

## Questionnaire for the development of ISO 19152:2012 LADM Valuation Module

The ISO 19152:2012 Land Administration Domain Model (LADM) presents a conceptual schema for the specification of property units and their legal and geometric characteristics recorded at cadastre and land register, and relates these datasets with other property related datasets (e.g. addresses, utility networks, building (units), valuation, taxation, land use, land cover) recorded at external registrations.

A recently initiated collaborative research aims at developing a LADM based international information model for one of these external registrations, namely in terms of a Valuation Module for the ISO 19152:2012 LADM. The purpose of this research is to define the semantics of valuation information maintained by public authorities especially for recurrent taxes on immovable property<sup>1</sup>, and to extend the scope of LADM from a fiscal perspective to provide an information model that could be used to construct information systems for immovable property valuation. The preliminary results of this research were documented at the 11<sup>th</sup> 3D Geoinfo Conference<sup>2</sup>.

This questionnaire is prepared as a part of methodology applied for the above-mentioned research which is also supported by FIG Presidency and Chair of FIG Commission 9 Valuation and the Management of Real Estate. The purpose of the questionnaire is to create a world-wide inventory that reveals commonalities and differences among valuation systems used for recurrently levied immovable property taxes. The result of the questionnaire is expected to provide an understanding of the situation of valuation systems, and will be used as source data for the elaboration of the LADM Valuation Extension Module.

Please reply the following questions, and contact us if you have any comments and suggestions:

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<sup>1</sup> Recurrent taxes on immovable property covers taxes levied regularly in respect of the use or ownership of immovable property. These taxes are levied on land and buildings, in the form of a percentage of an assessed property value based on a national rental income, sales price, or capitalised yield; or in terms of other characteristics of real property (e.g., size or location) from which a presumed rent or capital value can be derived. They can be levied on proprietors, tenants, or both; they can also be paid by one level of government to another level of government in respect of property under the jurisdiction of the latter (The OECD classification and interpretative guide 2015, <http://www.oecd.org/tax/tax-policy/oecd-classification-taxes-interpretative-guide.pdf>)

<sup>2</sup> For more information, see: <http://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/TV-2-W1/145/2016/>

## Section A. General questions for property valuation systems in Latvia

Questions	Responses
<p>1. Please indicate the organizations responsible for valuation of properties for property taxation purposes through name in national language and English translation.</p>	<p>Valsts zemes dienests The State Land Service (SLS) (governmental institution, acts directly under guidance of Ministry of Justice )</p>
<p>2. What are the types of objects of valuation for property taxation (e.g. unimproved parcel, building)? Name and date of the ordinance to be listed.</p>	<p>Object of valuation: All objects in the National Real Estate Cadastre Information System National Real Estate Cadastre Information System – Land (since 1998), Buildings and apartments (since 2001) , engineering structures (since 2010).</p>
<p>3. Please mention value type (e.g. market value, tax value, capital value) used by the responsible organization for property taxation?</p>	<p>Cadastral value which is based on 85% market value</p>
<p>4. Please mention the public registry datasets (e.g. cadastre, land registry, building registry) which are used in valuation procedures, and their mutual functions?</p>	<p>National Real Estate Cadastre Information System (text and spatial data) The Real Estate Market Database (dataset which is part of Cadastre Information System) Land Register (ownership, sales)</p>
<p>5. Which methods are applied for collecting market data needed for valuation?</p>	<p>Data flow from Land Register (sales) to Real Estate Market Data Information System</p>
<p>6. Is there any special valuation database for storing datasets <i>used in</i> (e.g. property characteristics) or <i>produced with</i> (e.g. sales statistics) valuation procedures? If yes, please give the name of database, indicate responsible authority, and describe its content.</p>	<p>Real Estate Market Database; National Real Estate Cadastre Information System includes assessed value calculation; Special database for model calibration; All maintained by SLS</p>
<p>7. Is there a web-based dissemination of valuation information? If yes, please indicate which data (e.g. sales statistics) is open to the public.</p>	<p><a href="https://www.kadastrs.lv/#">https://www.kadastrs.lv/#</a> (assessed values and spatial data); <a href="http://kadastralavertiba.lv/">http://kadastralavertiba.lv/</a> (Sales statistics, legalization and reports)</p>
<p>8. How frequently are general revaluations made?</p>	<p>Revaluation of property in accordance with the market situation at the reference date - every two years (for all objects in the Cadastre Information System on January 1st)  In case if any property characteristics (size, land use, encumbrances, physical condition, new objects etc.) are changed, assessment is recalculated.</p>

	For taxation needs value is calculated with object data on January 1 <sup>st</sup> of each taxation year.
9. Is there a system of indexation affecting property value between regular revaluations?	No
10. Do taxpayers have a right to appeal against the appraised values? If yes, please indicate how disputes are resolved.	<p>To appeal the appraised level before new appraisal level comes in force;</p> <ul style="list-style-type: none"> <li>• www.kadastrs.lv publishes a new Project (01.02.)</li> <li>• The owners and municipalities submit objections / suggestions (until 01.03)</li> <li>• SLS + municipality evaluate proposals</li> <li>• The Government will adopt a new assessment base (15.06.)</li> <li>• Owners can correct false information - object data</li> <li>• Assessment comes in force (01.01.)</li> </ul> <p>To appeal the characteristic data that is used in value calculation.</p> <p>Mass value and the data on objects are available on the Internet. If the proprietor discovers that the data used for mass appraisal does not correspond to real situation in the nature, the proprietor obligation is to submit the information and to correct the data in the Cadastre. This should be accomplished by January 1st before new value will come in to force for next taxation year.</p>

Please continue with Section B, if mass appraisal procedures are applied in your country for immovable property taxation. If single property appraisal methods are used -even if as complementary part of mass appraisal, please answer questions given in Section C.

## Section B - Questions for mass appraisal procedures in Latvia

Questions	Responses
1. Do you have a (computer aided) mass appraisal system in your country? If yes, please indicate also responsible authorities.	Yes The State Land Service (governmental institution, acts under direct guidance of Ministry of Justice )
2. Is there any other use of the mass appraisal system than property taxation?	Transfer tax (transfer of property); Privatization; Rents of state or municipality land; Compulsory lease (in cases when land rent is regulated by legislation); Capital gain tax (in some cases)
3. Which CAD/GIS/CAMA (Computer-aided design / Geographic information system / Computer Assisted Mass Appraisal) software packages are used in mass appraisal?	Cadastre (including sale data base) is Oracle Database. For value zones revising, market data and ratio (the ratio between assessed value and market prices) geographical analysis SLS use GIS (Esri products). For market data (including ratio) statistical analysis SLS use Oracle Discoverer, SPSS (Statistical Package for the Social Sciences) and R (The R Project for Statistical Computing).
4. Which geographical or spatial datasets are used in mass appraisal? Please describe the source of these datasets.	Functional zonings (from municipalities); Available orthophoto resources (from web and Latvian Geospatial Information Agency); Cadastre maps (parcel, building layers) (from SLS); Topographic maps (from SLS)
5. Which geographic or spatial analysis methods (e.g. visibility analysis, proximity analysis) are applied in mass appraisal?	No geographic or spatial automated analysis are applied for mass appraisal
6. Is three-dimensional (3D) data used in mass appraisal? Please describe source of 3D data (e.g. floor plans). Does Valuation objects include condominium, strata title, freehold flats or other 3D units.	Floor data and other 3D data are used as text data but there are no 3D models applied to mass appraisal.
7. Is there any relationship between the CAMA system and other public registers (e.g. cadastre, land registry, building registry, ...)?	Yes, some functions of CAMA are integrated in cadaster system and in case if any object data (which is used in valuation model) is changed then

	cadastral values are recalculated immediately.
8. Please describe the statistical models (e.g. additive, multiplicative) applied in mass appraisal according to type or functions of properties?	Valuation models are additive and multiplicative; In order to develop these models, other statistical methods are used: correlation analysis, factor analysis, regression analysis
9. Please indicate statistical analysis methods (e.g. multiple regression analysis, artificial neural network) applied in mass appraisal?	Regression analysis; Correlation analysis
10. Which land use characteristics (e.g. land use zones) are used as variables in mass appraisal models? Please describe the source(s) of these characteristics.	Land usage (assigned by municipality) Land cover (assigned by surveyors) Functional zonings in order to manually generate value zones Agricultural and forest land fertility group (determined by the quality of land)
11. Which environmental and locational characteristics (e.g. location nuisance, distance to points of interest / POIs, environmental risks) are used as variables in mass appraisal models? Please describe the source(s) of these characteristics.	Most of characteristics are used when manually creating homogenous value zones with different base values for mass valuation (e.g. area for land use; encumbrances; Land cover; environmental risks; etc.); Main sources for these characteristics are municipalities, restricted territory IS, surveyors, Latvian Geospatial Information Agency.
12. Which building or improvement characteristics (e.g. number of unit, construction type and material) are used as variables in mass appraisal models? Please describe the source(s) of these characteristics.	Construction type, Area, Open space area, Basement area, Garage, Facilities, Floors, Materials, Encumbrances, Physical condition, Age; Main source of these data are SLS surveyors which inspect property after owner request or when building is under construction (at the end of construction process).
13. Does valuation legislation prescribe an investigation into the general quality or performance analysis (e.g. 'ratio study') of the mass appraisal system? If yes, please describe the indicators used in the performance analysis.	Legislation prescribe only average correspondence level of market values for reference date set by Cadastre law. In any other cases there is no legislation on quality but we use ratio study to test valuation results.

14. Please indicate whether single property appraisal is applied for improving accuracy of mass appraisal estimations.

Single property appraisal is not applied

### Section C. Questions for single property valuation procedures in XX country

Questions	Responses
1. Which valuation methods are used for single property appraisal for property taxation? Please relate valuation methods with the type of valuation objects (e.g. sales comparison approach for unimproved parcels).	
2. Which geographical or spatial datasets are used for single property appraisal? Please describe the source(s) of these datasets.	
3. Which legal property characteristics (e.g. property rights) are taken into account for single property appraisal? Please describe also the source of these characteristics.	
4. Which land use characteristics (e.g. land use zones) are taken into account for single property appraisal? Please describe also the source(s) of these characteristics.	
5. Which environmental and locational characteristics (e.g. location nuisance, distance to POIs, environmental risks) are taken into account for single property appraisal? Please describe the source(s) of these characteristics.	
6. Which building or improvement characteristics (e.g. number of unit, construction type and material) are taken into account for single property appraisal? Please describe the source(s) of these characteristics.	
7. If there is a special valuation database, please indicate which sales comparison method related data (e.g. comparable property identifiers, monetary adjustment for time, physical differences) are kept in this database.	
8. If there is a special valuation database, please indicate which cost method related data (e.g. type and source of cost price, chronological age, depreciations) are kept in this database.	
9. If there is a special valuation database, please indicate which income valuation method related (e.g. gross income, net income, capitalization rate, discount rate) are kept in this database.	

**Section D. Information concerning respondent(s)**

<b>Questions</b> have been answered by	<b>Respondent</b>
1. Name	Rita Pētersone
2. Affiliation / position	Deputy Director of Valuation Department
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5. Comments	