensive, more independent support as the project matures. Participatory approaches, involving local communities and professionals, are crucial for successful scaling and data maintenance. Technological advancements, like mobile apps and satellite imagery, enable cost-effective and efficient data collection. Ultimately, scaling up aims for sustainability and institutionalisation, ensuring the long-term viability, maintenance, and seamless integration of FFPLA approaches into existing systems and policies (Figure 5). Legal frameworks and educa-

tion are essential to ensure the long-term sustainability and acceptance of FFPLA, and overcoming resistance from traditional surveyors and legal professionals is vital for widespread adoption. This chapter explores the essential strategies and technological advancements that facilitate this critical transition.

4.2 Key Strategies for Mainstreaming FFPLA

Achieving widespread and sustainable FFPLA implementations requires an approach that addresses governance by further growing political support, fostering public-private partnerships, reinforcing legitimacy and strengthening capacity development, as depicted in Figure 6. Building on the existing spatial, legal and institutional frameworks of the FFPLA approach that addresses the various principles of implementing FFPLA projects, and the need for solutions to challenges faced in upscaling implementation, the following key strategies were identified and accentuated in the diagram below.

These key strategies encapsulate the necessary activities required in overcoming resistance and scaling up the FFPLA approach, thereby ensuring the security of tenure for all.

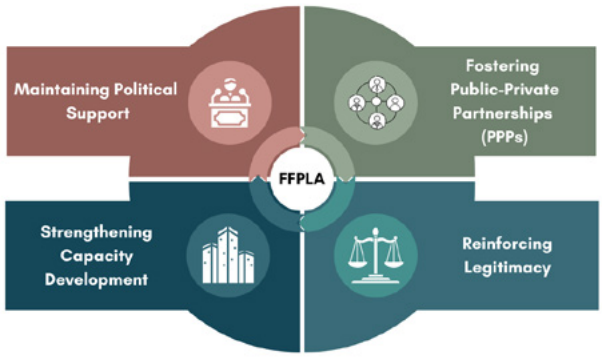

Figure 6: *Key Strategies for mainstreaming FFPLA.*

Insights and Strategies from the FIG Working Week 2024 Side Event on Fit-for-Purpose Land Administration

The side event of the 2024 Ghana FIG Working Week, **"Adapting, Adopting and Evolving Approaches to Land Administration: Towards Effective Upscaling of FFP Approaches,"** provided an overview of the concept's evolution, clarified common misconceptions, and outlined strategies for scaling up its implementation. This summary encapsulates the main points and key insights shared during the event.

The Evolution and Principles of FFPLA

- The Fit-for-Purpose Land Administration (FFPLA) approach originated from a joint International Federation of Surveyors (FIG)/World Bank (WB) project.
- The concept was formally presented in 2013 and led to the launch of FIG Publication No. 60 in 2014, which initially focused on building the Spatial Framework.
- The full FFPLA concept, which includes the three frameworks – spatial, legal, and institutional – was developed in cooperation with the Global Land Tool Network (GLTN) and Kadaster (The Netherlands) and launched in 2016.

- The fundamental objective of FFPLA is to build responsible land governance systems by providing secure land rights at scale, including both legal and legitimate rights, in support of the 2030 global agenda.
- The core elements of the FFPLA approach are: flexible data capture, inclusiveness to cover all tenure and land, a participatory approach, affordability, reliability, attainability within a short timeframe, and upgradability over time.

Rethinking Misconceptions about FFPLA

Key points were made to clarify common misunderstandings about the FFPLA approach:

- **Not a One-Size-Fits-All Solution**: FFPLA is a tailored approach that adapts to specific local needs and circumstances.
- **Not a Replacement for Traditional Systems**: It is a complementary approach designed for integration with traditional land administration systems to offer flexibility.
- **Not a Quick Fix**: Successful FFPLA implementation requires careful planning, execution, and continuous improvement for long-term success.
- **Accuracy is Relative to Purpose**: The approach prioritizes cost-effective accuracy appropriate for the intended use, rather than strict technical standards.
- **Applicable in Diverse Settings**: FFPLA is suitable for urban, peri-urban, and rural areas, addressing a broad range of land administration challenges.
- **Holistic Approach**: It is not solely a technical method; it combines technical, social, and institutional aspects.

Strategies for Upscaling Implementation

The discussions highlighted that over 10 years of implementing pilots, both successes and roadblocks in scaling FFPLA have been revealed.

Roadblocks to Upscaling:

- Legal and institutional constraints.
- Resource limitations.
- Resistance to change from entrenched professional and institutional interests.
- Data and technology challenges, particularly around harmonisation and interoperability.

Strategies for Mainstreaming FFPLA:

- **Integration and Design**: Approaches include gradual integration of FFPLA components into existing systems or running parallel systems for comparison and validation. It is vital to adopt scalable technologies, use a modular design (spatial, institutional, legal) for easy replication, and standardise data formats for seamless exchange (Data Harmonisation).
- **Support and Sustainability**: Strategies focus on ensuring a supportive legal and policy environment, using adaptive management to respond to changing contexts, and securing flexible funding aimed at land administration as a self-funding service.
- **Partnerships and Engagement**: Implementing a structured change management process is necessary to address cultural and procedural shifts. Building partnerships among government, the private sector, academia, and civil society, and fostering open communication with stakeholders, addresses concerns and builds trust.

Role of Technology
The side event highlighted the collaboration between key partners to support FFPLA scaling. For instance, a special bundle was created combining Trimble Catalyst DA2 GNSS System with the ESRI Land Administration Modernization Program (LAMP) to provide centimetre-level to sub-meter accuracy. This technology facilitates simplicity and reliability, and has been used in FFPLA and land registry projects in countries like Uganda, Togo, Sierra Leone, Haiti, Colombia, Mozambique, Chad, and Cameroon.

Thanks to the participants and facilitators such as Prof. Em. Stig Enemark, Marisa Balas, Salah Abukashawa, Markus Koper, Christelle van den Berg, Brent Jones, Rafic Khori and Israel Oluwaseun Taiwo for offering their insights. For more, scan:

fig.net/fig2024/ffp.htm

Maintaining Political Support

Sustained political commitment at both national and local levels is paramount for scaling FFPLA. Advocacy efforts must clearly articulate the profound social, economic, and environmental benefits of secure land tenure to politicians and decision-makers within the land sector. These high-level actors are instrumental in driving change and must become advocates for the FFPLA approach, understanding its potential to contribute to broader national development agendas. Political will at the top can dismantle significant barriers, particularly within rigid legal frameworks and conservative professional bodies.

However, land issues are inherently political and often controversial in many developing countries. Consequently, drivers for change cannot be solely designed at the highest echelons of government. Influence must also be initiated through key stakeholders at various entry points across the broader land sector network, communicated in a language that resonates with their specific interests and concerns.

Overcoming Resistance to Fit-for-Purpose Land Administration
Insights from FFPLA 2.0 Workshop – 31st July, 2025

FFPLA is defined as a land administration system applying spatial, legal, and institutional frameworks that are most fit for the purpose of securing land tenure, land value, land use, and land development. Its core elements are flexibility, focus on purpose, and incremental improvements. While FFPLA has advanced through policy guides and pilot implementations, persistent resistance remains both inside and outside the land administration community.

Impediments to Adoption and Scaling
The resistance to FFPLA stems from deeply entrenched factors across legal, professional, and political domains:

- **Legal and Policy Gaps:** Conventional FFPLA often lacks necessary policy support, unlike pre-existing land tools. Rigid, outdated laws (e.g., Survey Acts) only recognise conventional survey methods, presenting a critical challenge. This legislative framework failure means products derived from FFPLA processes, such as certificates of customary ownership, are not strongly recognised or integrated into national land information systems.
- **Professional and Economic Threat:** Professionals, particularly surveyors and lawyers, feel FFPLA is a threat to their business models and professional roles. They perceive it as transferring their work to non-technical persons and displacing conventional surveying, which affects their income. This financial threat drives many professionals to prioritise conventional titling, even while paying "mouth service" to FFPLA.
- **Institutional and Political Opposition:** Implementation is challenged by vested interests and existing power correlations that span high levels of government down to local communities and families. FFPLA requires fundamental shifts in state structures and powers, which are resisted as institutional territorialism or avoidance by departments seeking to preserve the status quo.
- **Capacity and Trust Issues:** Resistance arises from historical distrust following failed land reforms. Furthermore, a lack of capacity, especially at the local level, limits the ability of institutions like area land committees to apply emerging technologies, requiring heavy investment in training and equipment for sustainment. FFPLA is also sometimes incorrectly branded or perceived as a "low-tech" solution.

Strategies for Success and Scaling

To overcome resistance and achieve sustainable, wide-scale adoption, the following strategies are essential:

- **Policy and Legal Reform:** Proactive engagement with politicians and policymakers is necessary to ensure FFPLA is formally accepted as a policy tool. FFPLA approaches must be anchored in laws and policies to provide legitimacy and structure.
- **Innovation and Sustainability:** FFPLA must not be static but continually innovate, integrating new technologies like AI assistance and automatic feature extraction. A key strategy involves moving toward a "sustainable fit for purpose" approach, which ensures that systems are designed from conception to accept future technological improvements and be able to scale up and forward.
- **Business Model Alternatives:** Developing and clearly demonstrating alternative, positive business models is critical to convincing land professionals that FFPLA does not threaten their livelihood, but rather presents new opportunities. Professional surveyors should be encouraged to align their practices with pro-poor approaches.
- **Capacity and Advocacy:** Tailored capacity development, training, and knowledge sharing are required for implementers, enabling them to navigate policy dynamics and local politics. Advocacy must move beyond simple promotion to sensitise communities about FFPLA's flexibility and purposefulness, ensuring its implementation is inclusive and sustainable beyond project-specific interventions. FFPLA must be both scalable technologically and institutionally.

Thanks to Mr Kees de Zeuw. Ms Frances Birungi, Dr Rosalie Kingwill and Prof. Eugene Chigbu for sharing insights. For more, scan:

youtube.com/watch?v=7RlN6qNey3c&t=4831s

Fostering Public-Private Partnerships (PPPs)

Public-Private Partnerships (PPPs) are essential for mainstreaming FFPLA by leveraging the strengths of both sectors. PPPs facilitate crucial investment in and ongoing maintenance of efficient land administration systems, thereby addressing financial limitations that governments often face. For instance, Rwanda's experience highlighted the private sector's vital role in sustaining its land administration system. By combining government policy and regulatory frameworks with the private sector's technology, expertise, and resources, PPPs can achieve more efficient and long-lasting solutions.

A prime example is Meridia's collaboration with food companies and licensed surveyors in Ghana, which demonstrated how private investment can complement public efforts, significantly reducing costs for landowners in land documentation. Beyond financial benefits, PPPs foster collaboration between external expertise and local participation, as exemplified by Rwanda's land reform program, which effectively involved both international consultants and local communities in data collection.

However, the effective deployment of PPPs is contingent upon the appropriate context and institutional readiness. Failing to establish clear governance, oversight, and a supportive legal environment for these partnerships' risks generating the same problems, or even worse outcomes.

Reinforcing Legitimacy and Trust

Reinforcing legitimacy is essential to establishing FFPLA projects as a lasting and effective approach to land administration, as it provides the basis for trust and acceptance among all stakeholders. Equally critical is the establishment of an enabling legal and regulatory framework. Firstly, FFPLA outputs, such as land records or certificates, must possess legal recognition by both government and private institutions. Without this legal acknowledgement, FFPLA-derived documentation may lack credibility and fail to provide genuine tenure security and even risk the loss of value of collected data.

Secondly, legal frameworks provide the mandate and procedures for FFPLA implementation, defining roles, responsibilities, data collection processes, registration protocols, and transparent dispute resolution mechanisms. Reconciling existing legislation with FFPLA methodologies often requires flexible regulations and explicit legal provisions to support innovative data collection and land registration practices. This clarity ensures that FFPLA initiatives operate within a recognised and enforceable legal structure, providing legitimacy to tenure arrangements and facilitating the integration of customary rights.

Furthermore, adapting legal frameworks allows for the recognition and integration of customary or informal land tenure systems into FFPLA processes. This inclusivity promotes equitable land rights and helps prevent conflicts that often arise from competing claims. Harmonising formal and customary tenure systems into a unified, legitimate framework is a continuous challenge that demands culturally sensitive approaches and robust legal provisions. While legal reform can be a slow and complex process, particularly in contexts with rigid amendment procedures and outdated laws, it is essential for long-term sustainability and widespread acceptance.

Legal frameworks also establish the foundation for the long-term maintenance and updating of land records generated through land administration projects, thereby ensuring the sustainability and reliability of the system. Finally, legal backing for FFPLA provides greater certainty, builds trust among communities and stakeholders, and helps overcome resistance from sceptical parties. When FFPLA is firmly embedded within a legitimate legal framework, it aligns with broader national goals such as poverty reduction, economic development, and social equity, ensuring its contribution to overall national development.

Crucially, without this foundation of legal recognition and community trust, the tangible outputs of the FFPLA process – the land records and certificates – may fail to provide genuine tenure security, risking their rejection by communities and institutions, and inadvertently fuelling the very conflicts the system was established to resolve.

Strengthening Capacity Development

Capacity development is fundamental to mainstreaming FFPLA, ensuring widespread access to the necessary skills and knowledge across all levels of implementation. Effective capacity-building efforts must be context-specific, involve a diverse range of stakeholders, and promote continuous learning to ensure that training is tailored to local needs, all parties understand their roles, and FFPLA practices remain relevant and effective over time. This involves:

1. **Ensuring Understanding and Acceptance of FFPLA Principles**: Mainstreaming requires that stakeholders, including government officials, land professionals, and community members, understand and accept FFPLA principles. Capacity development initiatives educate stakeholders about the benefits and methodologies, fostering acceptance and effective implementation.
2. **Facilitating Community Participation**: Community involvement is crucial in FFPLA, and capacity development empowers communities to actively participate in land administration processes. It equips them with knowledge and skills for meaningful participation, addressing the need for time and resources to engage and manage community members effectively.
3. **Addressing the Need for Skilled Personnel**: Implementing FFPLA requires skilled personnel as the relevant stakeholders in surveying, mapping, data management, and legal frameworks. Capacity-building programs bridge the gap by providing training and overcoming resource limitations that hinder training opportunities.
4. **Supporting the Use of New Tools and Technologies**: Mainstreaming often involves adopting relevant technologies for data collection and management. Capacity development is vital for training individuals on effectively using tools

like mobile applications, drones, and satellite imagery, ensuring successful integration and maximising the potential of processes and technology in both rural and urban contexts.

5. **Ensuring Sustainability**: Long-term sustainability relies on capacity development, embedding skills and knowledge within institutions and communities for lasting change. Consistent funding and skilled personnel are essential, and capacity development contributes by creating a pool of knowledgeable individuals who can support ongoing FFPLA initiatives.

Training and retraining programs for para-surveyors, government officials, and community members should focus on technical skills, legal awareness, and community engagement, respectively, to promote sustainable scaling and effective FFPLA project implementation.

Building Capacity and Collaborative Approaches for Effective Land Administration

Insights from FFPLA 3.0 Workshop – 27th November, 2025

The workshop, the third in a series (FFPLA 3.0), focused on consolidating capacity gaps and recommendations, identifying principles for sustainable collaborative models, increasing stakeholder commitment, and defining necessary policy reforms for FFPLA collaborations.

FFPLA is fundamentally concerned with making land rights possible and secure for everyone. The concept emphasises seven, possibly eight, dynamic elements, including flexibility, inclusiveness, affordability, and reliability.

Key principles of FFPLA include:

- Using general boundaries rather than fixed boundaries.
- Employing aerial images instead of detailed ground surveys.
- Ensuring accuracy relates to the *purpose* rather than technical specifications. This flexibility is critical for achieving broad coverage.
- Providing opportunities for upgrading and improving the system incrementally.

A critical prerequisite for any intervention is clarity on the prime aim or purpose of the land administration system (e.g., real estate market, land reform, taxation, or environmental protection). Without a clear, defined purpose, the approach cannot be determined to be "fit for purpose".

Debunking Myths and Confronting Political Reality

Conventional land administration systems have not worked in developing countries, typically covering only 5% to 30% of the land. FFPLA is necessary for covering entire territories quickly, but its scaling is resisted by technical misconceptions and profound political economy challenges.

Challenging Technical Misinformation

- **Coverage Over Accuracy:** Over-engineering survey accuracy is viewed as unnecessary and a waste of money, particularly in settings like urban areas with thick defining walls. FFPLA requires **"coverage over accuracy"** to se-

cure rights for the greatest number of people, rather than focusing on high precision for a few.

- **The 70% Myth:** The widely quoted figure that "70% of the world's land parcels are not registered" is inaccurate; it stems from a misrepresentation of the percentage of the world's **population** lacking secure land rights.
- **Spectrum of Rights:** The "continuum of land rights" should be viewed as a **spectrum** of land rights. The term "continuum" risks implying an inevitable evolution toward formal, freehold rights, thereby failing to respect and retain traditional customary rights as discrete entities.

Political Economy and Resistance

- **Elite Resistance:** Land issues are fundamentally political, driven by profound power dynamics and concentrated, unfair ownership. Elites who benefit from a lack of clear administration (e.g., to avoid taxes) create profound resistance to reform. Successfully implementing FFPLA requires that the "haves will have to give something to the have-nots".
- **Institutional Failure:** Development institutions have historically struggled with land projects due to an inability to address these power dynamics, often imposing market orthodoxy on a political sector.
- **Redirection of Funding:** International financial institutions should stop lending large sums toward reports and instead redirect funds toward regional universities in sub-Saharan Africa. This would empower academic institutions to conduct independent research, constantly update training, and develop viable national plans that integrate the political economy with technical tools tailored to specific country issues.

Strategy for National Scaling

FFPLA requires a strategic shift from project-level interventions to country-wide implementation strategies.

1. Capacity Building and Interdisciplinary Focus

Effective land administration is interdisciplinary, requiring generalists to oversee the system and specialists in areas like land law and geospatial technologies. Capacity must be built at three distinct levels:

- **Individuals:** Staff must be retrained in current knowledge, technical skills (e.g., geospatial technologies), attitudes, and ethics.
- **Organisations:** Institutions need clear objectives, adequate facilitation, and basic equipment to perform their mandates effectively.
- **Society (Enabling Environment):** Support from politicians, administrators, and the community is necessary for effective implementation. Universities, rather than land agencies, are responsible for constantly updating training and research to ensure capacity remains relevant.

2. Policy and Legal Reforms

Existing policies and laws must be fundamentally reformed to support FFPLA flexibility:

- **Legalisation of Tenure:** Policies must legalise and accept both formal and informal (customary) tenure systems, which were often previously unrecognised in national registers.

- **Decentralisation:** Key land services (adjudication, demarcation, recordation, and post-registration transactions) must be decentralised to improve accessibility.
- **Mandate Clarity:** Laws must clarify institutional mandates and define a clear hierarchy for dispute resolution to prevent duplication.

Thanks to Dr Emily Brearley, Prof. Jaap Zevenbergen, Dr Keith Clifford Bell and Prof. Moses Musinguzi for collaboratively sharing insights on Institutional Strengthening and Policy Alignment, Assessing and Bridging Capacity Gaps, Fostering Multi-Stakeholder Collaborative Models and Innovative Capacity Building and Institutional Strengthening. For more details, scan:

youtube.com/watch?v=h1SDBTM7IjE

4.3 Enabling Tools and Processes to Support FFPLA Scaling

Advancements in technology have significantly enhanced the scaling of FFPLA initiatives. Tools have been developed to overcome prevailing challenges. These tools, necessary for fast-tracking land administration, have become increasingly affordable and rapidly developed, providing a huge impulse to faster implementation and broader reach. Several key technological areas are crucial for effective scaling:

Geospatial Data Acquisition and Processing

1. Satellite Imagery: Satellite imagery has become more accessible and affordable, offering high-resolution data for mapping and land boundary identification. The rapid development in satellite technology has led to improved resolutions, increased accuracy and frequency of imagery updates. Satellite imagery provides a cost-effective way to cover large areas, especially in remote or inaccessible regions.
2. Unmanned Aerial Vehicles (UAVs) / Drones: UAVs offer a flexible and cost-effective alternative to traditional aerial surveys. They can capture high-resolution imagery at a lower cost and with greater flexibility, especially for smaller or complex areas. UAVs provide detailed spatial data for land administration, used for boundary demarcation, monitoring land use changes, and creating up-to-date maps, contributing to faster and more efficient data collection.
3. Global Navigation Satellite Systems (GNSS): GNSS technology has become more accurate, easy to use and accessible, even with smartphones. This allows for simpler and more participatory data collection. Affordable GNSS receivers and user-friendly mobile applications empower local communities to gather data, reducing the reliance on highly specialised surveyors and accelerating cadastral mapping and land registration processes. Specialised GNSS for cost-effective positioning in developing contexts continue to be on the increase.

The rapid development and increasing affordability of these technological advancements have significantly impacted FFPLA scaling in several ways:

- **Cost Reduction**: Technologies like satellite imagery and UAVs reduce the costs associated with traditional surveying methods, making large-scale implementation more feasible.
- **Speed and Efficiency**: GNSS and mobile applications enable faster data collection and processing, accelerating the registration process.
- **Increased Accessibility**: User-friendly technologies empower local communities to participate in data collection, making the process more inclusive and efficient.
- **Broader Coverage**: Satellite imagery and UAVs allow for the coverage of large and remote areas, enabling FFPLA implementation in previously inaccessible regions.

Mobile Application and Digital Platforms

Mobile Applications: Mobile apps continue to empower communities to map land parcels, reducing reliance on professional surveyors. These tools facilitate real-time data synchronisation and validation. Over time, these tools have become easier for surveyors and non-surveyors to collect, manage, and maintain GIS data, including parcel information, in a flexible and interactive way.

Open-Source Platforms: Open-source platforms like the Social Tenure Domain Model (STDM) and Solutions for Open Land Administration (SOLA) significantly contribute to mainstreaming FFPLA approaches, especially in resource-limited settings. These platforms are cost-effective, which is critical in pro-poor contexts where financial resources are limited. Cost savings can be redirected to other crucial areas, such as community engagement and capacity development.

The participatory nature of these platforms aligns with FFPLA's principles by enabling community involvement in land administration processes. This inclusivity ensures that land management decisions are transparent, equitable, and consider the needs of vulnerable populations. By supporting data collection and management, these platforms enable efficient and scalable land administration, which is essential for reaching a large number of people in pro-poor contexts.

Innovations in Fast-Tracking Land Registration
Insights from FFPLA 1.0 Workshop – 27th March, 2025

The Fit-for-Purpose Land Administration (FFPLA) concept, initially focused on the spatial framework, has evolved to include crucial legal and institutional components, becoming a mainstream approach for providing secure land rights at scale. The core challenge FFPLA addresses is the failure of traditional land administration projects due to high cost, excessive time requirements, and lack of capacity.

The successful implementation of FFPLA requires a focus on political and institutional preparedness, which is often more difficult than applying the necessary technology. Insights from the Workshop, categorised into Governance, Political Will and Institutional Reform; Technology, Data Management, and System Innovation; and Sustainability, Capacity, and Professional Evolution include:

I. Governance, Political Will, and Institutional Reform

Insights focusing on the necessary political and policy environment required for successful FFPLA implementation.

- **Political Will is Paramount:** Building land governance systems involve politically informed approaches, not just technical solutions. Secure land rights at scale change the power dynamics in a society, meaning some will gain and some will lose, creating political constraints that must be actively overcome.
- **Addressing Vested Interests:** A major challenge is overcoming the vested interests and resistance from land professionals and national agencies who feel threatened by the implementation of new, simplified FFPLA approaches.
- **Sequencing of Reform:** Engagement with relevant stakeholders and defining institutional frameworks must precede the introduction of new technology, as the necessary technical tools are already available.
- **Focus on Urban Areas:** The application of FFPLA principles to urban areas, particularly informal settlements, presents a new and greater challenge than rural mapping, requiring tailored legal, technical, and social solutions.

II. Technology, Data Management, and System Innovation

Insights related to the new approaches, tools, and technical requirements for modern land administration systems.

- **Technology Innovations:** Modern systems are moving away from traditional, single-server connections toward publishing data as centrally managed feature services, allowing real-time editing via web and mobile platforms. This includes:
  - A record-driven data model (the "parcel fabric") that links all spatial features to their legal source and maintains a history of changes.
  - The use of versioning for multi-user editing, enabling simultaneous work across desktop, web, and mobile clients.
  - Frontier technologies such as blockchain for securing decentralised records, AI/machine learning for automating feature extraction and fraud detection, and drones for cost-effective, high-resolution mapping.
- **Data as a Movie:** Cadastral data should not be treated as a static picture, but as a living 'movie' that is constantly evolving and changing over time. Continuous validation, checking, and maintenance by specialists are essential for data integrity.
- **The Three Components of GIS:** Effective land administration systems rely on three equally important components: people, technology, and data, with the commitment and capacity of the people being the most crucial factor.

III. Sustainability, Capacity, and Professional Evolution

Insights regarding the long-term viability of land administration systems and the changing roles of land professionals.

- **The Problem of Sustainability:** A key piece of advice for new projects is: "Don't start what you can't sustain". Provisions and resources for system maintenance, updating, and future upgrading must be secured upfront to avoid wasting initial efforts.
- **Limits of Technology:** Technology is an enabler, but it cannot solve deep-rooted issues such as corrupt governance, historical land injustices, overlap-

ping tenure claims (customary versus state), or societal resistance based on traditional reliance.

- **Scaling Requires Institutional Capacity:** For widespread implementation, there is a need to establish basic training programs (e.g., for "land clerks") to staff local land offices and ensure maintenance capacity at the local level. This must be informed by a clear capacity assessment.
- **Evolving Professional Roles:** Land professionals must recognise that their future role is shifting from primarily measuring parcels to becoming custodians of a full-scale national system of maintaining secure land rights.

Thanks to Associate Professor Simon Hull, Amir Bar-Maor, Daniel Stone, Emeritus Professor Stig Enemark for sharing insights. For more, scan:

youtube.com/watch?v=UDnFbGtsSf4

Digital Transformation Processes

Digital transformation and tools are crucial in supporting and achieving FFPLA principles. Transitioning tools from paper-based systems to digital platforms has streamlined processes in countries like Benin, enhancing transparency and accessibility.

FFPLA solutions are achievable through digital tools and approaches. The digital transformation process involves adopting appropriate technologies gradually, moving from basic to advanced systems as needed and as resources permit. Specifically, digital transformation supports FFPLA by:

- **Incremental Upgrading**: Enabling incremental upgrading through the adoption of simple, low-cost digital tools, and gradually moving to more advanced systems as needed and as resources permit.
- **Scalability**: Facilitating scalability, as digital systems can be scaled up or down more easily than traditional paper-based systems.
- **Affordability**: Improving affordability, as digital tools can be more cost-effective in the long run.
- **Flexibility**: Supporting flexibility through digital systems, as they can be adapted to local contexts and needs.
- **Enhancing data management:** Digital tools improve data capture, storage, retrieval, and analysis, leading to more efficient and reliable land administration.
- **Interoperability**: As FFPLA solutions are implemented through digital means, the ability for these new systems to communicate and share data with existing ones is important for successful integration and scalability.

FFPLA – Innovation showcases

"Don't start what you can't sustain" (Stig Enemark, Fit-for-Purpose Land Administration Capacity Development for Country Implementation) is a phrase that is often ignored by short sighted implementations that do not take into account that systems should be able to scale, and that systems should be well architected and maintained.

Any technical solution to support the FFPLA approach needs to be configurable, scalable and evolvable. The solution should also be applicable for formal and informal rights and range from urban to rural areas.

Software configuration allows organizations to configure the software to meet their business requirements without the need and dependency of expensive developers. Software configuration allows cadastral agencies like BUPI Portugal and NGO's like Cadasta to configure a system in a matter of hours or days versus developing custom software that can take years and quickly become outdated. Innovations take place in the system of records, system of insight and system of engagement.

The parcel fabric is a physical implementation of the conceptual abstract LADM (Land Administration Domain Model), thus making it easy for organizations to migrate to an LADM conformant information model.

The use of web services and Service Oriented Architecture (SOA) makes it easier and more sustainable to integrate to other business systems. Web services support 'Open Data' that is FAIR (Findability, Accessibility, Interoperability, and Reuse). Authenticated users and the public can be granted with different levels of access to the data (read, write, …) as well as to apps such as Dashboard, Field Maps or Survey123. Organizations can choose between a full SaaS (Software as a Service) solution or their own enterprise solution (like DLS in Cyprus), whether to deploy it on premise, or on the cloud. Cloud deployments and SaaS reduce the IT investment and can easily scale.

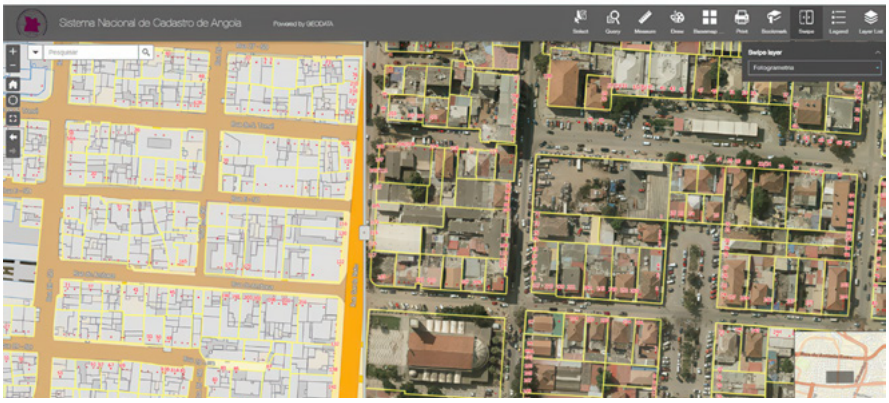

Photo 6: *National Land Registry System of Angola User Interface Dashboard Developed by GeoData using ArcGIS Pro.*

FFPLA is not limited to rural areas. In Angola Esri provided critical technology to scale up land registration in urban areas. GEODATA, an esri partner that specializes in advanced land management, GIS and mapping solutions, implemented a solution to modernize and streamline the country's land administration process (Case study: Angola Modernizes Land Administration with GIS and Cadastre Management [33]). The process involved fusing data from multiple sources: aerial imagery, historic documents, street level imagery to create 450,000 accurate parcel boundaries and addresses.

Trimble

Trimble – How geospatial technology could aid in Fit-for-Purpose Land Administration projects

Technology can help, but…

Technology needs to be thoughtfully integrated with approaches to effectively support Fit-for-Purpose Land Administration (FFPLA) projects, ensuring that digital solutions are accessible, inclusive, and tailored to address the unique challenges and barriers faced in land administration.

While simplified and automated processes in software can significantly accelerate tasks like orthophoto processing, point cloud creation, and feature extraction, it's crucial to ensure that these technologies are aligned with the specific goals of supporting land rights. This means verifying that the outputs are accurate, relevant, and effectively contribute to the recognition and protection of land rights, rather than merely enhancing geospatial workflows for unrelated purposes.

Consider combining geospatial technology solutions, depending on the environment, topography, capacity, expected outcome, spatial framework and legal framework. There is no one-size-fits-all solution. Remember that simplicity, reliability and scalability are important. Sustainability and long-term vision is also an aspect to consider for projects beyond an initial project phase. Trimble offers solutions from CORS, GNSS receiver, mechanical and robotic total stations, scanning, mobile mapping and more. But not just hard- and software, Trimble offers maintenance, support, expertise and a global network. Maintenance is important, soft- and hardware, operating systems, interfaces, data formats and sensors need to be maintained to secure interoperability and a running system. Trimble is known in the geospatial world as a reliable technology partner, with customers all over the world.

Hardware, software, data collection workflows and data workflows combined is a solution. It is important considering these aspects in relation to the purpose and the people involved.

Trimble's solution today collects more data in more efficient ways than ever before, automated processes, better hardware and software.

An excellent example of geospatial technology which aids in land administration projects is GNSS. The technology is more affordable today, the data collec-

tion process is accessible and the process of collection in the field is inclusive. The surveyor teams could be trained in the technology in a short period of time, the software applications are designed to directly show the measured GNSS position, which offers confidence in the data.

Trimble RTX (PPP – Precise Point Positioning) – Service, is one of the GNSS technologies which enables FFPLA projects to start from today, without CORS network (Continuously Operating Reference Station), a base / rover set up or even mobile network. Satellite L-band, which makes RTX available offline and very easy-to-use, provides the GNSS corrections. In several FFPLA projects, this technology shows that Trimble GNSS systems are successfully used by Para-Surveyors. Trimble customers apply Trimble's RTX technology all over the world and in various industries like agriculture, construction but also land surveying.

And with Trimble's Catalyst GNSS system, an affordable GNSS receiver bundled with RTX correction service, there is a GNSS system available which offers positioning in a very suitable way for FFPLA projects. Trimble Catalyst can provide GNSS positioning to any "location enabled" application on Android OS, iOS or Windows OS, eg. Google Maps, Esri Field Maps or Qfield. For this Trimble offers a free of charge application, Trimble Mobile Manager, to manage the Catalyst receiver and correction service and provide the data collection application with precise GNSS positions. Catalyst GNSS is easy-to-use, scalable and a reliable system for customers worldwide. Less upfront-costs, reduced equipment required, process simplified, scalability and flexibility are key aspects in the Catalyst concept.

"The tech itself isn't solving problems, but how you use it can be."

If a solution like Trimble Catalyst GNSS meets the FFPLA project requirements and is integrated into the hardware and software concept, into the geospatial toolbox, how can I enable people to work with these tools and capture the aspects that are particularly important for FFPLA?

A key role beside technology, are the approaches in a FFP context , data model and training e.g. inclusiveness of all project participants. Are gender-specific training or approaches required? Does the data model take all rights into account? Regional legal forms such as family lands need to be considered to be included in the model. The data model is a crucial building block and the software solutions used must capture this data. Trimble technology like Catalyst provides accuracy, data collection method, coordinates etc. into the data model.

Training on the solutions is equally important. A trusting and respectful training atmosphere must be created, inclusive for all participants.

The trained surveying teams must become confident in using the solutions. During FFPLA surveys, the teams will need to focus on the actual approaches, community members, potential conflicts and many other aspects.

Summary:
Trimble's technology is available and can be applied to FFPLA projects. It's important to choose the right technology, combine it potentially with other technologies, FFPLA approaches and a FFPLA data model. The technology, data pro-

cesses, data model and data collection processes requires a good understanding of local context and good consulting from a "FFPLA surveying" perspective. Training, approaches, and data models are important aspects to FFPLA, to enable the stakeholders for a meaningful data capture.

- Data that matters
- Training is key
- Confidence in solution, processes and data
- Keep it simple

Simplicity is easier to understand, maintain, train, and use, leading to greater efficiency and fewer errors – Trimble Catalyst GNSS is a solution example which meets this simplicity.

Trimble Geospatial Technology offers more solutions which could aid in an FFPLA project. Contact Trimble and discuss your project needs and requirements.

https://geospatial.trimble.com/en/industries/surveying-and-mapping/cadastral-boundary

Photo 7: *Sierra Leone, Africa 2023 – VCSP FFP Workshop (Photo Credit: Markus Koper)*

Photo 8: *Colombia, South America – Land in Peace Project (Photo Credit: Nicholas Porras, Land in Peace Project)*

Project Examples:

https://geospatial.trimble.com/blog/geospatial/en-US/article/revolutionizing-land-documentation-in-uganda-with-trimble-catalyst

https://www.halousa.org/latest/halo-updates/news/the-halo-trust-and-trimble-launching-women-in-gis-for-demining-initiative/

https://www.landatscalecolombia.net/

https://www.kadaster.com/our-projects/colombia-land-in-peace

4.4 Leveraging Emerging Trends for Future Scaling

The landscape of land administration is rapidly evolving with the emergence of new technologies and innovative approaches. These emerging trends offer significant potential to upscale FFPLA implementations and enhance their effectiveness, efficiency, and sustainability.

Participatory Land Use Planning and Integrated Land Projects

Participatory Land Use Planning (LUP) is increasingly becoming central to contemporary land governance reform. Integrating FFPLA with participatory land use planning ensures that tenure security is not treated as an isolated technical exercise, but as a foundational component of broader development strategies. This integration enables land rights information to directly inform spatial planning, valuation, land development, and environmental management decisions.

Unlike a decade ago, donors and governments now increasingly view land administration functions – including land use planning, valuation, registration, and development control – as interconnected rather than siloed activities. Integrated land projects are therefore becoming more realistic and politically supported. This trend aligns well with FFPLA's emphasis on responsiveness to societal needs.

However, caution remains necessary. Attempting to address land registration, valuation reform, land use planning, and digital transformation simultaneously can overstretch institutional capacity and dilute focus. The lesson is not to abandon integration, but to phase it strategically – ensuring that tenure security remains the entry point while enabling gradual expansion into valuation and land development functions.

Embedding FFPLA within participatory LUP processes strengthens legitimacy, reduces land conflicts, and supports sustainable land management by ensuring that land rights are formally recognised before development pressures intensify as shown in figure 7. This is because FFPLA transforms land administration from an isolated cadastral exercise into integrated national spatial governance.

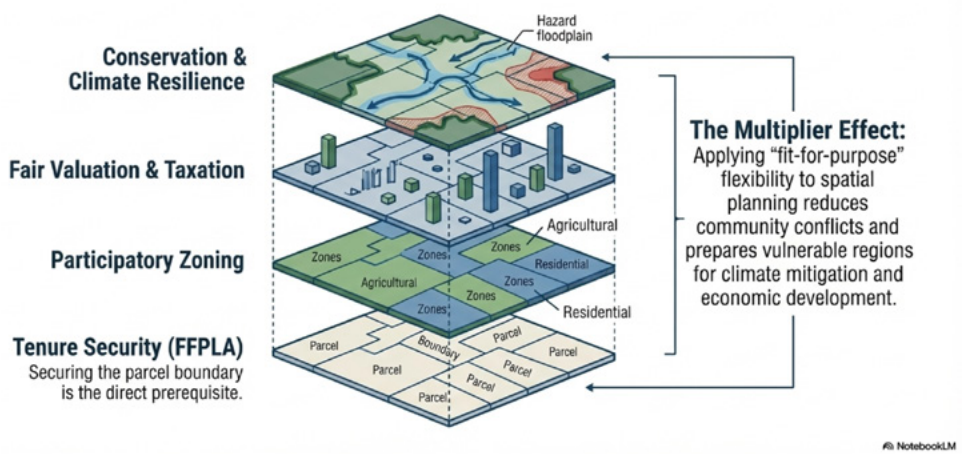

Figure 7: *Integrating with Land Use Planning.*

Spatial Data Infrastructure (SDI)

SDI provides a framework for integrating and sharing spatial data across different platforms and stakeholders. It enables interoperability, data exchange, and collaboration among various land-related agencies and sectors, facilitating informed decision-making and efficient land management. A robust SDI is fundamental for ensuring that FFPLA data is discoverable, accessible, and usable across different government levels and for various purposes.

Artificial Intelligence (AI) and Machine Learning (ML)

Artificial Intelligence and Machine Learning present opportunities to enhance efficiency in land administration. These technologies support automated feature extraction from imagery, document analysis, anomaly detection, fraud identification, and predictive modelling. In the LA context, where vast volumes of spatial and textual data are generated, AI-driven tools can accelerate data processing and improve decision-making.

However, as Land Administration Systems (LAS) are mission-critical national infrastructures, the integration of AI and ML must be approached cautiously. Issues of national sovereignty, data ownership, cybersecurity, and algorithmic transparency become particularly important when cloud-based platforms or externally managed AI services are used. Governments must ensure that sensitive land data remains secure, sovereign, and protected against cyber threats. The use of AI in land administration, therefore requires clear governance frameworks, strong data protection laws, and cybersecurity safeguards.

In this regard, AI should serve as an enhancement tool within nationally controlled systems – not as a dependency that undermines institutional autonomy.

Blockchain Technology

Blockchain technology has been discussed extensively over the past decade as a potential solution for secure and immutable land records. Its decentralised architecture offers theoretical advantages in enhancing transparency, streamlining transactions and reducing opportunities for fraud.

However, despite significant global discourse, large-scale implementation in land administration remains limited. Most applications remain at pilot or proof-of-concept stages. Challenges related to scalability, regulatory alignment, interoperability with existing cadastral systems, and governance control persist.

4.5 The Imperative of Scaling FFPLA: Strategic Frameworks and Technological Drivers

Scaling Fit-for-Purpose Land Administration is not merely an aspiration but a crucial imperative for addressing global land tenure insecurity and achieving the Sustainable Development Goals by 2030. This chapter has highlighted that successful upscaling is an achievable goal, contingent upon the synergistic application of key strategies and innovative technological tools.

The path forward requires sustained political will, a commitment to legal and institutional reforms that embrace FFPLA principles, and the cultivation of strong public-private partnerships. Simultaneously, it demands continuous investment in capacity development at all levels, from technical professionals to local communities, ensuring that knowledge and skills are widely disseminated and sustainably maintained.

Moreover, leveraging the rapid advancements in geospatial technologies, mobile applications, and digital platforms is fundamental to achieving the speed, cost-effectiveness, and inclusivity that define the FFPLA approach. As emerging trends like AI, spatial data infrastructure, and potentially blockchain technology mature, they offer further opportunities to refine and accelerate FFPLA implementations.

Ultimately, achieving universal land tenure security by 2030 is a collective endeavour that requires integrated approaches. It necessitates a blend of top-down political commitment and bottom-up community engagement, supported by appropriate and accessible technology. The strategies and tools outlined in this chapter provide a clear path forward, demonstrating that scaling FFPLA is not only possible but essential for building a more equitable, sustainable, and prosperous future for all.

Securing Land Tenure for Nepal's Marginalised Communities – GLTN

Nepal's land governance challenges stem from centuries of feudal systems and caste-based exclusion. These have been compounded by the persistent marginalization of women, Dalits, indigenous peoples and other minorities. Despite post-1951 reforms and the 1964 land reform initiative, entrenched inequities remained. The decade-long insurgency (1996–2006), rooted in demands for land reform and social equality, underscored these unresolved issues. Following the 2006 peace process, the 2015 Constitution introduced explicit guarantees for equitable land access, i.e. Article 40 for landless Dalits and Article 51 on scientific land reform. In April that year, Nepal had suffered one of the most devastating earthquakes, which highlighted the long-standing issue on tenure insecurity which needed solutions for housing reconstruction and rehabilitation. Government assessments in 2015–2016 recognized land tenure security as a major gap in the humanitarian response.

UN-Habitat country office Nepal and the Global Land Tool Network (GLTN) in collaboration with Nepal's then Ministry of Agriculture, Land Management and Cooperatives including other local partners entered into a partnership in 2016 to support land reform interventions in Nepal including (a) support to the development of a national land policy (b) support to a Fit For Purpose Land Administration strategy, and (c) improvement of earthquake recovery and resilience for affected communities in select municipalities. Consequently, the Nepal National Land Policy was promulgated in 2019, paving way for other landmark legislative reforms beginning with the Land Act 1964 (8th Amendment, 2020) recognizing access of land to the landless and regularization of long-term informal settlers, and the Land Regulation (18th Amendment, 2020) which provides for the institutionalization of the Land Commission and procedures for issuing land ownership certificates.

The Fit-For-Purpose Land Administration (FFP-LA) Country Implementation Strategy was officially launched in 2018, heralding a legal, institutional, and technical framework to scale secure land rights including recognition of informal and customary tenure and joint titling. The policy, legislation, strategy and the guidelines define the federal, provincial, and municipal roles; integrated local planning; capacity building for municipal staff and the community volunteers; and the use of high-resolution satellite or other relevant technical tools for mapping and participatory enumeration for identification, verification and recordation of landless and informal settlers. The FFP-LA has enabled rapid, low-cost, and inclusive registration of land, particularly for the historically marginalized groups and women. The approach has facilitated, (1) provision of land to the landless Dalits and landless Sukumbasi free of cost, and informal settlers

at subsidized rates, (2) formalization of informal settlement tenants residing on public land for more than 10 years, (3) land banking and leasing of underutilized land for near-landless households, (4) Joint titling/registration to enhance women's access to land, and (5) land use planning to prevent fragmentation and guide sustainable land management. The role of local governments in the federal set-up empowers municipalities to identify and verify landless households, conduct participatory mapping, issue land ownership certificates, and manage land banks, leasing, and land-use plans.

Outcomes and Impact: Implementation of FFP-LA currently covers 750 out of the total 753 municipalities in Nepal. Further recordation of more than 1.15 million landless/ informal households has been completed, and more than 9,000 land ownership certificates have been issued (LIRC, 2026). The process continues with the aim of providing land to all the landless Nepali and the regularization of informal settlers. Overall, the implementation of FFP LA has enabled the improvement of tenure security for landless and formal recognition of informal settlers, as well as increased ownership of land for women, improved access to credit, social services, increased disaster resilience, and strengthened municipal planning including improved climate adaptation capacities.

Key Lessons (1) Constitutional and legal mandates provide the foundational framework for the operationalization of the FFP LA, (2) FFP-LA enables low-cost, scalable land registration, (3) community participation ensures accuracy, trust, and dispute resolution, (4) recognition of informal tenure protects the most vulnerable, (5) joint titling promotes gender equality, (6) local governments are essential for implementation, (7) safeguards prevent elite capture, (8) integrated land data improves disaster response for marginalized communities, and (9) multi-stakeholder collaboration ensures sustainability of the approach.

Photo 9: *Landless with Their Temporary Cards in Gadhawa.*
(Photo Credit: UN-Habitat-CSRC)

5 THE PATH TO UNIVERSAL LAND TENURE SECURITY: SUMMARY, RECOMMENDATIONS, AND CALL TO ACTION

This chapter synthesises the findings and recommendations from previous chapters. In both developing and developed contexts, effective land administration and management hinge on prioritising tenure security for individuals and communities with land rights. The Fit-for-Purpose Land Administration (FFPLA) approach directly addresses this need, tackling one of the world's most enduring challenges: insecure land tenure. Earlier chapters of this publication discussed its foundational principles, assessed its current global status, highlighted its successes, and explored the pathways for its widespread scaling. This concluding chapter synthesises the core findings, offers actionable recommendations, and culminates in a call to action for realising a world where land rights are secure for all.

5.1 Summary of Key Findings

The Imperativeness of FFPLA

Land is not merely a commodity; it is the bedrock of livelihoods, economic stability, social cohesion, and environmental sustainability. For billions, the absence of secure land rights perpetuates vulnerability, exacerbates poverty, and hinders inclusive development. FFPLA has emerged as an indispensable, pragmatic, and scalable approach to address this profound need. By prioritising flexibility, inclusivity, reliability, and speed over existing unyielding approaches, improved land administration systems directly contribute to the spirit and ambition of the 2030 Sustainable Development Goals, particularly those related to poverty eradication (SDG 1) and gender equality (SDG 5). FFPLA provides a vital mechanism to ensure equitable access to resources, uplift marginalised communities, and foster resilient societies. It catalyzes achieving this and achieving it on time.

Status of Adoption and Key Achievements

The global landscape of FFPLA is one of dynamic growth and proven impact. Our analysis reveals significant traction across diverse regions, including notable implementations in Africa, Southeast Asia, and Latin America. The achievements are tangible and transformative: FFPLA has facilitated rapid scaling, evidenced by Rwanda's impressive land tenure regularisation program; it has championed inclusivity and gender equity, as seen in Mozambique's conscious efforts to register women's land rights; and it has consistently demonstrated cost-effectiveness, with countries like Indonesia significantly reducing per-parcel registration expenses through pragmatic approaches. These successes are not isolated incidents but rather a growing body of evidence that a faster, cheaper, broader and universal-based documentation of land rights is possible.

Enduring Challenges and Lessons Learned

Despite its triumphs, FFPLA implementations are not without hurdles. Key challenges include persistent resistance to change from entrenched traditional systems and professionals, often stemming from concerns about job security, perceived quality, or misalignment with existing legal frameworks. Legal complexities, including outdated laws

and the intricate task of integrating customary tenure systems into formal frameworks, remain significant barriers. Furthermore, resource constraints, both financial and human, continue to limit the scope and long-term sustainability of projects, particularly in ensuring ongoing data maintenance and system updates. However, these challenges have also yielded critical lessons: the paramount importance of sustained political will, the transformative power of genuine community participation, the necessity of flexible and adaptive methodologies, the strategic role of technology as an enabler, and the indispensable value of continuous capacity development.

5.2 Recommendations for the Future

Building on the insights from previous FFPLA implementations, the following are pivotal to accelerate land administration and sustain the global impact of FFPLA approaches:

Sustain Political Will and Enabling Governance

Unwavering political commitment at all levels is crucial for upscaling FFPLA approaches. Advocacy must continuously articulate the profound social, economic, and environmental benefits of secure land tenure, targeting decision-makers. Legal and policy frameworks require proactive review and reform to explicitly embrace FFPLA principles, ensuring both legitimacy and adaptability, as detailed in Chapter 4 under "Building Political Support and Enabling Legal Frameworks."

Strengthen Collaboration and Partnerships

A collaborative ecosystem is vital for complex land administration. Fostering robust Public-Private Partnerships (PPPs) can unlock essential financial resources, technical expertise, and innovation, bridging gaps that governments alone cannot fill. Enhanced cooperation among various government agencies, civil society organisations, academic institutions, and local communities is equally important for comprehensive and sustainable FFPLA implementation, as elaborated in Chapter 4's "Fostering Public-Private Partnerships (PPPs)."

Invest in Adaptive Capacity

Continuous, comprehensive, and context-specific capacity development is fundamental. This includes training a new generation of land professionals in FFPLA methodologies, digital literacy, and community engagement skills. Empowering local communities and para-surveyors with knowledge and tools for participatory data collection and maintenance is critical. The focus should be on fostering an adaptive mindset within institutions, promoting learning, and enabling flexible responses to evolving needs and challenges, as further discussed in Chapter 4's "Strengthening Capacity Development."

Leverage Technology Responsibly

The intelligent and inclusive application of current and emerging technologies is paramount. This involves expanding the strategic use of geospatial tools (satellite imagery, UAVs, GNSS), developing user-friendly mobile applications, and advocating for open-source digital platforms that reduce costs and increase accessibility. Crucially, technological adoption must be accompanied by robust infrastructure, training, and a focus on interoperability to ensure seamless data flow and prevent digital divides. Emerging

technologies like AI and machine learning should be explored and piloted responsibly for their potential to enhance efficiency, accuracy, and decision-making, as highlighted in Chapter 4's "Enabling Tools and Processes to Support FFPLA Scaling" and "Leveraging Emerging Trends for Future Scaling."

Ensure Long-Term Sustainability and Impact

The success of secure tenure hinges on its longevity. This requires dedicated efforts to establish robust systems for the ongoing maintenance and updating of land records, moving beyond initial registration drives. Institutionalisation of FFPLA principles within government agencies and local structures is vital, ensuring expertise and processes are embedded for the long term. Rigorous monitoring and evaluation frameworks are necessary to track progress, identify areas for improvement, and generate evidence-based insights that can inform future policy and practice, ensuring investments yield lasting, equitable impacts.

5.3 A Vision for 2030: The Call to Action

Food security, climate change mitigation and adaptation, resilience building, and poverty reduction all depend fundamentally on secure land tenure. The global commitment to achieve the Sustainable Development Goals by 2030 – particularly SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 5 (Gender Equality), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 15 (Life on Land) – cannot be realised without effective and inclusive land administration systems. The collective experience of FFPLA implementation across diverse contexts demonstrates that scalable, inclusive land administration is achievable – even in resource-constrained environments. The evidence is no longer hypothetical; it is practical and global.

Over the past decade, Fit-for-Purpose Land Administration has evolved from a conceptual framework into an embedded way of thinking and working within the land sector. Its principles – flexibility, inclusivity, affordability, incremental improvement, and responsiveness to societal needs – increasingly shape how land projects are designed, financed, and implemented. In many respects, FFPLA is no longer a distinct "approach" operating alongside traditional land administration; it has become integral to modern land administration practice.

This does not imply that the work is complete. Rather, it signals a transition. The next phase is not about proving FFPLA's relevance, but about extending its thinking across interconnected domains. Land use planning, land valuation, land development, climate governance, urban expansion, and digital transformation all depend on secure and accessible land information. FFPLA provides the foundation upon which these broader systems can function effectively and equitably.

The responsibility ahead is therefore collective and cross-sectoral. Governments must continue embedding fit-for-purpose principles within legal and institutional reforms. The private sector must innovate responsibly, ensuring that technology remains accessible and aligned with national sovereignty. Civil society must safeguard inclusivity and accountability. Academia and professional bodies must continue to evolve standards and education in line with contemporary realities. And communities must remain central – not merely as beneficiaries, but as active participants in shaping land governance systems.

This publication is not a call to begin the journey; it is recognition that the journey is already underway. The imperative now is to consolidate, integrate, and scale – ensuring that fit-for-purpose thinking informs all land-related functions and contributes meaningfully to climate resilience, food security, economic development, and social justice.

FFPLA is no longer the future of land administration – it is its present foundation. The task before us is to ensure that this foundation supports an integrated, sustainable, and inclusive land governance system for generations to come.

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His research interests include geospatial data infrastructure, cadastral modernisation, climate resilience, and responsible land governance for tenure security. He contributes to capacity building, curriculum development, and community-based mapping initiatives and collaborates with government agencies and professional bodies to promote inclusive land management and evidence-based planning.

PAULA DIJKSTRA

As Director of Kadaster International, Paula collaborates globally to help secure land rights, empower communities, and support sustainable development through reliable geo-information.

With a background in Social Geography and expertise in GIS and cadastre and land management, she is passionate about turning knowledge into impact. She currently serves as Co-Chair of the UN-GGIM Expert Group on Land Administration and as Chair of the FIG Task Force on the SDGs – roles that allow her to help shape global frameworks and foster meaningful change.

APPENDIX

List of interviewed experts.

S/No.	Name	Regional perspective and background (at the time of the interview)
1.	Anthony Gakobo	Africa, private sector
2.	Dimitris Rokos	Europe, public sector
3.	Emmanuel Nkurunziza	Africa, public sector
4.	Charisse Griffith-Charles	Small Island Development States, academia
5.	Frank Pichel	Global, NGO
6.	Jossam Potel	Africa, academia
7.	Leive Bjarte Mjos	Europe, academia
8.	Simon Ulvund	Global, private sector
9.	Frank Byamugisha	Africa & Asia, independent
10	Mila Koeva	Europe, Academia
11.	Zerfu Hailu	Africa, independent
12.	Clarissa Augustinus	Global, independent
13.	Budi Martono	Asia, academia
14.	Julian Quan	Global, independent
15.	Marisa Balas	Africa, private sector
16.	Brent Jones	Global, private sector
17.	Matt Delano	Global, private sector
18.	Fabrice Kossou	Africa, public sector
19.	Pedro Nel Ospina	Americas, public sector

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Enumeration Exercise in Rwanda.
(Photo Credit: Kadaster International)

The absence of secure land rights perpetuates vulnerability and exclusion for billions globally, particularly in developing countries. Fit-for-Purpose Land Administration: Status, Success, and Scaling explores the evolution of the FFPLA concept over the past decade, from its launch in 2014 by FIG and the World Bank to its role as the present foundation of modern land administration. FFPLA is a game-changer that prioritizes flexibility, inclusivity, and affordability, making secure land rights attainable for all.

This publication analyzes FFPLA's current global status, detailing its proven capacity for rapid scaling and significant cost reduction. Drawing on a wide range of case studies from Africa, Asia, and Latin America, it extracts vital lessons on overcoming resistances and legal rigidity to achieve long-term sustainability. It emphasizes the need for clear local business models, institutional embedding of FFPLA projects, social legitimacy, continuous renewals, shifting professional practices, purpose – led digitisation and data maintenance as key concepts necessary to sustain the progress of existing implementations and pilot new implementations with scale.

The publication identified sustained political will, public-private partnerships, building legitimacy and strengthening capacity building as key strategies necessary for mainstreaming the FFPLA approach.

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