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Ecosystems and security in land administration

Working Party thematic focus areas - Ecosystems and security for future land administration arrangements
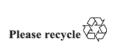
Note by the Bureau of the Working Party

Summary

Evidence emerging from recent studies by the Working Party on Land Administration (WPLA), as well as from its thematic webinars (ECE/HBP/2023/4), highlighted ecosystems and security in land administration among the main areas influencing the domain of land administration and management in the Economic Commission for Europe (ECE) region and beyond, particularly in view of the current global megatrends.

Considering the above, the Bureau decided to further investigate the challenges and issues surrounding ecosystems and security in land administration over the period 2023-2024 (ECE/HBP/2023/6). The aim is to highlight the implication of these challenges for future land administration arrangements in the region and provide recommendations for helping Governments strengthen the role of land administration in implementing the 2030 Agenda for Sustainable Development (2030 Agenda) and the New Urban Agenda (NUA).

Consistent with its focus on engaging ECE member states, the Bureau of WPLA decided to dedicate the keynote segment of Thirteenth Session of the Working Party for discussing ecosystems and security in land administration. The outcome of the discussion will be used for guiding future work, including studies, capacity-building and knowledge-sharing.

This document contains a brief overview of the main concepts underpinning ecosystems and security in land administration as well as the main issues that will form the focus on WPLA's work. It was prepared by the Bureau of the Working Party with the support of the secretariat, drawing on the publication *Digital transformation and land administration – Sustainable practices from the UNECE region and beyond* (2022), developed jointly with the Food and Agriculture Organization of the United Nations and the International Federation of Surveyors; the assessment study *Sustainable Development and Security of property rights in the UNECE Region: An assessment of perceived tenure security for land and housing*

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property (2022); and, the *Scenario study on future land administration in the UNECE region* (2021).[1]

The Working Party is invited to take note of the information provided, and request its Bureau to develop a study on ecosystems in land administration and a study on security in land administration and report on progress made at its fourteenth session in 2025.

I. Introduction

1.   Global megatrends, including urbanization, climate change and the continuous advancements in information and communications technology (ICT) are creating new opportunities for land administration authorities in the ECE region and beyond. However, these megatrends have also resulted in significant challenges, particularly with regards to ensuring good land governance and optimal land use to maximize the social, economic and environmental benefits for all.

2.   Evidence from recent studies and webinars by WPLA highlighted ecosystems and security in land administration, two fundamental, interlinked pillars of land administration arrangements, as gaining increased complexity in view of the current global megatrends and sector-specific drivers. Ecosystems, which refers to the organizational and institutional arrangements underpinning the interactions among the different actors involved as well as their functions, have become more diverse with the emergence of expanded and new formations. Changes in ecosystems also have a direct bearing on the different security aspects in land administration, which can be divided into tenure security, data security, national security and system security.

3.   The current megatrends are amplified by, among other things, the emerging needs and expectations of citizens and societies; the increasingly multi-faceted interplay between land administration and other social, economic and environmental policies; and, reduced government spending on public services. The complex interactions between the global megatrends and national factors have significant consequences for the achievement of the United Nations Sustainable Development Goals (SDGs) and will be addressed in future work.

4.   The next section provides a brief overview of the concepts underpinning ecosystems and security in land administration. This will be followed by an overview of the guiding principles, which will form the basis for future work.

II. Ecosystems in land administration

5.   The growing and multifaceted interplay between land administration and the social, economic and environmental well-being of citizens and societies is driven by global megatrends, with urbanization, climate change, digital transformation, the data revolution, distributed networks and front-end technologies being some of the major catalysts. As previously mentioned, this interplay is amplified by national factors, including the emerging needs and expectations of citizens and societies and reduced government spending on public services.

6.   These dynamics, combined with the cross-sectoral nature of land administration, have given rise to new formations of ecosystems of collaborations and distributed land administration functions, which offer new opportunities for bolstering the contribution of land administration to the achievement of the SDGs. New public-private partnership arrangements, online public services (i.e., government-as-a-platform approaches) and interoperability solutions (technical, semantic, legal and organizational) are examples of initiatives paving the way for that to happen.

7.   In this context, it is essential to consider the inter-linkage of cadastre, land registration, spatial data infrastructure (SDI), land-use planning and urban development. As societies

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[1] Available at https://unece.org/publications/oes/welcome

become more complex, requiring interdisciplinary solutions, the need to ensure that these functions act coherently in a systems approach cannot be over-emphasized. For example, in the well-established concept of rights, restrictions and responsibilities (RRR) defining the citizens' relation to land, the "rights" are established in land registration procedures (i.e., they are included in land registries). "Restrictions" and "responsibilities" are defined through the land-use planning instrument and are included in land registries, while SDI defines RRR from a geospatial perspective.

8.	The vertical distribution of responsibilities adds to the complexity, with some RRR activities and functions managed at the local/municipal level, while others fall under the responsibility of national agencies. For example, in some countries, digital platforms are being established with national land agencies assigned as the custodians of data collected at the local level. This distribution is aimed at improving the standardization of data collection, and providing relevant national authorities access to local data, such as land development plans and building information.

9.	While these dynamics and the resulting new ecosystems of actors and functions are context specific, they carry important implications for land administration arrangements. It is, therefore, important to discuss these new formations and discern the common aspects they involve, as such aspects are crucial for national policies and regional cooperation arrangements and for fostering global awareness.

10.	At the same time, digital transformation, other megatrends and sector-specific drivers detailed in the *Scenario study on future land administration in the UNECE region*, have a major impact on networking arrangements, collaboration settings and the range of actors involved. In particular, digital transformation enables the alignment of the different functions of land administration, such as cadastre and land registration, SDI, land-use planning and urban development. The resulting changes in the processes and practices are crucial for creating new synergies for strengthening the role and efficiency of land administration and, ultimately, its contribution to the achievement of the SDGs.

11.	The above issues will form the focus of a study on ecosystems in land administration in the ECE region. The study will provide recommendations for supporting national and regional policies and initiatives in the area of land administration. The results will be discussed during an online workshop and inform capacity-building and knowledge-sharing activities.

12.	The *Scenario study on future land administration in the UNECE region* and *Digital transformation and land administration – Sustainable practices from the UNECE region and beyond* will be used as the reference framework for ensuring a forward-looking, inclusive and holistic perspective of ecosystems in land administration. Such a perspective is of particular importance in light of digital transformation, which has seen land administrations embrace digital-as-default principles. While these principles and the solutions they involve provide new opportunities and enable innovations, they require sound strategic decision-making; one that is based on evidence, accumulated knowledge and experience as well as best practices for fostering security in land administration and ensuring that nobody is left behind.

## III.	Security in land administration

13.	Technology and digitalization are shaping every aspect of today's world, serving as enablers of development and the modernization of the public sector, including land administration.[2] While the conversion of analogue, paper-based land administration data into digital format has been completed in many countries, digital transformation of land administration in the ECE region is yet to be completed. This is because more needs to be done with regard to the modernization of land administration processes. As individual land

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2	For details see Digital transformation and land administration – Sustainable practices from the UNECE region and beyond", available at https://unece.org/info/publications/pub/373266.

administration authorities are in the process of modernizing their systems, or are considering doing so, digital transformation is raising numerous security concerns.

14.   Overall, digital solutions and technological developments should respond to the growing needs of citizens and societies in light of the complex and multidimensional nature of rights, restrictions and responsibilities. Furthermore, security in land administration should be approached from different levels. Each level involves a specific aspect, and combined, these aspects capture the different factors and issues that need to form the focus of land administration authorities and policy makers. Specifically, land security can be divided into three levels: security regarding individual citizens, security regarding land administration systems (LAS), and security related to the society, region, or nation. The three levels involve different, albeit partly overlapping, aspects, including tenure security, data security and system security. Below is a brief description of these aspects.

Tenure security

15.   Tenure security is one of the fundamental functions of land administration and refers to the certainty that each citizen's right to land is recognized by others and is protected. Land administration provides various tools for ensuring tenure security. It is up to Governments to determine how best to use these tools, depending on, among other things, national cultural and judicial traditions. The registration functions constitute one element for supporting tenure security. Tenure security can also be approached from a social perspective (i.e., considered as a social phenomenon), with the focus being on the extent to which citizens feel secure about their land tenure. Moreover, it can be measured in terms of the litigation cases raised in the ECE countries.

Data security

16.   Data can be described as any information that is recorded in the land administration system. Such information is considered as sensitive, if it includes private personal information (e.g., bank account and credit card numbers) or information pertaining to national issues (e.g., location of critical infrastructures or military grounds). Sensitive data is treated as confidential information, in that it must be kept safe and out of reach of third parties unless they have permission to access it. Thus, data privacy and ownership are at the core of the concept of data security. Questions on who is allowed to access the data; how the data is collected, used and protected and transferred between authorities and private entities; and who is responsible for the ownership and maintenance of the data should be clearly addressed.

System security

17.   System security refers to the overall vulnerabilities of the information systems of land administration authorities, both in terms of design and users. This concept needs to be approached from a holistic point of view to detect and evaluate potential risks. The evaluation should provide the definition of risks, the severity of each risk and possible mitigation measures. The results of the evaluation should inform strategic decisions on the design of the information systems (centralized or decentralized); the mapping of actors in the ecosystem of land administration and their responsibilities; and decisions on the overall design of land administration systems.

18.   A major concern to address is the vulnerability of information systems to hackers. In this context, risk evaluation should focus on identifying the tools used by hackers to break into systems and the risks that their actions create. The evaluation should also explore how best to strike a balance between strengthening system security and improving user-friendliness. Population ageing is a major demographic trend in Europe, which needs to be taken into consideration when designing information systems and improving system security.

19.   These issues will form the focus of a study on security in land administration in the ECE region. The study will provide recommendations for supporting national and regional

policies and initiatives in the area of land administration. The results will be discussed during an online workshop and inform capacity-building and knowledge-sharing activities.

20. The publication *Sustainable Development and Security of Property Rights in the UNECE Region: An assessment of perceived tenure security for land and housing* provides a sound basis for informing future studies on security in land administration. It investigated perceived tenure security in the region and provided an overview of the issues surrounding security in land administration. Future studies will use the three above concepts to bring forward the interconnections between the three levels of security in land administration, ensure a comprehensive treatment of the issues involved, and provide coherent recommendations for informing future national land administration strategies and regional cooperation arrangements.

IV. Guiding principles for strengthening ecosystems and security in land administration

21. WPLA future work on ecosystems and security in land administration will be based on the principle of policy coherence as established in the 2030 Agenda (SDG target 17.14). This work will also be based on the principles of the Framework for Effective Land Administration[3] of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM). The principles are provided below.

Principle 1: Strategic enablement

22. The implementation of the Framework requires political and financial support, and should, therefore, align with and support strategic direction of a government on issues such as economic growth, social well-being, job creation, natural resource monitoring, and environmental management and preservation.

Principle 2: Transparent and accountable

23. Government geospatial information is developed and shared according to key accountability and transparency guidelines so that all citizens, government agencies, academia and the private sector have access to this valuable and underpinning national resource.

Principle 3: Reliable, accessible and usable

24. Geospatial information is reliable and made accessible and usable so that it can be leveraged for research and development, used to stimulate innovation, and support the creation of sustainable services and products to advance social, economic and environmental development.

Principle 4: Collaboration and cooperation

25. Collaboration and cooperation (between government, business, academia, civil society and donors) are factored into the implementation of the Framework to strengthen information-sharing between providers and users, reduce duplication of effort across the government sector, make for a robust system, as well as provide clarity on roles and responsibilities.

Principle 5: Integrated solution

26. The implementation of the Framework is to be integrative in nature and consider how people, organizations, systems, and legal and policy structures work together to form an effective system for managing geospatial information and its use.

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[3] For more information, see UN-GGIM, 2020a. Framework for Effective Land Administration (FELA). Available at http://ggim.un.org/meetings/GGIM-committee/10th-Session/documents/E-C.20-2020-29-Add_2-Framework-for-Effective-Land-Administration.pdf

Principle 6: Sustainable and valued

27.   The implementation of the Framework will be conducted in such a way that it enhances national efficiency and productivity; is sustainable in the long term; and is deployed in a way that provides improved government services to citizens.

Principle 7: Leadership and commitment

28.   Importantly, the implementation of the Framework will require strong leadership and commitment, often at the highest level, to enhance the long-term value of investments in geospatial information. This will be achieved through careful analysis, prioritization and sequencing to develop an action plan that carefully applies interventions in the short, medium and long term, and that can receive high level endorsement and support by the government.

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