STDM Valuation of Unregistered Land

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Key words: LADM, STDM, valuation, unregistered land

SUMMARY

The importance of assigning value to unregistered land may play a crucial role for efficient land management, including acquisition, taxation, and transfer processes. This valuation could be central to establishing tenure security and recognizing legitimate land rights, impacting local and regional economics, governance strength, and the functionality of land markets. The New Urban Agenda highlights the need for competent valuation of unregistered land, which involves a transparent and accountable process, often hindered limited professional expertise, and overall data scarcity. Significant research and guidelines from various organizations, including FIG, FAO, GLTN, Namati, and RICS, have contributed to the understanding of the valuation of unregistered lands. These efforts have resulted in publications such as the Valuation of Unregistered Lands: A Policy Guide by UN-Habitat, providing practice-based guidance for valuation related to land-based financing, taxation, and fair compensation assessments. This guide together with the manual developed is universally applicable, offering a comprehensive framework for valuing unregistered land in various contexts and locations. It incorporates established best practices and protocols, detailing key valuation concepts, professional capacity-building, and includes practical tools for valuation professionals. As part of the ongoing revision of the ISO 19152 the Land Administration Domain Model (LADM), which includes a Part 4 focused on valuation, questions arise concerning the adaptability of the Social Tenure Domain Model (STDM) to address the valuation of unregistered land. This paper investigates whether STDM can be extended to accommodate the specific demands of the valuation of unregistered land and explores the necessary modifications required to develop such an extension that is both sophisticated and practically applicable in an informal setting. To effectively extend STDM for valuation purposes, it is crucial to incorporate specific valuation functions capable of capturing land values based on various criteria like location, land use, and potential for development. These functions must be adaptable to different economic conditions and real estate markets to ensure accuracy and relevance also in an informal setting. The model must also enhance its data integration capabilities to manage a range of data sources effectively, including market data, but also not formally recognised supporting documents. Considering the contexts in which STDM is typically used, the model should feature user-friendliness and not too complicated procedures that are intuitive and accessible for individuals without formal training. Simplifying both the input and output processes is crucial to ensure the model's usability and clarity. Furthermore, the model should be scalable to handle various sizes and types of buildings and plots and flexible enough to adapt to diverse local legal and economic environments. Further, and this is crucial to any standard development, interoperability must be ensured so that the data can also be included in any formal system used within the specific

country. This paper describes the development of the STDM Valuation of Unregistered Land and how specific aspects and considerations were derived from literature and practical experiences to develop such an extension. With the development of the STDM Valuation of Unregistered Land the aim is to contribute to more equitable and effective land administration practices worldwide.

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1. INTRODUCTION

The significance of assigning value to unregistered land is increasingly recognised as a critical component in effective land administration (UN-GGIM, 2020). This valuation process plays an essential role in land acquisition, taxation, and the transfer of property, thus forming a cornerstone for establishing tenure security and legitimising land rights (UN-Habitat, 2018; Kara et al. 2023; Lemmen et al. 2019; OGC, 2019). These factors, in turn, significantly influence local and regional economic development, governance strength, and the functioning of land markets (UN-Habitat, 2021.

As highlighted in the New Urban Agenda, the competent valuation of unregistered land necessitates a transparent and accountable process. However, this task is often complicated by limited professional expertise and a chronic scarcity of data. Addressing these challenges, various organisations—including FIG, FAO, GLTN, Namati, and RICS—have contributed extensive research and guidelines to improve understanding and practices related to unregistered land valuation. Notably, the publication of the Valuation of Unregistered Lands: A Policy Guide by UN-Habitat provides a comprehensive framework for professionals engaged in valuation tasks associated with land-based financing, taxation, and fair compensation (UN-Habitat, 2018).

This policy guide, along with its accompanying manual, offers globally applicable recommendations, incorporating best practices and standardised protocols for the valuation of unregistered land in diverse contexts. The guide also addresses key valuation concepts, professional capacity-building, and the integration of practical tools for use by valuation professionals.

In parallel with these developments, ongoing revisions to the ISO 19152 Land Administration Domain Model (LADM) have prompted inquiries into whether the Social Tenure Domain Model (STDM) can be adapted to address the specific demands of unregistered land valuation (Morscher-Unger et al., 2024). This paper explores the potential for extending STDM to accommodate valuation functions tailored to different economic conditions and real estate markets, ensuring accuracy and relevance even in informal settings.

The extension of STDM for valuation purposes necessitates the inclusion of specialised functions capable of capturing land values based on criteria such as location, land use, and development potential. Additionally, the model must enhance its data integration capabilities to effectively manage a range of data sources, including both market data and informal supporting documents. To ensure accessibility, the model should feature user-friendly processes that are intuitive for individuals without formal training, while also being scalable and flexible to adapt to various local legal and economic environments.

Ultimately, this paper outlines the development of the STDM Valuation of Unregistered Land, incorporating insights from literature and practical experiences. The aim is to contribute to more equitable and effective land administration practices on a global scale, supporting the broader goals of sustainable development and social justice.

2. STDM BACKGROUND AND GOALS

The Social Tenure Domain Model (STDM) emerged as an initiative by UN-HABITAT, designed to bridge the gap between formal and informal land administration systems (Augustinus et al., 2006; Lemmen, 2010; UN-Habitat, 2008)). STDM is fundamentally about recognising and recording the diverse relationships between people and land, irrespective of the formalisation or legality of those relationships. This model was developed with a focus on pro-poor land administration, targeting regions where conventional cadastral systems are either absent or insufficient, such as in urban slums, rural customary areas, and post-conflict zones. STDM represents a significant shift from traditional land administration by acknowledging that land rights extend beyond formal titles to include social tenure relationships like occupation, tenancy, and customary rights (Zevenbergen, 2021; Van Oosterom et al., 2022).

In many developing countries, the majority of land and property is unregistered, and traditional land administration systems often fail to recognise the ways in which people interact with land. STDM provides a flexible model that accommodates these various forms of tenure, allowing for the documentation of land rights in all manner, leaving no one left behind (Zevenbergen et al., 2016; UN-Habitat, 2017). This adaptability makes STDM particularly valuable in areas where conventional land administration methods are either inapplicable or impractical.

The need for STDM in the valuation of unregistered land is increasingly apparent as governments and international organisations seek to improve land tenure security, facilitate land markets, and support sustainable development. The valuation of unregistered land is a complex task that requires consideration of not only market values but also social, cultural, and environmental factors. Traditional valuation methods, which are typically designed for formal, registered properties, often fall short when applied to unregistered lands where land rights are informal and not legally recognised (UN-Habitat, 2018).

Incorporating STDM into the valuation process for unregistered land ensures that all forms of land tenure are considered, providing a more comprehensive and equitable approach to land administration. By recognising and valuing the diverse relationships between people and land, STDM helps to legitimise the land rights of vulnerable populations, thereby contributing to poverty reduction, conflict resolution, and improved tenure security. Moreover, STDM's integration with existing land administration systems allows for the gradual formalisation of informal land rights, providing a pathway for the inclusion of marginalised communities in the formal land market.

In summary, the STDM and its application in the valuation of unregistered land is a critical step toward ensuring that all people, regardless of their socio-economic status, have access to secure and recognised land rights. This, in turn, supports broader goals of equitable development and governance, making STDM an essential component in the ongoing efforts to reform and improve land administration systems worldwide.

2.1 STDM Valuation for Unregisterd Land

2.1.1 LADM II part 4

The Land Administration Domain Model (LADM), established by ISO 19152, is an international standard designed to provide a comprehensive and flexible framework for land

administration systems. The initial edition of LADM focused primarily on the legal, spatial, and administrative aspects of land administration, offering a robust foundation for the management of land-related information. However, it recognised that the valuation of property, a key component of land administration, was not fully addressed in the original model (Lemmen et al. 2015; OGC, 2019, Janecka et al. 2018, Kalogianni et al. 2021).

To bridge this gap, ongoing developments in LADM, particularly the introduction of LADM II, include a dedicated section on valuation—referred to as Part 4. This addition marks a significant advancement in the standard, focusing on the integration of property valuation information within the broader land administration framework. Part 4 of LADM is designed as a conceptual model rather than a data product specification, providing a formal information model that facilitates communication and interoperability between different countries and organisations involved in property valuation (Kara et al., 2023b).

The main objectives of LADM Part 4 are twofold. Firstly, it aims to establish a common basis for representing and managing property valuation information across various jurisdictions. This includes the identification of properties, the assessment of their value through both single and mass appraisal methods, the recording of transaction prices, and the management of sales statistics and appeals processes. Secondly, it seeks to provide an extensible framework that supports the development and refinement of property valuation systems, ensuring they are efficient, effective, and aligned with international standards.

LADM Part 4 is particularly relevant for public bodies, offering guidance for developing local and national information models and databases. It also serves as a resource for the private sector, facilitating the integration of valuation databases with existing land administration systems. The model is designed to cover common aspects of valuation shared globally, based on the conceptual framework of the International Federation of Surveyors (FIG) Cadastre 2014 and the international property valuation standards.

Overall, the inclusion of Part 4 in LADM II represents a crucial step toward creating standardised, interoperable, and comprehensive land administration systems that incorporate property valuation, thereby enhancing the accuracy, consistency, and transparency of land-related data worldwide. This development is expected to play a significant role in supporting sustainable development goals and improving the management of land resources on a global scale.

The LADM II Part 4 model, as currently proposed, does not adequately address the complexities of informal settings because it is primarily designed for formal land administration systems that rely on structured, legally recognized property data.

In contrast, the Social Tenure Domain Model (STDM), a generalization of LADM, is specifically tailored to accommodate the diverse and informal land tenure relationships often found in unregistered land contexts. Therefore, using STDM to develop a model for the valuation of unregistered land is essential to ensure that all forms of land rights, including those in informal and customary systems, are recognized and valued appropriately.

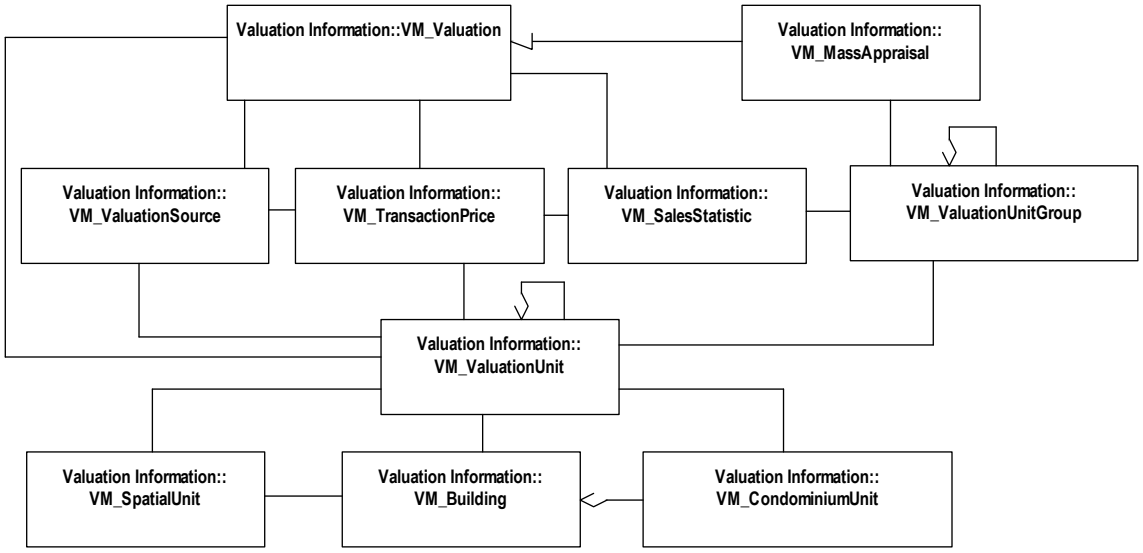

Figure 1. LADM II part 4 (Source: ISO 19152-4 approved and registered for the DIS stage)

2.1.2 STDM Valuation of Unregistered Land

The Glossary/Key Terms from the GLTN Publication 'Valuation of Unregistered Land – A Practice Manual' were carefully considered to develop a comprehensive model for the valuation of unregistered land using the Social Tenure Domain Model (STDM). This approach draws from the International Valuation Standards Framework (IVSC, 2019), which defines three principal bases of value: Market Value, Investment Value, and Fair Value. These definitions are crucial for ensuring that the valuation of unregistered land aligns with globally recognised standards while being adaptable to the conditions found in informal settings.

The STDM Valuation of Unregistered Land model is built upon a detailed analysis of the GLTN Publication, specifically examining how its key aspects can be incorporated into the existing STDM model. The resulting decisions highlight where additional classes, attributes, or overlays are necessary to extend STDM's capabilities to support the complex valuation processes required for unregistered land. The table provided offers an overview of how the various aspects of the GLTN Publication are addressed within the STDM model, identifying existing STDM core classes that exist and proposing enhancements where gaps exist.

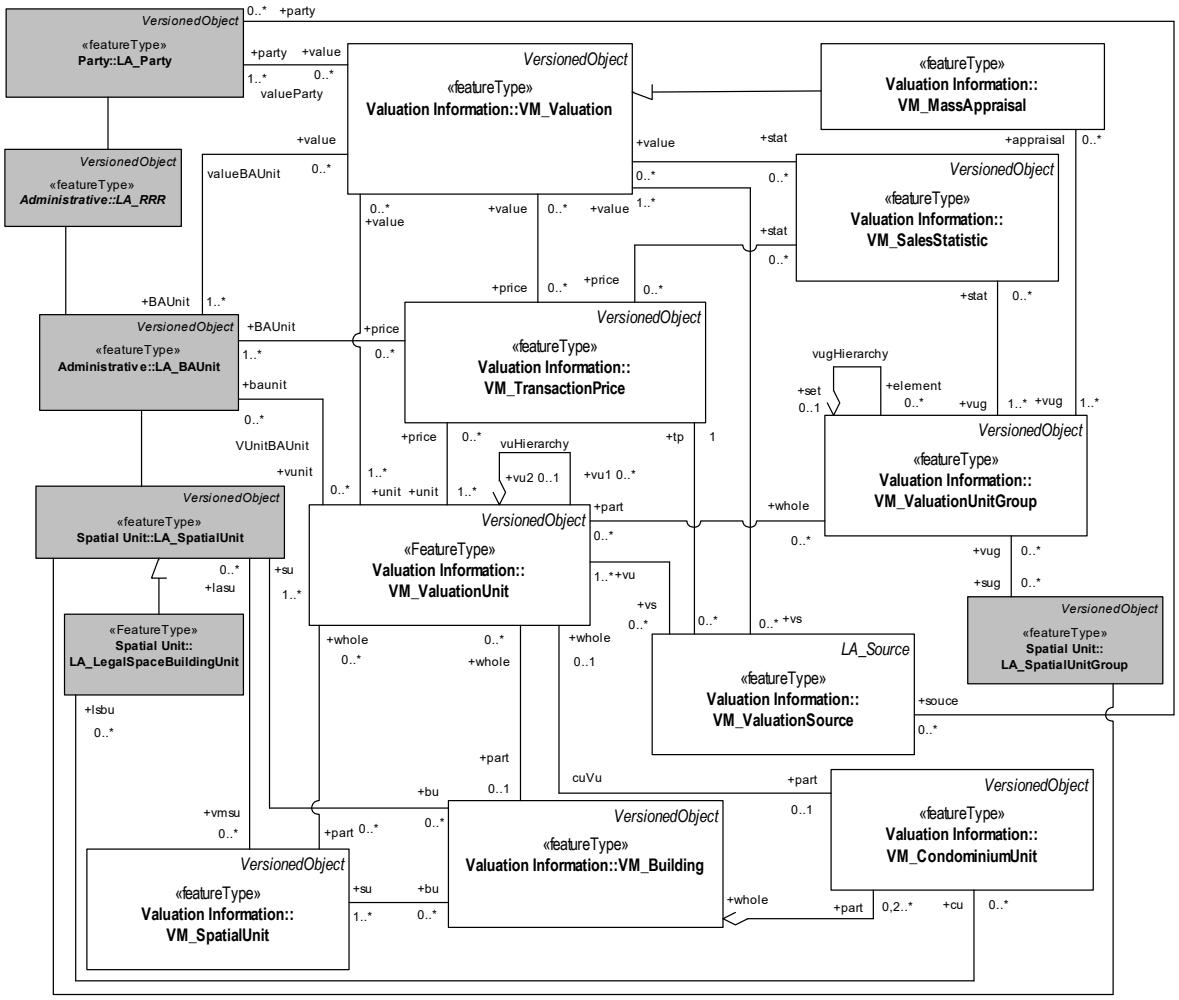

Figure 2. LADM II part 4 (Source: ISO 19152-4 approved and registered for the DIS stage)

Table 1. Analysis of the GLTN Publication 'Valuation of Unregistered Land – A Practice Manual'

GLTN Publication	Analysis	Decision
1. General		
1.1 Summary of the land rights being valued	Information provided by STDM core classes	No additional action needed
1.2 Definition of the market value, including any distinctions between market value and the value(s) being assessed under the instruction	Requires additional attributes for valuation of unregistered land	Introduce Social Market Value class
1.3 Date of the inspection and valuation	Needs to capture specific dates for valuation and inspection	Add ValuationDate (DateTime) and DateOfInspection (DateTime)
2. Details of the land rights		

2.1 Definition of the land	Information provided by STDM core classes	No additional action needed
2.2 Description of the land rights in the area	Information provided by STDM core classes	No additional action needed
2.3 Description of the land rights being valued	Information provided by STDM core classes	No additional action needed
2.4 Real property description	Information provided by STDM core classes	No additional action needed
2.5 Possessor(s) of the land rights being valued	Information provided by STDM core classes	No additional action needed
2.6 Benefits of, and encumbrances to, those rights	Information provided by STDM core classes	No additional action needed
2.7 Previous transfers	Information provided by STDM core classes	No additional action needed
3. Description of the relevant governance		
3.1 Local, regional and national authorities	Partially provided by STDM core classes	Create overlay zone VM_ValuationUnitGroup (similar to part 4 VM_ValuationUnit and VM_ValuationUnitGroup) where this source document is added
3.2 Value-relevant policies and laws at each level of governance	Not covered by STDM core classes	Include in VM_ValuationUnitGroup
4. Land and Locality Description		
4.1 Land area, locality and description	Information provided by STDM core classes	No additional action needed
4.2 Situation and identification	Not provided by STDM core classes	**Decision:** Create an overlay zone VM_ValuationUnitGroup (similar to LADM Edition II part 4 VM_ValuationUnit and VM_ValuationUnitGroup) where this information is added for the 'zone' (e.g. situation, general locality and surrounding, services and amenities, social and environmental statement etc.); **Additional:** Include the attribute land use (Codelist) in the SpatialUnit class of STDM. That land use attribute could use/refer to the ISO classification (ISO 19144-2 and -3).
4.3 General locality and surrounding development	not provided by STDM core classes	Include in VM_ValuationUnitGroup
4.4 Services and amenities	not provided by STDM core classes	Include in VM_ValuationUnitGroup
4.5 Social and environmental statement	not provided by STDM core classes	Include in VM_ValuationUnitGroup

5. Existing Improvements and Use		
5.1 Introduction	not provided by STDM core classes	Add 'ImprovementsandUse' attribute
5.2 General construction and fixtures	not provided by STDM core classes	Add 'ImprovementsandUse' attribute
5.3 Condition of improvements and utility	not provided by STDM core classes	No additional action needed
6. Lease Summary/Occupancy Details		
6.1 Regardless of whether written statements exist, the following information or its applicable equivalent should be included in this section: • – Lessor • – Lessee • – Commencement date • – Expiry date • – Option period • – Initial rental • – Rent reviews • – Current rental • – Outgoings and who pays them	provided by STDM core classes through Supporting Document also within LADM Edition II Source Document and Versioned Object can have different timestamps	No additional action needed
6.2 Strengths, weaknesses, opportunities and threats related to the relevant land rights	Not necessary	No additional action needed
7. Comparative Market Information	Supported by STDM core classes	It could be argued that this information is provided by STDM core classes through Supporting Documents but after consultation with GLTN it was decided to include a 'Transaction' class
8. Basis of the Valuation		
8.1 Highest and best sociolegal use	not provided by STDM core classes but also not necessary as an attribute	No additional action needed
8.2 Valuation methodology and calculations	not provided by STDM core classes	Add 'ValuationMethod' attribute
8.3 Insurance assessment	not provided by STDM core classes but also not necessary as an attribute	No additional action needed

This structured approach ensures that the STDM model is appropriately extended to support the valuation of unregistered land, aligning with best practices and international standards while remaining flexible enough to address the unique challenges of informal settings.

Other Technical Considerations for STDM Valuation of Unregistered Land regarding the Relationship/Multiplicity and the Versioned Object in STDM

Relationship/Multiplicity: In the context of the Social Tenure Domain Model (STDM) for the valuation of unregistered land, it is essential to understand the relationship and multiplicity between classes. In LADM Edition I, there is an external class related to valuation named 'ExtValuation,' which is associated with the Basic Administrative Unit (BAUnit). However, within the STDM framework, the 'Social Market Value' class is appropriately linked to the *Spatial Unit* rather than the 'Social Tenure Relationship.' This distinction ensures that the valuation reflects the characteristics of the physical land or property. Additionally, the 'Transaction' class is related to the 'Social Tenure Relationship,' capturing the dynamic and transactional aspects of land tenure within informal settings.

Versioned Object in STDM: A notable enhancement in LADM Edition II is the expanded attributes within the VersionedObject class. In STDM, the 'SocialTenureRelationship' is designed as a subclass of the VersionedObject, allowing it to inherit these new attributes. Specifically, LADM Edition II introduces two distinct timestamps: one representing real-world time (begin and end real-world lifespan version) and another for database time (begin and end lifespan version). This dual timestamp system enhances the model's ability to track both the temporal changes in the real world and the updates within the database, offering a more comprehensive view of tenure relationships over time.

Furthermore, the LA_Source class is now versioned, unlike in LADM Edition I. This improvement allows for the versioning of source documents, ensuring that all historical changes and updates to land-related documents are accurately recorded and maintained within the system. This capability is crucial for the reliable and transparent management of land information, particularly in informal settings where documentation may be less formalised and more prone to changes.

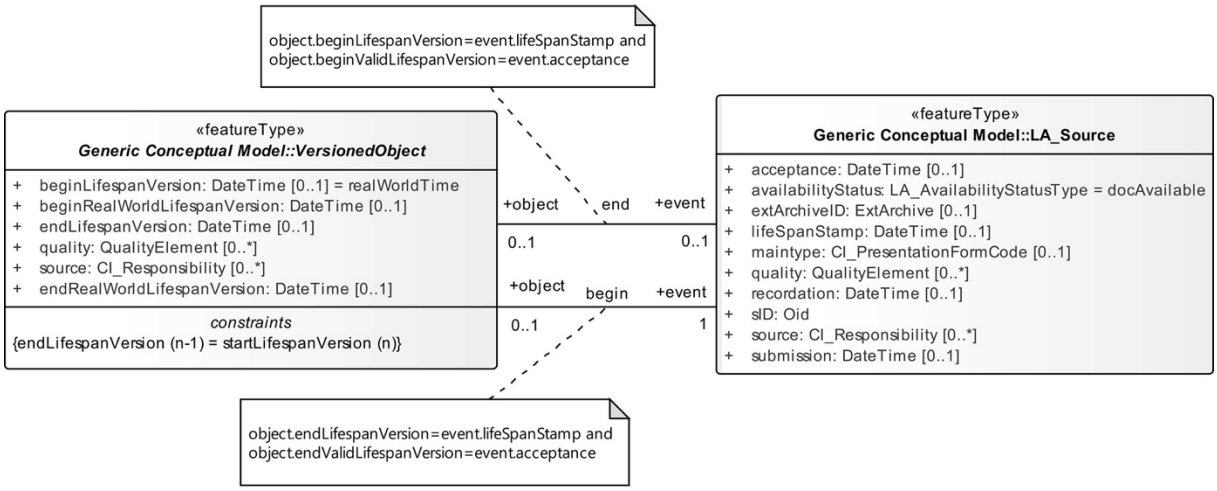

Figure 4. Versioned Object in LADM II (Source: ISO 19152-1 Generic conceptual model https://www.iso.org/standard/81263.html)

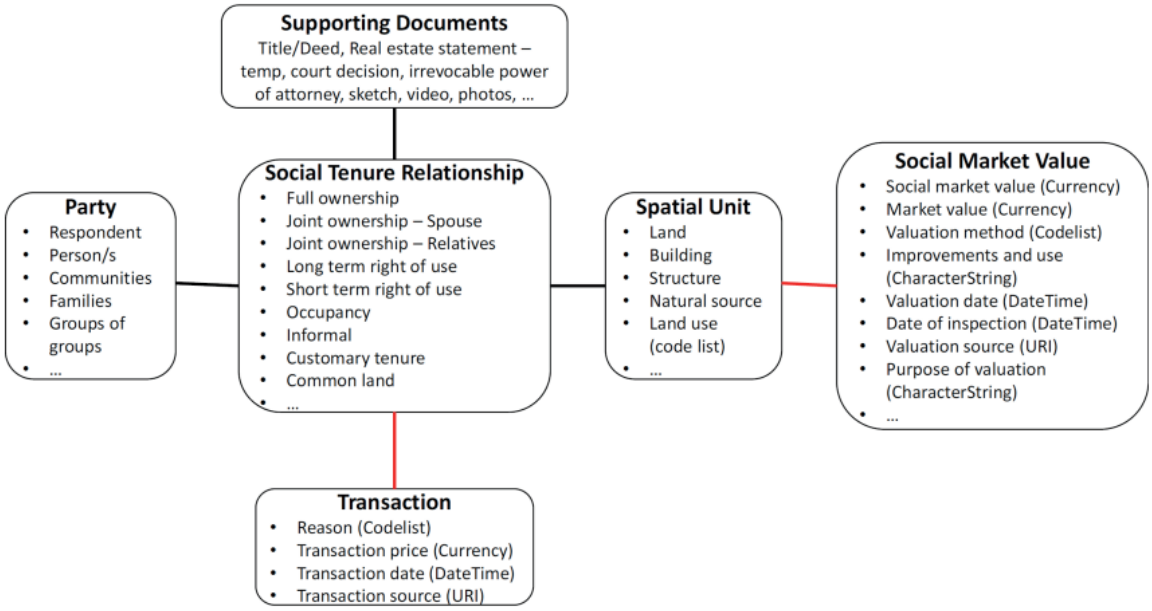

Figure 5. STDM Valuation of Unregistered Land (Source: ISO 19152-4 approved and registered for the DIS stage)

3. CONCLUSIONS AND RECOMMENDATIONS

The development of the Social Tenure Domain Model (STDM) valuation of unregistered land represents a significant step forward in creating more inclusive and equitable land administration systems. As a generalisation of the Land Administration Domain Model (LADM), STDM offers a flexible and adaptable framework, particularly suited to the complexities of informal land tenure systems. By incorporating STDM into the valuation process, diverse forms of land tenure, including those in informal and customary contexts, are recognised and valued appropriately, supporting broader goals of tenure security, poverty reduction, and social justice.

STDM provides a robust foundation for addressing the valuation needs of unregistered land, further refinements are essential to fully meet the demands of this context. Enhancements such as the introduction of the 'Social Market Value' class and the expanded attributes in the VersionedObject class within LADM II part 4 are crucial developments that ensure the model accurately reflects the dynamic nature of unregistered land.

To ensure the ongoing relevance and effectiveness of STDM in valuing unregistered land, refinement of the model were necessary, particularly in enhancing its capacity to handle the unique challenges of informal land tenure systems. As STDM is further developed, efforts should focus on its seamless integration with existing formal land administration systems. This integration will facilitate the gradual formalisation of informal land rights, providing a pathway for the inclusion of marginalised communities in the formal land market.

Given the complexity of valuing unregistered land, investment in capacity building and training for land professionals is essential. Equipping them with the necessary skills and knowledge will enable effective use of STDM in various contexts. To maintain the relevance of STDM, it is crucial to establish mechanisms for ongoing monitoring and feedback from

users, allowing for continuous improvements to the model and ensuring it remains responsive to the evolving needs of land administration in both formal and informal settings.
Fostering global collaboration among land professionals, governments, and international organisations will be key to the successful implementation of STDM valuation of unregistered land. By sharing experiences and best practices, the global community can work together to refine and expand the use of STDM, contributing to more equitable land administration systems worldwide.

REFERENCES

Augustinus, C., Lemmen, C. and Van Oosterom, P. (2006) Social tenure domain model requirements from the perspective of pro-poor land management. In: Proceeding of the 5th FIG regional conference for Africa: promoting land administration and good governance, 8-11 March 2006, Accra, Ghana. 52 pp https://www.fig.net/resources/proceedings/fig_proceedings/accra/papers/ps03/ps03_01_augustinus.pdf

FAO, 2020 Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security; Food and Agriculture Organization (FAO): Rome, Italy, 2012; 40p. Available online: http://www.fao.org/3/i2801e/i2801e.pdf (accessed on 21 January 2024).

INTERNATIONAL VALUATION STANDARDS COUNCIL (IVSC). International Valuation Standards. London, the United Kingdom, 2019. Available at: https://www.ivsc.org/

Janečka, K., Bydłosz, J., Radulović, A., Vučić, N., Sladić, D., and Govedarica, M. (2018) Lessons learned from the creation of the LADM based country profiles. In: Proceedings of the 7th International FIG Workshop on the Land Administration Domain Model 11-13 April 2018, Zagreb, Croatia, https://wiki.tudelft.nl/pub/Research/ISO19152/LADM2018Workshop/12-06_LADM_2018.pdf

Kalogianni, E., Janečka, K., Kalantari, M., Dimopoulou, E., Bydłosz, J., Radulović, A., Vučić, N., Sladić, D., Govedarica, M., Lemmen, C.H.J. and Van Oosterom, P.J.M. (2021) Methodology for the development of LADM country profiles. In: Land Use Policy, Volume 105, June 2021,https://www.sciencedirect.com/science/article/pii/S0264837721001034

Kara, A., & Zevenbergen, J. (2023). Valuation Information / LADM Part 4: Position paper 4. In P. van Oosterom, & J. M. Paasch (Eds.), 11th International FIG Workshop on the Land Administration Domain Model & 3D Land Administration (LADM2023) (pp. 355-368). International Federation of Surveyors (FIG). https://doi.org/10.4233/uuid:1da8981b-d8e6-4670-90ee-5cdebeb4cf39

Kara, A., van Oosterom, P., Kathmann, R., & Lemmen, C. (2023b). Visualisation and dissemination of 3D valuation units and groups – An LADM valuation information compliant prototype. Land Use Policy, 132, Article 106829. https://doi.org/10.1016/j.landusepol.2023.106829

Lemmen, C.H.J. (2010) The social tenure domain model: a pro-poor land tool. FIG publication No. 52. International Federation of Surveyors (FIG), 2010. ISBN 978-87-

90907-83-9, 2010. Copenhagen, Denmark, 20 p, https://www.fig.net/resources/publications/figpub/pub52/figpub52.pdf
Lemmen, C.H.J., Van Oosterom, P.J.M., Kara, A., Kalogianni, E., Shnaidman, A., Indrajit, A. and Alattas, A. (2019) The scope of LADM revision is shaping-up. In: Proceedings of the 8th International FIG workshop on the Land Administration Domain Model, 1-3 October 2019, Kuala Lumpur, Malaysia, http://resolver.tudelft.nl/uuid:90042722-758a-43d3-8f4e-2f8f8d7cb784
Lemmen, C., Van Oosterom, P. and Bennett, R. (2015) The land administration domain model. Land use policy, 49, 535-545, https://doi.org/10.1016/j.landusepol.2015.01.014
Morscher-Unger, E-M; Kara, A.; Gitau, J.; (2024) STDM Valuation of Unregisterd Land in FIG Working Week 2024: Your World. Our World: Resilient Environment and Sustainable Resource Management for All; International Federation of Surveyors: Copenhagen, Denmark, 2024; https://www.fig.net/resources/proceedings/fig_proceedings/fig2024/ppt/ts11h/TS11H_STDM_ValuationofUnregisteredLand_FIG_Long.pdf
OGC (2019) OGC White Paper on Land Administration. Editors: Christiaan Lemmen, Peter van Oosterom, Mohsen Kalantari, Eva-Maria Unger and Cornelis de Zeeuw. Internal reference number of this OGC® document: 18-008r1. Copyright © 2019 Open Geospatial Consortium http://www.opengis.net/doc/wp/land-admin
UN-GGIM, 2020 Framework for Effective Land Administration, August 2020, New York, United States. Available online: https://ggim.un.org/meetings/GGIM-committee/10th-Session/documents/E-C.20-2020-29-Add_2-Framework-for-Effective-Land-Administration.pdf (accessed on 10 May 2021).
UN-Habitat (2008) Secure land rights for all. Nairobi, Kenya, United Nations Human Settlements Programme, Nairobi, Kenya, 2008
http://mirror.unhabitat.org/pmss/getElectronicVersion.aspx?nr=2488&alt=1
UN-Habitat (2017) GLTN Tools and Approaches Matrix, Version September 2017. United Nations Human Settlements Programme, Nairobi, Kenya, 2017, https://gltn.net/download/gltn-tools-and-approaches-matrix/#
UN-Habitat (2018) Valuation of Unregistered Land – A Policy Guide. Nairobi, Kenya, United Nations Human Settlements Programme, Nairobi, Kenya, 2018, https://unhabitat.org/sites/default/files/download-manager-files/Guide_Valuation_unregistered_Land.pdf
UN-Habitat (2021) Valuation of Unregistered Land – A Practice Manual. Nairobi, Kenya, United Nations Human Settlements Programme, Nairobi, Kenya, 2021
https://fig.net/resources/publications/GLTN/Valuation-of-Unregistered-Land%E2%80%93A-Practice-Manual.pdf
Van Oosterom, P.J.M. and Lemmen, C.H.J. (2015) The Land Administration Domain Model (LADM): Motivation, standardisation, application and further development. In: Land Use Policy, Volume 49, December 2015, Pages 527 – 534, https://doi.org/10.1016/j.landusepol.2015.09.032
Van Oosterom, P.J.M.; Unger, E.-M. and Lemmen, C.H.J. (2022) The second themed article collection on the land administration domain model (LADM). In: Land Use Policy, Volume 120, September 2022, https://doi.org/10.1016/j.landusepol.2022.106287
Zevenbergen et al., 2016 Zevenbergen, Advances in Responsible Land Administration; J.A.; De Vries, W.; Bennett, R.M. (Eds.) CRC Press: Boca Raton, FL, USA, 2016.

Zevenbergen, 2021 Handling Land: Innovative tools for Land Governance and Secure Tenure: E-Book; Zevenbergen, J.A. UN-HABITAT, International Institute of Rural Reconstruction (IIRR), Global Land Tool Network (GLTN): Nairobi, Kenya, 2012; 152p. Available online: https: //www.local2030.org/library/76/Handling-land,-Innovative-Tools-for-Land-Governance-and-Secure-Tenure.pdf (accessed on 23 February 2024).

BIOGRAPHICAL NOTES

Eva-Maria Morscher-Unger works with the international arm of the Netherlands national mapping, land registration and cadastral agency (Kadaster International) as a Senior Land Administration Advisor. She gives advice, assessments, and designs and oversees the conceptualisation and implementation of affordable and effective land administration systems. She is responsible for developing deeper relationships with international donors, partner countries and other consultants and has worked with UN-GGIM, UN Habitat, GLTN, the World Bank, The Dutch Ministry of Foreign Affairs, the EU, and private sector companies. Dr. Unger completed a secondment with UN-GGIM. She holds a MSc. in Geodesy and Geoinformation and a PhD in Land Administration. As a researcher, Eva-Maria is involved in teaching at KU Leuven and the University of Twente. Eva-Maria is chair to STDM Advisor Committee and the Co-Chair of the OGC Domain Working Group on Land Administration and director of OICRF. She was chair of the FIG Young Surveyors Network from 2014-2018, dedicated to the STDM Training of Trainers Program and initiator of the Volunteer Community Surveyors Program (VCSP), supporting the GLTN's county-level implementation plans and programmes.

Abdullah Kara holds a Ph.D. degree (2021) from Yıldız Technical University (YTU) with a thesis on the extension of Land Administration Domain Model (LADM) with valuation information, which is used as a basis for the development of LADM Part 4 - Valuation information. He worked as a post-doctoral researcher (2021-2024) at the GIS Technology Section, Delft University of Technology. He has worked as an assistant professor at Gebze Technical University starting from 2024. He has been actively involved in FIG working groups.

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