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7.4 Land use

Definition:

(INSPIRE, 2007) Territory characterised according to its current and future planned functional dimension or socio-economic purpose (e.g. residential, industrial, commercial, agricultural, forestry, recreational).

Description:

Land regulation is the general spatial planning tool at regional and local levels. Land use may be characterised as ordinary mapping of existing functions as an objective picture of the use and functions of a territory, but may also be plans characterising how land may be utilised at present and in the future.

There are two main land use definitions, a **functional** one and **sequential** one (Duhamel, 1998). The first of them defines land use as *the description of land in terms of its socio-economic purpose (agricultural, residential, forestry etc.)*. The second one describes land use as *a series of operations on land, carried out by humans, with the intention to obtain products and/or benefits through using land resources*.

Land use plans/ land user regulation

The land use plans regulate actual and future use of areas. The land use plans commonly have significant textual regulations to each area/ land category or specific areas. The land use plans are of varying detail; Municipal land use plans, detailed regulation plans for blocks or smaller areas within urban areas.

- Land use may be seen as divisions at a high level, e.g. distinguishing between private and state owned land. , e.g. at scale 1: 1 mill.
- Land use plans is commonly made at regional levels as kinds of master plans, e.g. covering the full extent of municipalities and being at the scale 1: 50.000
- Land regulation plans at detailed low level may cover populated areas or areas of specific economic or social interest. The plans may direct utilization level, the % of building coverage within areas, height regulations or functional regulations, and maps produced may have a detailed scale, e.g. 1: 5000.

It is a very diverse situation concerning land regulation/ land use plans as these spatial data commonly are based on national or regional legislation or other kinds of regulation. The documents/maps are frequently seen as legal documents, and the categories remain for decades as rights directing use land and property. Categories of land use follow such regulations. Furthermore, operational plans may for some areas be old and based on older legislation, and the nomenclature may have changed through time. Operational land use plans may be as old as 100 years or more. Also plans being proposed and being in a process or public/sectoral hearing can be relevant for dissemination in the infrastructure.

A common strategy to activate land use plans in a GIS is through the production of raster versions of land use plans. This is by some seen as a very good strategy, as the rasterisation makes a "copy" of the visual content, thus locking the content and accuracy for changes and misleading interpretation of the legal map documents. Some organisations have a strategy of first supplying raster versions of existing plans, and with a long term plan for establishment of vector versions.

Functional land use – according to socio-economic purpose

Functional areas within urban or rural areas may be mapped through fieldwork, register information or through modelling using socio-economic input data in a GIS.

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The recommended classification of the land use phenomenon is based on the ISIC Rev.3 (International Standard Classification of All Economic Activities) classification drawn up by the United Nations (approved by the Statistical Commission in 1989) and recommended for use throughout the world. This classification is integrated in the sense that it ensures a full harmonization with another main branches of economic classifications: the classifications of products ICPC (Central Product Classification) which are fundamental for foreign trade statistics, statistics of production and consumption, energy statistics, etc. The ISIC Rev. 3, it is important to state, is fully compatible with the EU NACE Rev. 1 (Nomenclature des Activités de la Communauté Européenne) system for the first two levels. (System replaced by 1.1.2008, see references).

The **ISIC system** is made of four levels of breakdown: 17 sections, 60 divisions, 159 groups and 292 classes. The 17 sections of the first level are characterizing main economic activities. These categories are:

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|-----------|--|
| SECTION A | Agriculture, Hunting and Forestry |
| SECTION B | Fishing |
| SECTION C | Mining and Quarrying |
| SECTION D | Manufacturing |
| SECTION E | Electricity, Gas and Water Supply |
| SECTION F | Construction |
| SECTION G | Wholesale and Retail Trade, Repair of motor vehicles, motorcycles and Personal and household goods |
| SECTION H | Hotels and Restaurants |
| SECTION I | Transport, Storage and Communication |
| SECTION J | Financial intermediation |
| SECTION K | Real estate, Renting and Business activities |
| SECTION L | Public Administration and Defence, Compulsory social security |
| SECTION M | Education |
| SECTION N | Health and Social work |
| SECTION O | Other Community, Social and Personal Service Activities |
| SECTION P | Private Households with Employed Persons |
| SECTION Q | Extra-territorial Organizations and Bodies |

Scope, use examples:

Many of the management and planning activities at local level require detailed data. Proper location, the geographical position, is important. The level of accuracy needed in location varies, the need for (and will to produce) accurate data being higher in urban or built-up areas and lower in rural and natural/semi-natural environments. Similarly, interest in frequent updating decreases with distance from central areas. The detailed area planning covers both land and sea/coastal areas.

Land Use is important for impact assessment and monitoring of implementation of policies and legal instruments for sustainable management of the environment, like Natura2000.

Policies:

6EAP, EIA guidelines. Several policies and strategies give highlight the value of regional approaches with integrated land/area management, such as the Integrated Coastal Zone Management, Communication on planning and environment, Water Framework Directive and the Communication on risk prevention.

Environmental Impact Assessments (EIAs) for projects and Strategic Environmental Assessment (SEAs) for policies, plans and programmes ensure that significant environmental impacts are identified, assessed and taken into account in decision-making process to which the public can participate.

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Important feature types and attributes:

Kinds of features depend on kind of land use and land use plan. A representation of a land use plan may be structured as a layered dataset.

- boundary of plan/regulation
- land use category area
- land use regulation area
- land use restriction area
- elements within a plan (road boundaries, building boundaries, forest/agricultural land boundaries etc)

Important attributes

- land use category
- land use regulation category
- land use restriction category
- present/existing or proposed/planned/future
- legal reference
- date of entry into force
- link to text regulations for each area

Links and overlaps with other themes:

- Cadastral parcels
- Hydrography
- Transport networks
- Protected sites
- Land cover
- Buildings
- Human health and safety
- Utility and governmental services
- Production and industrial facilities
- Agricultural and aquacultural facilities
- Population distribution – demography
- Area management/restriction/regulation zones and reporting units
- Natural risk zones
- Habitats and biotopes
- Energy resources
- Mineral resources

Reference documents:

Christophe Duhamel (1998) First approximation of a reference land use classification, Report to the FAO

CNIG: Annexe 5 – Liste des données géographiques de référence en domaine littoral (France)

CORINE as a European Land Use nomenclature (e.g. urban sprawl MOLAND).

Council Regulation (EEC) no. 3037/90 concerning the statistical classification of economic activities in the European Community (NACE rev.1) is repealed by Regulation (EC) no. 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic

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activities NACE revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains. (NACE rev. 2) This Regulation shall apply from 1 January 2008. As a consequence NACE rev.1 as well as ISIC Rev. 3 is not applicable from 1 January 2008 onwards.

EuroGeographics: EuroRegionalMap Specification 4.0 and Data Catalogue

INTESA-GIS: 1n1007_1-2 - Specifiche per la realizzazione dei data base topografici di interesse generale. Il catalogo degli oggetti (v.3_3). (Italy)

Nomenclature statistique des Activités économiques dans la Communauté Européenne (NACE), revision 1.1, at : http://www.fifoost.org/database/nace/index_en.php

Norwegian feature catalogue including different chapters and UML models for land use planning/masterplan, land cover (with a land use component) See URLs:
<http://www.statkart.no/sosi/UMLfullmodell/Plan/Plan.htm>,
<http://www.statkart.no/sosi/UMLfullmodell/Markslag/Markslag.htm>

RAVI:NEN3610 by "Ministry of Housing, Spatial Planning and Environment (VROM), Information model Land use plans (Informatiemodel Ruimtelijke Ordening), 2006,
http://www.helpdeskdurp.nl/files/412/deelpublicatie_6_.pdf"

United Nations, International Standard Industrial Classification (ISIC), Rev. 3, at:
<http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=2>