Cadastres and Land Registries: Shaping the SDGs

Greg Scott, UN-GGIM Secretariat
Environmental Statistics and Geospatial Information Branch
Department of Economic and Social Affairs
United Nations, New York
Cadastres and Land Registries

- Provide the fundamental service for secure land tenure, reliable land value, efficient land use and sustainable land development functions.
- Provide the location or place for many activities in the built environment. This in turn provides the spatial enablement of the broader land administration system.
- Permit geocoding of property identifiers, and particularly street addresses, that then facilitate spatially enablement of government and wider society.
- Although the land market function is essential, the ability to spatially enable society is proving to be just as important.
- Spatial enablement allows governments to more easily deliver sustainable development (social, economic, environmental) outcomes, increasingly becoming overarching objectives of government.
Cadastres and Land Registries

- In the developed world, cadastres are complete and support spatial enablement and sustainable development.
- New initiatives in 3D cadastres for smart cities, marine cadastres and the digital revolution (on demand/any place, smart phones, positioning technologies, sensors, virtual world)
- Focus in less developed countries is on land governance, fitness for purpose and low-cost cadastral solutions.


Securing land rights is emerging as a welcome, yet still undervalued, strategy for achieving many of the SDGs, including climate action. Land, together with its natural resources and ecosystem services, is the source of livelihood and wellbeing for billions of people around the world. Safeguarding communities’ and indigenous peoples’ right to this land, and its environmental resources, is therefore imperative to much of the 2030 Agenda, including SDGs 1 (end poverty), 2 (end hunger), 8 (decent work and economic growth), and 5 (gender equity).

Peter Veit, Director, Land and Resources Rights Initiative

The 2030 Agenda for Sustainable Development

The 2030 Agenda is an Integrated Plan of Action structured in four main parts:

(i) Vision and principles for transforming our world as set out in the Declaration;
(ii) Results Framework of 17 SDGs and 169 targets;
(iii) Means of Implementation through governments, society and global partnership;
(iv) Follow-up and Review framework comprising a set of global indicators.
“By 2020, enhance capacity-building support to developing countries, including for LDCs and SIDS, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics…”

“We will support developing countries, particularly African countries, LDCs, SIDS and LLDCs, in strengthening the capacity of national statistical offices and data systems to ensure access to high quality, timely, reliable and disaggregated data. We will promote transparent and accountable scaling-up of appropriate public-private cooperation to exploit the contribution to be made by a wide range of data, including Earth observation and geospatial information, while ensuring national ownership in supporting and tracking progress”
2030 Agenda: Goals, targets, indicators... and data!!

Declaration
Vision and shared principles for people, planet, prosperity, peace and partnership

Results Framework
17 integrated and indivisible goals and 169 aspirational targets

Follow-up and Review
Global indicators underpin an integrated follow-up and review framework

Means of Implementation
Governments, civil society, industry, the UN system, science and technology

17 SDGs
Results framework 169 Targets

232 global indicators to follow-up and review progress

Implementation via national planning processes, policies, strategies and frameworks

Measuring and monitoring: Statistics, geospatial information, Earth observations and other Big Data
2030 Agenda: Goals, targets, indicators... and data!!
14 Global Fundamental Geospatial Data Themes
Shaped by Cadastres and Land Registries

- Global Geodetic Reference Frame
- Geographical Names
- Addresses
- Functional Areas
- Buildings and Settlements
- Land Parcels
- Transport Networks
- Elevation and Depth
- Population Distribution
- Land Cover and Land Use
- Geology and Soils
- Physical Infrastructure
- Water
- Orthoimagery

Cadastres and Land Registries: Shaping the SDGs
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.

11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.

11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.

11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning.

11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels.

GOAL 11: MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE
GOAL 11: MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

INDICATORS

11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing.

11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities.

11.3.1 Ratio of land consumption rate to population growth rate.

11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically.

11.5.2 Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters.

11.6.1 Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities.

11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities.

11.a.1 Number of countries that have national urban policies or regional development plans that (a) respond to population dynamics; (b) ensure balanced territorial development; and (c) increase local fiscal space.
Since 2016, a total of 168 countries have now presented at least one Voluntary National Review (VNR). Despite the COVID-19 pandemic, commitment to the 2030 Agenda remains strong, and was evident by the 47 countries that carried out a VNR in 2020, despite the pandemic.

Many VNRs emphasized that, to achieve SDG 11, cities must take action to find effective solutions to ensure housing quality and affordability, improve infrastructure, and reduce pollution. The increase in urban slums remains a problem and the health and well-being of countries’ urban dwellers remains a priority. For countries with specific disaster vulnerabilities, this has translated into planning for climate-resilient housing, services and infrastructure.

In 2020, Austria, Bulgaria, Estonia, Finland, and Ukraine presented their VNRs.
Executive Summary

When it comes to key technologies, Austria is a frontrunner in electronic identification (eID), electronic document transfer (eDocuments) and the use of registers.

Land consumption for buildings, traffic infrastructure and purposes of recreation and mining rose by 8.9% from 2010 to 2018.

Fewer deaths attributed to disasters
The indicator for deaths attributed to disasters also showed a decline in recent years from 0.8 (age-standardised rate per 100,000 population) to 0.2 in 2018 (also see SDGs 11 and 13). In Austria, a national crisis and disaster management system is in place. Required access to basic services and control over land with the relevant legal documents (entry in the land register) are also guaranteed in Austria.

Austria is the frontrunner in the European Union with its proportion of land used for organic farming.

Forest area as a proportion of total land mass in Austria increased slightly from 46.8% (2010) to 47.2% (2018).
With the implementation of the National Roma Integration Strategy of the Republic of Bulgaria (2012-2020), the Ministry of Regional Development and Public Works contributes to the social integration of the Roma minority by improving housing conditions through providing a cadastral and urban development basis. Work is underway to build the technical infrastructure for neighborhoods with a compact Roma population and open up new terrains for low housing and social infrastructure sites.
SUSTAINABLE CITIES AND COMMUNITIES

Make cities and human settlements inclusive, safe, resilient, and sustainable

ESTONIA’S GOALS AND GENERAL SITUATION

The aim of the government is to ensure that the Estonian people feel that they live in a safe and secure country where the fundamental rights and freedoms of all are adequately guaranteed. Spatial planning is a key instrument for creating the conditions for a democratic, long-term, balanced spatial development, land use, quality living and built environment in cities and other settlements that take into account the needs and interests of members of society, including those promoting environmentally sound and economically, culturally, and socially sustainable development. Spatial planning addresses issues such as housing, transport, roads and streets, cultural heritage, waste management, green spaces, resource efficiency, climate change adaptation, security, and much more. At the same time, the keywords in the preparation of plans are cooperation and involvement, without which it is not possible to establish any plan in Estonia.

The active role of the community and, more broadly, the cooperation of the participants is important for the quality of life and sustainable development of cities and settlements. Particular attention will be paid to security issues. The Estonian Internal Security Development Plan 2020–2030 is being prepared and one of the objectives of it is to create a public space that promotes security. It is planned to increase people’s awareness of behaviour in public places and the use of prevention and protection measures, as well as to implement measures in public spaces planning that promote safe and secure behaviour and discourage risky behaviour.

MEASURES AND ACTIVITIES

INDICTORS

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>Latest known status (year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of monumental sites in good and satisfactory condition</td>
<td>79% (2017)</td>
</tr>
<tr>
<td>Share of monumental sites in good and satisfactory condition</td>
<td>76% (2018)</td>
</tr>
<tr>
<td>Human casualties in traffic accidents</td>
<td>1,000 (2019)</td>
</tr>
<tr>
<td>Access to green areas</td>
<td>90% (2020)</td>
</tr>
<tr>
<td>Share of people commuting by public transport, cycling or walking</td>
<td>38.8% (2020)</td>
</tr>
</tbody>
</table>

5.1.1 CENTRAL GOVERNMENT LEVEL

In order to review the planning processes of the spatial living environment, an inter-ministerial spatial design expert group operated at the Government Office in 2017–2018 in cooperation with the Union of Estonian Architects. The main shortcomings were the lacking and fragmented spatial competence at the central government level and the lack of a holistic view. In the final report of the spatial design expert group at the Ministry of Finance in 2019, proposals were made for a more comprehensive approach to spatial policy and more effective inter-ministerial cooperation, which would ensure the improvement of the quality of infrastructure and related living environment. It was proposed to create a joint agency in the land, regional, and planning sector, introduce the basic principles of high-quality space, and increase spatial competence throughout society.

A large number of Estonian cities are facing problems due to population decline. Therefore, guidelines have been continuously issued to local governments for the preparation of master plans to promote sustainable adaptation to the conditions of a declining population. In 2019, a corresponding survey of small Estonian settlements was completed, which, inter alia, makes recommendations to local governments for actions for adaptation with the decline of the population. In 2020, the Ministry of Finance launched a cooperation project with the OECD, the aim of which is to find cross-sectoral ways to adapt to declining populations.

In order to adapt to population changes, the Union of Estonian Architects has been implementing the “Good Public Space” urban centre revitalisation programme since 2014 with the support of the state and local governments. In the course of this, public architectural competitions have been organised in Estonian cities for the last five years, after which the renewal of many city centres has taken place with the implementation of the winning works. Approximately twenty local governments are in the queue to improve the quality of the living environment through the activity. The programme contributes to integrated and balanced regional development and the achievement of climate policy objectives, increases the attractiveness of urban areas as living and business environments, and reduces urban sprawl.

The principles and conditions for granting support to local government housing stock investments were developed. The aim is to ensure better availability of modern rental accommodation for mobile workers in areas with market failures. The capacity of local governments to provide housing for socio-economically disadvantaged households will also be improved. The measure improves the ability of local governments to invest in housing and the living environment. In addition to the availability of housing, the condition, and energy efficiency of the housing stock across Estonia will improve.

22 While in 2018, the central squares of Tartu, Pärnu, Wald, and Rapla were opened, in 2019, Vira Square, Kuressaare Square, and Tolva’s Park Square were also completed. In 2020, it is planned to open the rest of the locations: Tallinn, Tartu, and Võru. In 2020, it is planned to open the first stage of Narva’s Tallinn Square, Võru Square. Ongoing or upcoming competitions concern the centres of Tartu, Võru, Võru, and Pald.
The aim of the government is to ensure that the Estonian people feel that they live in a safe and secure country where the fundamental rights and freedoms of all are equally guaranteed.

Spatial planning is a key instrument for creating the conditions for a democratic, long-term, balanced spatial development, land use, quality living and built environment in cities and other settlements that take into account the needs and interests of members of society, promoting environmentally sound and economically, culturally, and socially sustainable development. Spatial planning addresses issues such as housing, transport, roads and streets, cultural heritage, waste management, green spaces, resource efficiency, climate change adaptation, security, and much more. At the same time, the keywords in the preparation of plans are cooperation and involvement, without which it is not possible to establish any plan in Estonia.

The active role of the community and, more broadly, the cooperation of the participants is important for the quality of life and sustainable development of cities and settlements. Particular attention will be paid to security issues. The Estonian Internal Security Development Plan 2020–2030 is being prepared and one of the objectives of it is to create a public space that promotes security. It is planned to increase people’s awareness of behaviour in public places and the use of prevention and protection measures, as well as to implement measures in public space planning that promote safe and secure behaviour and discourage risky behaviour.
Sustainable Cities and Communities

Make cities and human settlements inclusive, safe, resilient and sustainable

Government’s assessment

11.1 Practically all housing in urban areas is adequate and the number of homeless persons has decreased.

11.2 94% of the urban population lives within the range of convenient access to public transport.

11.3.1 Land consumption related to population growth has been high, but density has increased over the past ten years.

11.3.2 The Land Use and Building Act ensures everyone’s right to participate in land use planning.

11.4.1 There is well-functioning legislation on cultural and natural heritage.

11.5 Disasters seldom happen in Finland and are usually without injuries or substantial economic losses.

11.6 The adverse per capita environmental impact of cities is at a low level.

11.7.1–11.7.2 The share of open space for public use for all is relatively high. Open spaces are safe for all.

11.a National and regional development planning is well established.

11.b Risk reduction strategies are implemented by cities and...

Finland has succeeded in strengthening an approach to policy and planning in which key sectors, such as land use, housing and transportation are planned in a holistic manner in order to ensure sufficient density, energy efficiency, affordability, accessibility and sustainability of the built environment. National, and especially regional, development planning is well established in Finland, covering both urban and rural areas.

For over a decade, Finland has implemented a national strategy to reduce homelessness, and the number of homeless persons has continuously decreased over the last five years. Practically all housing in urban areas in Finland is adequate but due to price levels, affordability has not always been sufficient in the largest city regions.

Finland is a member of the United Nations Habitat Assembly and active participant at the World Urban Forum. Finnish Government leads Sustainable Buildings and Construction (SBC) programme under UN Environment 10 Year Framework of Programmes on sustainable consumption and production.
Fig. 2. Extent of the SDGs incorporation into strategic planning documents

162 regulatory legal acts
1394 targets that incorporate the SDGs
4296 actions that incorporate the SDGs

UN-GGIM
United Nations Secretariat
Global Geospatial Information Management

GOAL 11
SUSTAINABLE DEVELOPMENT OF CITIES AND COMMUNITIES

Positioning geospatial information to address global challenges

ggim.un.org
### Section 2. Progress Towards Achievement of SDGs

**Goal 11: Sustainable Development of Cities and Communities**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11.3.</td>
<td><strong>Ensure protection and safeguarding of the cultural and natural heritage, with involvement of the private sector</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.3.1.</td>
<td>Number of cultural and natural heritage sites included in the UNESCO World Heritage List, units</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>11.3.2.</td>
<td>Number of monuments of national importance included in the State Monument List of Ukraine, units</td>
<td>891</td>
<td>891</td>
<td>906</td>
<td>956</td>
<td>992*</td>
<td>1,005</td>
<td>1,055</td>
<td>1,305</td>
</tr>
<tr>
<td>11.3.3.</td>
<td>Area of the nature reserve fund of national importance, % of the country area</td>
<td>3.72</td>
<td>4.00</td>
<td>4.30</td>
<td>4.10</td>
<td>4.24*</td>
<td>5.74</td>
<td>7.38</td>
<td>8.85</td>
</tr>
<tr>
<td>11.4.</td>
<td><strong>Ensure timely public alert about emergencies through innovative technologies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.4.1.</td>
<td>Status of implementation (development, modernization, improvement) of local automated centralized public alert systems, %</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.10</td>
<td>0.20</td>
<td>To be clarified</td>
<td>To be clarified</td>
<td></td>
</tr>
<tr>
<td>11.5.</td>
<td><strong>Reduce the adverse impact of pollutants, including on the urban environment, in particular, through innovative technologies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.5.1.</td>
<td>Emissions of air pollutants from stationary sources, % to 2015 level</td>
<td>100.0</td>
<td>1077</td>
<td>90.5</td>
<td>878</td>
<td>881</td>
<td>To be clarified</td>
<td>90.0</td>
<td>85.0</td>
</tr>
<tr>
<td>11.5.2.</td>
<td>Number of cities in which the average annual concentrations of major pollutants in the atmospheric air exceed the average daily maximum permissible concentrations, units</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Suspended matter (dust)</td>
<td>11</td>
<td>10</td>
<td>9</td>
<td>11</td>
<td>11*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sulfur dioxide</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carbon monoxide</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nitrogen dioxide</td>
<td>23</td>
<td>23</td>
<td>21</td>
<td>22</td>
<td>26*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nitrogen oxide</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The values marked with an asterisk (*) indicate a significant deviation from the benchmark values.
Although it may not always be visible on a daily basis, Cadastres and Land Registries are strategically shaping the SDGs!

Thank You 😊