

Framework for Effective Land Administration (FELA): Workplan and Implementation

SOON Kean Huat
Singapore Land Authority



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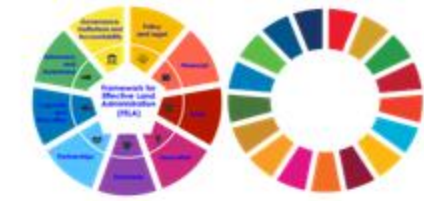
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EXPERT GROUP ON
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Expert Group on Land Administration and Management (EG – LAM)

- was endorsed in August 2015
- Currently Chile and Singapore appointed as co-chairs

Objectives

- Lead at the policy level;
- Encourage the use of geospatial information tools and systems.

Functions

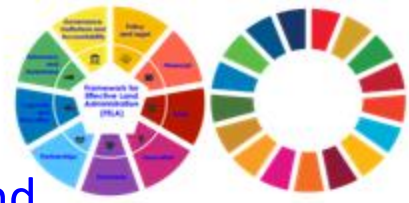
- Provide a forum for global experts;
- Propose work plans to address governance, data management, institutional and technology adoption and sustainability issues;
- Undertake work that contributes to the Sustainable Development Goals;

| Member States (28) | Professional Bodies (9) |
|---------------------------|------------------------------------|
| Barbados | IHO |
| Belgium | FAO |
| Burkina Faso | UNECE-WPLA |
| Canada | UN-Habitat/GLTN |
| Chile | World Bank |
| China | Standards Development Organisation |
| Egypt | |
| Finland | UN-GGIM: Geospatial Societies |
| Germany | UN-GGIM: Academic Network |
| Guyana | UN-GGIM: Private Sector Network |
| India | |
| Korea (Republic of) | |
| Kuwait | |
| Lesotho | |
| Mexico | |
| Morocco | |
| Netherlands | |
| Norway | |
| Philippines | |
| Saudi Arabia (Kingdom of) | |
| Singapore | |
| Spain | |
| Sri Lanka | |
| Suriname | |
| Sweden | |
| Tonga (Kingdom of) | |
| United Arab Emirates | |
| United Kingdom | |

Current members



Framework for Effective Land Administration (FELA)



A reference for developing, renewing, reforming, strengthening, modernizing, or monitoring land administration, cognizant of national priorities and circumstances.

Endorsed in August 2020 and now it is at Implementation phase

Vision

Secured people to land relationships in all forms for the wellbeing of partnerships, planet, prosperity and peace.

Mission

To provide leadership, coordination and internationally recognized standards, and support responsible innovation and partnerships, for effective land administration to realise sustainable social, environmental and economic development.



https://ggim.un.org/meetings/GGIM-committee/10th-Session/documents/E-C.20-2020-29-Add_2-Framework-for-Effective-Land-Administration.pdf



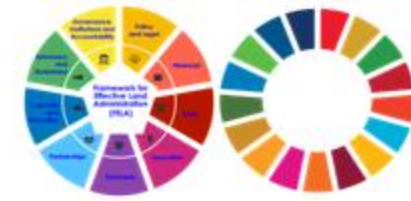
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Focus Area 5: Engagement and collaboration including to further anchor the FELA in the UN-GGIM programme of Work

Scope 11: Identify, agree and **work on cooperative projects** including with UN-GGIM regional committees, functional groups, thematic networks and relevant stakeholders.



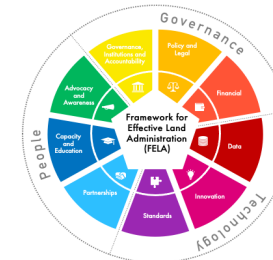
Focus Area 1: Leadership and Advocacy in Effective Land Administration

Scope 1: Promote and raise awareness of the merits and benefits of **effective land administration**;
 Scope 2: Encourage, promote and develop **guidance** for Member States to implement FELA at country level.



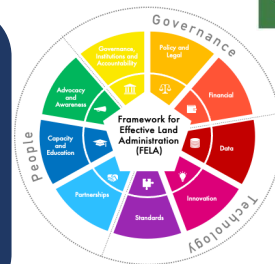
Focus Area 2: Promote and encourage the implementation of the FELA at the country level

Scope 3: Review, elaborate and adapt the **UN-IGIF Implementation Guide** and related implementation resources to further guide and support the implementation of FELA according to national circumstances and needs;
 Scope 4: Encourage volunteered **translation** of the FELA into languages other than English to support raising of awareness and promote better understanding;
 Scope 5: Facilitate sharing and exchange of knowledge, information, experiences, and practices, including relevant **use cases** and implementation examples.



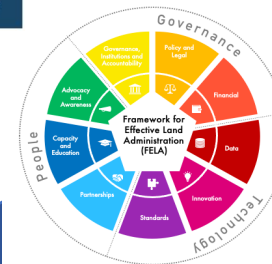
Focus Area 4: Innovation in land administration and management to strengthen resilience and sustainability

Scope 7: Promote effective land administration **within an 'ecosystem'** or **'interconnected domains'**;
 Scope 8: Address **rights, restrictions and responsibilities** associated with land;
 Scope 9: Address **digital and mobile access** to land information including cybersecurity and data security mechanisms to protect vital land information;
 Scope 10: Address the integration of information related to **land tenure, land value, land development, land use and land use change**.



Focus Area 3: Integration of terrestrial, maritime, built and cadastral domains

Scope 6: **Gain better understanding** through cooperative project and activities.



<https://ggim.un.org/documents/EG-LAM Work plan 2023-2025 Final.pdf>

Workplan's Progress Overview

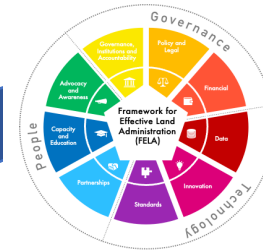


1. Leadership and Advocacy in Effective Land Administration

- Report at UNGGIM Annual Meetings at UNHQ (**ongoing**)
- Chair and co-organise 5th EG-LAM Meeting and International Seminar in Mexico (**ongoing**);
- Chair and organise 3 Virtual Meetings per year (**completed in 2023, ongoing in 2024**)
- Organised International Seminar on Effective Land Administration in Singapore (**completed**)

5. Engagement and collaboration including to further anchor the FELA in the UNGGIM programme of Work

- Collaborate with GGCE on integrating FELA in Geodesy domain (**ongoing**)
- Anchor FELA in the works with OGC and IHO (**ongoing**)
- Contributed a section on land admin data in policy paper by WG on Policy and Legal Framework (**completed**)



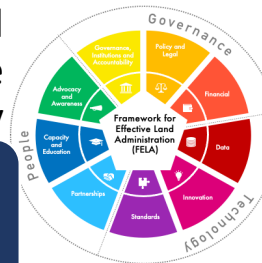
2. Promote and encourage the implementation of the FELA at the country level

- Working Group 7.1 on FELA in FIG Commission 7 with Spain, Netherlands, Latin Americas (Led by Spain) (**ongoing**);
- EuroSDR on FELA Implementation (Led by the Netherlands) (**ongoing**)
- Chaired a Session on FELA implementation at FIG Working Week 2023 (**completed**)



4. Innovation in land administration and management to strengthen resilience and sustainability

- Establishment of near-shore permanent ground reference control points with MPA (**ongoing**);
- Setting up a framework to monitor vertical land motion (funding proposal submitted, **ongoing**);

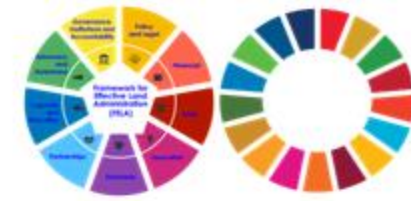


3. Integration of terrestrial, maritime, built and cadastral domains

- Crafting policy paper on integrating land and sea with MPA under IHO-Singapore Lab (**ongoing**)
- Co-lead COTS project on harmonization of datums (led by PUB) (**ongoing**)
- Conducted technical discussion on integration of various domains in SLA (**completed**)
- OGC Pilot on Integrating Land and Sea (**completed**)



Working Group on Policy and Legal Frameworks for Geospatial Information Management



2.1.4 Effective land administration¹³ to achieve authoritativeness

Land administration is a societal activity both shaping and shaped by governance, institutions, and associated with accountability and authority. Conventionally, land administration is mandated through national or state land laws, and underpinning land policy frameworks. Systems have developed with supportive policies, legislation, safeguards, accountability mechanisms, and protections around data and privacy. This strong legal backing often differentiates land data from other types of geospatial information. Effective land administration is crucial to ensure the authoritativeness of the land data to be used for the people and by the people. The nine pathways, in particular, Pathway II: Policy and Legal and Pathway IV: Data, of the [Framework for Effective Land Administration \(FELA\)](#) affirmed the data relating to land tenure, land use, land value, and land development are fundamental geospatial data themes within any jurisdiction. This data informs on the 'how', the 'what', the 'who', the 'when' and the 'where' of land tenure, land use, land value, and land development.

Land data laws and directives may have prescribed collection, ordering, and storage methods. However, it is important to recognize the dualist and pluralist inherent to some land administration systems, particularly in developing contexts. Parallel systems may have evolved over time and parts may be closely linked to the cultural and customary ways of life, which may not always be catered for by statutory law. The customs, traditions and land tenure systems of indigenous peoples are equally to be recognized alongside statutory law. Similarly, in coastal zones, multiple legal regimes may coexist.

Data relating to land tenure, land use, land value, and land development are fundamental geospatial data themes within any jurisdiction, underpins the processes and transactions that enable changes to the status of land tenure, land use and land value. Defining requirements of land data are the need for appropriate spatial accuracy, the requirement to be temporally up-to-date, and to be backed up, assured and potentially insured by an authority. Without these elements, the data is quickly undermined in terms of societal use and relevance. Availability, accessibility, and interoperability of the land data are also necessities for effective land administration. ISO 19152 (Land Administration Domain Model) and IHO S-121 (Maritime Limits and Boundaries) provide starting points for creating these qualities.



International Seminar on “Geo-Enabled Effective Land Administration” – March 14, 2023, Singapore

GEO-ENABLED EFFECTIVE LAND ADMINISTRATION

AN INTERNATIONAL SEMINAR SUPPORTED BY EG-LAM, FIG AND UN-GGIM-AP

Supported By:



| | | | | |
|--|---|---|--|--|
|  Dr Rohan Bennett Chair International Federation of Surveyors (FIG) Commission 7 |  Prof Chen Jun Chief Scientist National Geomatics Center, China |  Dr Tang Hao Assistant Professor National University of Singapore |  Dr Nadine Alameh Chief Executive Officer Open Geospatial Consortium |  Mr Sin Lye Chong Assistant Chief Executive Singapore Land Authority |
|  Ms Thong Wai Lin Deputy Chief Executive Singapore Land Authority |  Mr Cheoh Wee Keat Deputy Director Singapore Land Authority |  Mr Antonius Wijanarto President UN-GGIM-AP |  Dr Victor Khoo Co-Chair of EG-LAM Vice-President of UN-GGIM-AP |  Mr Shoichi Oki Vice-President UN-GGIM-AP |
|  Mr Sunil Kumar Vice-President UN-GGIM-AP |  Mr Koh Munsung Assistant to Chair of WG2 UN-GGIM-AP |  Dr Zaffar Sadiq Mohamed Ghouse Chair UN-GGIM Private Sector Network Board |  Dr Alias Abdul Rahman Professor Universiti Teknologi Malaysia |  Prof Abbas Rajabifard Professor University of Melbourne |
| | | |  Mr Mika-Petteri Törhonen Lead Land Administration Specialist WorldBank | |

| | |
|-------------------|---|
| 8:15am - 9am | Arrival and Registration |
| 9 am - 9.45am | Opening Session Introduction : Mr Evert MULDER, Singapore Land Authority Welcome Address by Host : Ms. THONG Wai Lin, Deputy Chief Executive, Singapore Land Authority, Singapore Welcome Remarks : <ul style="list-style-type: none"> • Dr. Victor KHOO, Co-Chair, United Nations Expert Group on Land Administration and Management, Singapore • Mr. Antonius WIJANARTO, President, UN-GGIM Asia Pacific, Indonesia • Dr. Zaffar Sadiq MOHAMED GHOUSE, Chair, UN-GGIM-PSN, Australia • Dr. Rohan BENNETT, Chair, FIG Commission 7, Australia |
| 9.45 am - 10.15am | Coffee Break |
| 10.15 am - 12pm | Plenary Session 1 - Effective Land Administration Facilitator : Prof Abbas RAJABIFARD Presentations : <ul style="list-style-type: none"> • Mr. CHEOH Wee Keat, Singapore Land Authority, Singapore • Prof Abbas RAJABIFARD, University of Melbourne, Australia • Mr. Mika-Petteri TORHONEN, World Bank • Mr. Sunil KUMAR, Survey of India, India • Mr. Munsung KOH, LX, the Republic of Korea |
| 12pm - 1.30pm | Lunch |
| 1.30pm - 3.15pm | Plenary Session 2 - Interoperability and Innovation in Land Administration and Management to Strengthen Resilience and Sustainability Facilitator : Dr. Nadine ALAMEH Presentations : <ul style="list-style-type: none"> • Mr. SIN Lye Chong, Singapore Land Authority, Singapore • Dr. Nadine ALAMEH, Open Geospatial Consortium • Dr. Rohan BENNETT, FIG Commission 7 • Dr. TANG Hao, National University of Singapore |
| 3.15pm - 3.45pm | Coffee Break |
| 3.45pm - 5.30pm | Plenary Session 3 - Availability and Accessibility of Reliable Geospatial Information Facilitator : Dr Zaffar Sadiq MOHAMED GHOUSE Presentations : <ul style="list-style-type: none"> • Prof CHEN Jun, National Geomatics Center, China • Mr. Antonius WIJANARTO, Geospatial Information Agency, Indonesia • Dr. Alias ABDUL RAHMAN, Universiti Teknologi Malaysia, Malaysia • Dr. Zaffar Sadiq MOHAMED GHOUSE, UN-GGIM-PSN • Mr. Shoichi OKI, Geospatial Information Authority of Japan, Japan |
| 5.30pm - 6pm | Closing Session Facilitator : Mr. Evert MULDER Summary Remarks by Facilitators : <ul style="list-style-type: none"> • Prof Abbas RAJABIFARD • Dr. Nadine ALAMEH • Dr Zaffar Sadiq MOHAMED GHOUSE |

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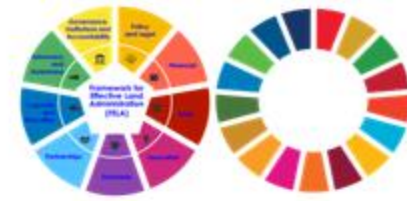
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Regional Committee of UN-GGIM for Asia and the Pacific (UN-GGIM-AP)



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Resolution of Working Group 2 – Cadastre and Land Management

- **Recognizing** the importance of the strategic work plan 2023-2035 of the Expert Group on Land Administration and Management (EG- LAM);
- **Implementing** the Framework for Effective Land Administration (FELA) at the national level and in collaboration with regional committees, functional groups and international organizations;
- **Encourage** member States to engage in the Framework for Effective Land Administration, especially by translating it in their own languages and practically implementing it, leverage the UN-IGIF Implementation Guide, and work with the UN-GGIM Expert Group on Land Administration and Management;



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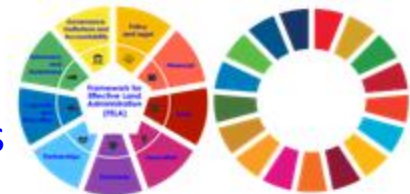
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Working with EuroSDR

Project Advancing “FELA – Framework for Effective Land Administration” to raise awareness of the merits and benefits of effective land administration and to share knowledge and experience leveraging FELA



(Eva-Maria Unger, Rohan Bennett, Joep Crompvoets)

Home / Publications / Official Publication No. 74 (2023)

OFFICIAL PUBLICATION NO. 74 (2023)

EuroSDR Advancing FELA - The Framework for Effective Land Administration

Keywords:
spatial data, FELA, survey

- EuroSDR Publication 74 (2023)

The aim of this publication is to present the preliminary findings of the project on FELA, undertaken by EuroSDR and UN-GGIM, focusing on the results of the online survey component, opened up to EuroSDR members and affiliates. FELA is the Framework for Effective Land Administration which was adopted by the United Nations Committee of Experts on Global Geospatial Information management (UN-GGIM) at its 10th session in August 2020.

◀ All publications

EuroSDR
European Spatial Data Research
February 2023
EuroSDR Advancing FELA –
The Framework for effective
Land Administration
Eva-Maria Unger, Rohan Bennett, Joep Crompvoets,
Aida Lisee, Frédéric Cautat
Official Publication N° 74



<http://www.eurosd.net/publications/official-publication-no-74-2023>

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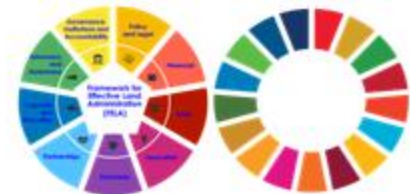
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Collaboration with Open Geospatial Consortium (OGC) and National Mapping and Cadastral Agencies



Connecting Land and Sea for Global Awareness

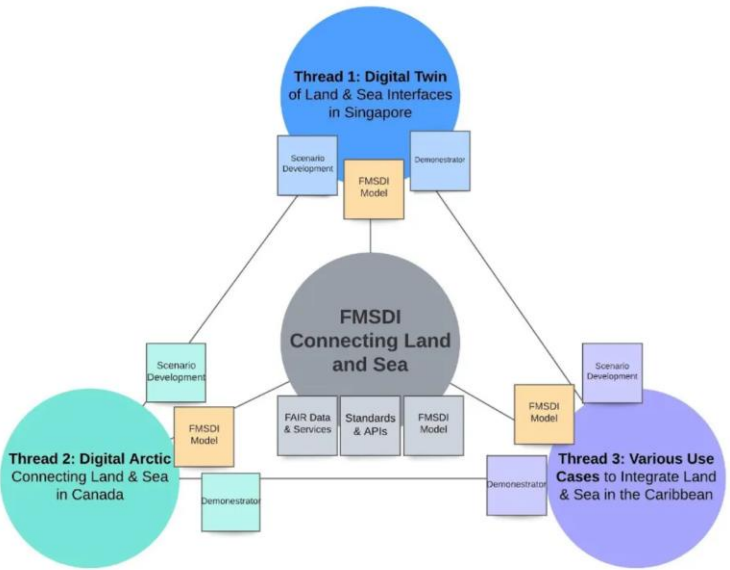
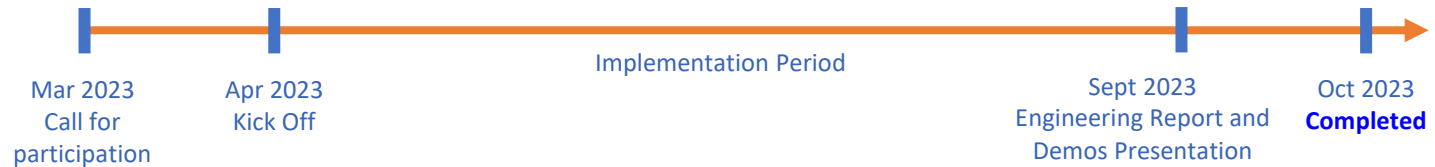
Federated Marine Spatial Data Infrastructure Pilot 2023

Singapore - Arctic - Caribbean

Main Objective:

Demonstrating interoperability between land and marine data that is necessary to understand coastal environments and land-sea interactions.

Timeline:



Technical Architecture of the FMSDI Pilot 2023 (three threads and their cross relationships)

Sponsors:

- Maritime and Port Authority of Singapore (MPA)
- National Oceanic and Atmospheric Administration (NOAA)
- Natural Resources Canada (NRCan)
- Singapore Land Authority (SLA)
- UK Hydrographic Office (UKHO)

Pilot website:
<https://www.ogc.org/initiatives/fmsdi4/>

Engineering report:
ogc.pages.ogc.org/FMSDI2023/



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A Session on FELA @ FIG Working Week 2023 (Orlando, FL, USA)



Monday,
29 May
11:30–13:00
Vesey, Hilton/Waldorf



FRAMEWORK FOR EFFECTIVE LAND ADMINISTRATION (FELA) (TS01I/10520)

Commission: 7 & UN-GGIM EG-LAM

Chair: Mr. **Victor Khoo**, Singapore

Rapporteur: Mr. **Kean Huat Soon**, Singapore



FELA was endorsed by UN-GGIM in August 2020. It seeks to demonstrate, in tangible ways, how land administration systems can directly support the 2030 Agenda and achievement of the SDGs. This session unpacks what has happened since 2020, in terms of FELA translations, country-level programs, and implementation tools.

Guiding Questions for discussions:

- Is the global agenda on track?
- What is the role of FELA?
- What is the role of FIG and UN-GGIM?

Kean Huat Soon and **Victor Khoo** (Singapore):

Implementing the Framework for Effective Land Administration (FELA): New Workplan and Developments (12061)

[\[abstract\]](#) [\[paper\]](#) [\[handouts\]](#) [\[video\]](#)

Mikael Lilje (Sweden):

The UN-GGIM Integrated Geospatial Information Framework and the status of the High-Level Group of the IGIF (11937)

[\[abstract\]](#) [\[paper\]](#) [\[handouts\]](#) [\[video\]](#)

Jean-Philippe Lestang (France):

Improved Land Management, a Key Factor for a Stable and Protective Social Economic Development (12041)

[\[abstract\]](#) [\[paper\]](#) [\[handouts\]](#) [\[video\]](#)

Charisse Griffith-Charles (Trinidad And Tobago):

Land Registration for Conquering New SDG Frontiers (12099)

[\[abstract\]](#) [\[paper\]](#) [\[handouts\]](#) [\[video\]](#)

Brandon Tourrelotte, **Katie Pickett** (USA) and **Kees de Zeeuw** (Netherlands):

FELA-based Geospatial Knowledge Infrastructure (12127)

[\[abstract\]](#) [\[paper\]](#) [\[handouts\]](#) [\[video\]](#)

Eva-Maria Unger, **Rohan Bennett** (Netherlands), **Mahamat Abdoulaye Malloum** (Chad), **Christelle van den Berg** (Netherlands), **Claudia Stöcker** (Germany), **Kaspar Kundert** (Rwanda), **Dina Naguib** (Egypt), **Markus Koper** (Germany), **Divyani Kohli** and **Mila Koeva** (Netherlands):

Fit-For-Purpose Land Administration and the Framework for Effective Land Administration in Chad (12242)

[\[abstract\]](#) [\[paper\]](#) [\[handouts\]](#) [\[video\]](#)



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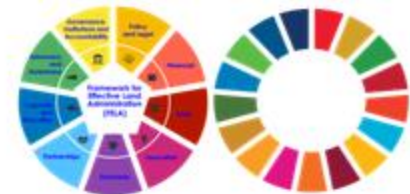
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FIG Working Group 7.1 – Framework for Effective Land Administration (FELA)



Chair(s):

Amalia Velasco, together with Eva María Unger and Carmen Femenia



Objectives:

- Develop a FIG guide on FELA implementation at national level.
- Study of the main problems encountered by national land administration organizations in implementing FELA principles.
- Examples and analysis of national cases:
- Develop a recommendations list for FIG members in application of FELA principles





WORKING GROUP: FELA
Deventer 4/10/2023

Framework for Effective Land Administration

A reference for developing, reforming, renewing, strengthening, modernizing, and monitoring land administration



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Amalia Velasco



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ISO Land Administration Domain Model (LADM) Community



Charter OGC LADM Standards Working Group

The 127th OGC Member Meeting



Meeting Sponsors

Peter van Oosterom
26th September 2023

SLA
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International Organization for Standardization

3D Land Administration



FIG joint commission 3 and 7 Working Group on the Land Administration Domain Model/3D Land Administration (LADM/3D LA)

Published LADM-based country profiles

| # | Country/ Jurisdiction | References | # | Country/ Jurisdiction | References |
|----|-----------------------|---|----|-----------------------|---|
| 1 | Bénin | Mekking et al. (2020) | 21 | Morocco | Adad et al. (2020) |
| 2 | Brazil | (Paixao et al. 2015; Dos Santos et al., 2013; Purificação et al., 2019) | 22 | Mozambique | Balas et al. (2017) |
| 3 | Cape Verde | Andrade et al. (2013) | 23 | Nigeria | (Abidoye et al., 2017; Babalolaa et al., 2015) |
| 4 | China | (Guo et al., 2011; Zhuo et al., 2015; Xu et al., 2019) | 24 | Nicaragua | FAO (2020a) |
| 5 | Colombia | (Jenni et al., 2017; Morales et al., 2015; FAO, 2020a) | 25 | Poland | (Gózdź et al., 2014; Bydłosz, 2015; Gózdź and Van Oosterom, 2016) |
| 6 | Croatia | (Vučić et al., 2017, 2013; Mader et al., 2018) | 26 | Portugal | ISO (2012) |
| 7 | Cyprus | Elia et al. (2013) | 27 | Queensland, Australia | (ISO, 2012; Karki, 2013) |
| 8 | Czech Republic | Janečka and Souček (2017, 2016) | 28 | Republic of Srpska | Govedarica et al. (2018) |
| 9 | Ethiopia | Kebede et al. (2018) | 29 | Russian Federation | (Elizarova et al., 2012; ISO, 2012) |
| 10 | Greece | (Psomadaki et al., 2016; Kalogianni et al., 2017) | 30 | Saudi Arabia | Alattas et al. (2020) |

| | | | | | |
|----|------------|---|----|---------------------|---|
| 11 | Honduras | Koers et al. (2013) | 31 | Scotland | Reid (2019) |
| 12 | Hungary | ISO (2012) | 32 | Serbia | (Radulović et al., 2019, 2017; Govedarica et al., 2018) |
| 13 | Indonesia | (ISO, 2012; Budisusanto et al., 2013; Indrajit et al., 2020) | 33 | Singapore | (Soon et al., 2016; Yan et al., 2019) |
| 14 | Israel | (Felus et al., 2014; Adi et al., 2018) | 34 | South Africa | (Tjia and Coetzee., 2013; Tjia, 2014) |
| 15 | Japan | ISO (2012) | 35 | South Korea | (Lee et al., 2015; Kim, Heo, 2017) |
| 16 | Kenya | (Kuria et al., 2016; Karamesouti et al., 2018) | 36 | The Netherlands | (ISO, 2012; Kara et al., 2019) |
| 17 | Korea | (ISO, 2012; Jeong et al., 2012; Kim et al., 2013; Lee et al., 2015) | 37 | Trinidad & Tobago | Griffith-Charles and Edwards (2014) |
| 18 | Malaysia | (Zulkifli et al., 2019, 2014; Rajabifard et al., 2018; Hanafi and Hassan, 2019) | 38 | Turkey | (Alkan and Polat, 2017; Kara et al., 2018a) |
| 19 | Mongolia | Buuveibaatar et al. (2018) | 39 | Victoria, Australia | (Aien et al., 2012; Kalantari and Kalogianni, 2018) |
| 20 | Montenegro | (Radulović et al., 2015; Govedarica et al., 2018) | 40 | Vietnam | (Le et al., 2012) |

Source:

Eftychia Kalogianni, Karel Janečka, Mohsen Kalantari, Efi Dimopoulou, Jarosław Bydłosz, Aleksandra Radulović, Nikola Vučić, Dubravka Sladić, Miro Govedarica, Christiaan Lemmen, Peter van Oosterom.

“Methodology for the development of LADM country profiles” In: Land Use Policy, Elsevier, 105(105380), pp. 1-12, 2021



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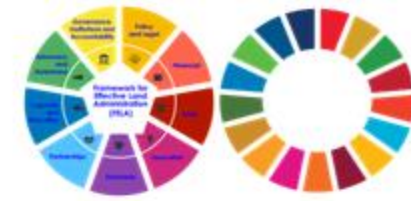
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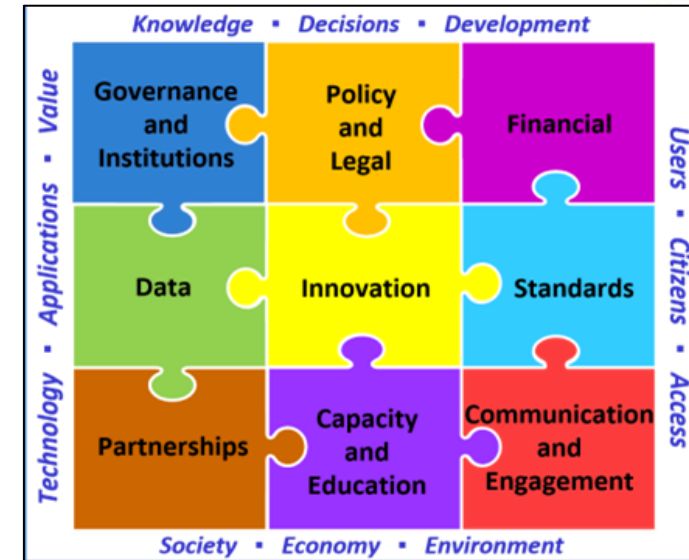
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Framework on Geospatial Domain Integration



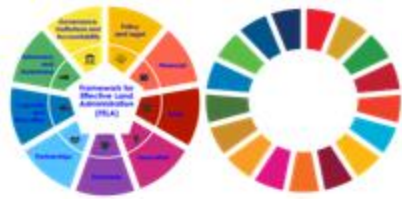
- The paper covers *terrestrial*, *maritime*, *built* and *cadastral* domains
- To address the integration issues through the UN-IGIF 9 strategic pathways: governance, policy, financial, data, innovation, standards, partnership, capacity building and awareness
- The framework will include the following:
 - a) Challenges
 - b) Success Stories
 - c) Proposed Solutions
- Seek to gather feedback and solutions from the international community and build consensus through the consultation process



Recently held at SLA a Technical Discussion on “Integration of Terrestrial, Maritime, Built and Cadastral Domains: Data, Processes and Systems”



Discussion on Integrating Land and Sea @ 6th Expert Meeting



Proposed Paper on Domain Integration

Jointly developed by the co-chairs of the:
Working Group on Marine Geospatial Information (WG-MGI) and
Expert Group on Land Administration and Management (EG-LAM)

Sixth expert meeting (in-person) of the Working Group
05 Mar 2024



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WORKING GROUP ON
MARINE GEOSPATIAL INFORMATION

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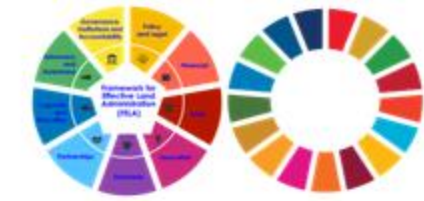


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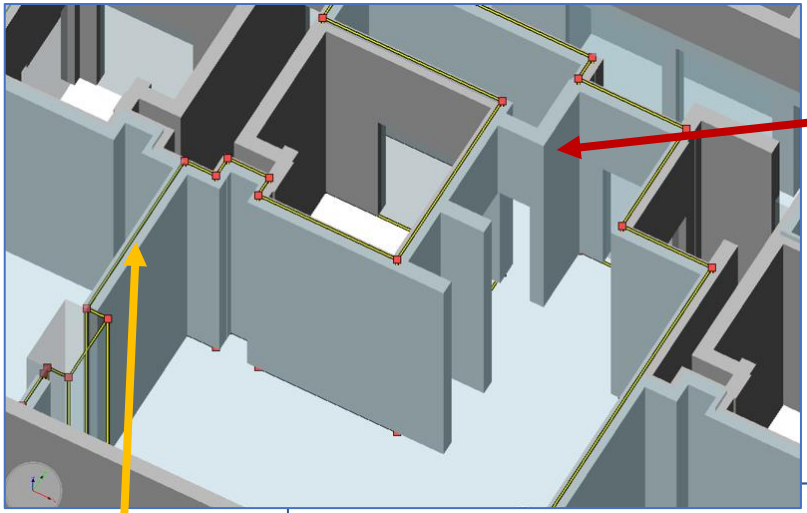
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EXPERT GROUP ON
LAND ADMINISTRATION AND MANAGEMENT

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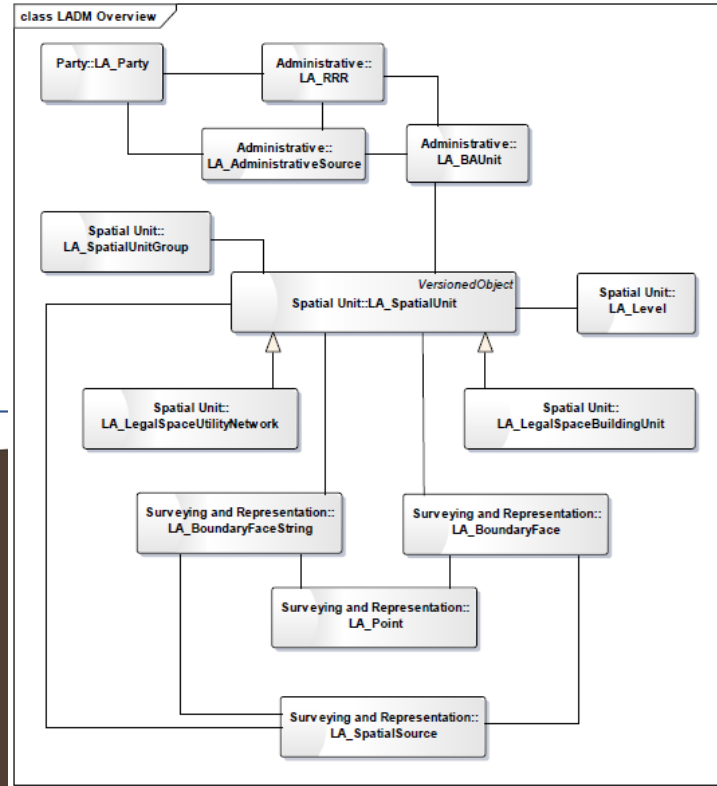
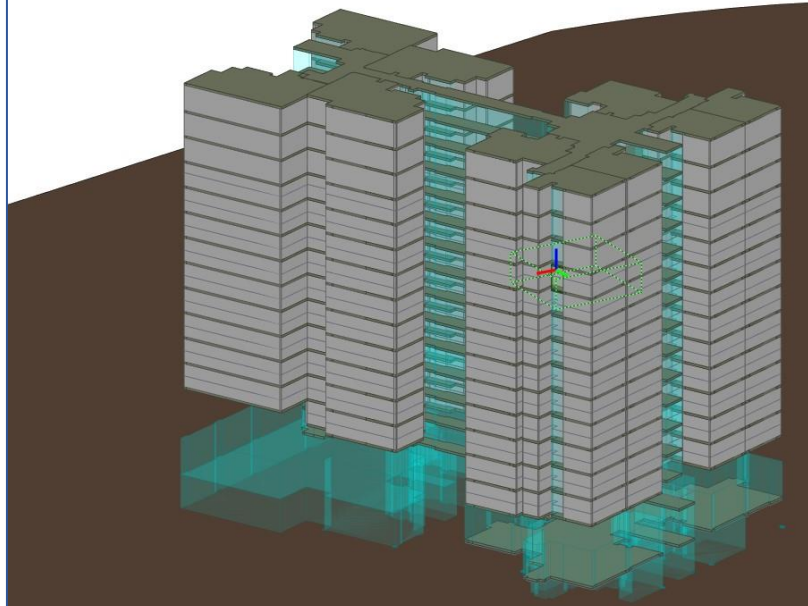


Integrating Built Environment and Cadastre



BIM

Strata
Ownership
Boundaries



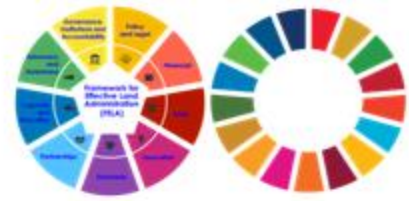
1. Design vs. Imaginary Ownership Boundaries
2. Physical vs. Imaginary Ownership Boundaries
3. Design vs. Physical

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Centres of Excellence



UN Global Geodetic Centre of Excellence
(UN-GGCE)

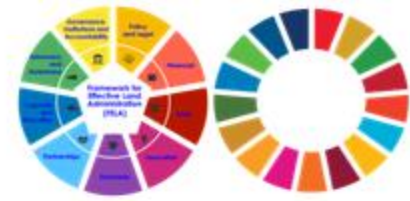


UN Global Geospatial Knowledge and Innovation Center
(UN-GGKIC)

- To explore general support and technical guidance on matters such as integrated geodetic system, long-term monitoring, digital twins, geospatial standardisation, capacity building
- To explore co-development of business cases for funding



Fifth meeting of the Expert Group on Land Administration and Management and the International Seminar on “Effective Land Administration”, 8 – 11 April 2024, Aguascalientes, Mexico



Fifth meeting of the Expert Group on Land Administration and Management and the International Seminar on United Nations Global Geospatial Information Management with the theme ""Effective land administration"

Aguascalientes, Mexico 📅 8 - 11 April 2024



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