

Open Land Use Map

Open Land Use Map

http://www.sdi4apps.eu/open_land_use/

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Project history



<http://plan4business.eu/>



<http://www.sdi4apps.eu/>



Aim of the project

Create

- **seamless**
- **harmonized**
- **vector**

database of Land Use at ***the most detailed possible*** scale

Data sources of land use

Pan-European:

- [1\) Urban Atlas](#)
- [2\) CORINE Land Cover 2012](#)

Pan-African:

- [1\) Africover](#)
- [2\) OpenStreetMap](#)

National:

Austria:

- [1\) LPIS \(Land Parcel Identification System\)](#)
- [2\) Urban Atlas](#)
- [3\) CORINE Land Cover](#)

Czech Republic:

- [1\) Digital Cadastre](#)
- [2\) LPIS \(Land Parcel Identification System\)](#)
- [3\) Urban Atlas](#)
- [4\) CORINE Land Cover](#)

Flanders:

- [1\) GRBGis Large Scale Reference Database](#)
- [2\) Urban Atlas](#)
- [3\) CORINE Land Cover](#)

Data sources of administrative boundaries

Pan-European:

[1\) Eurostat](#)

Pan-African:

[1\) OpenStreetMap](#)

National:

Austria:

[1\) National data](#)

Czech Republic:

[1\) Digital Cadastre](#)

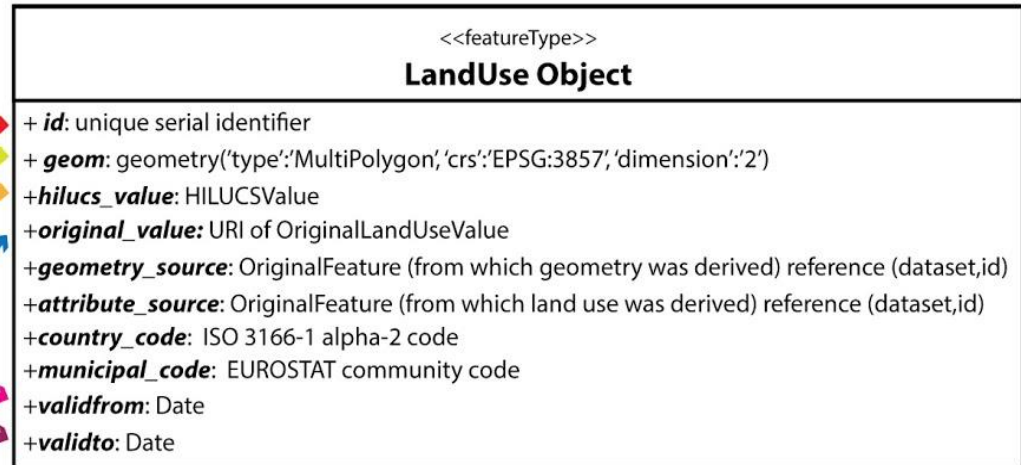
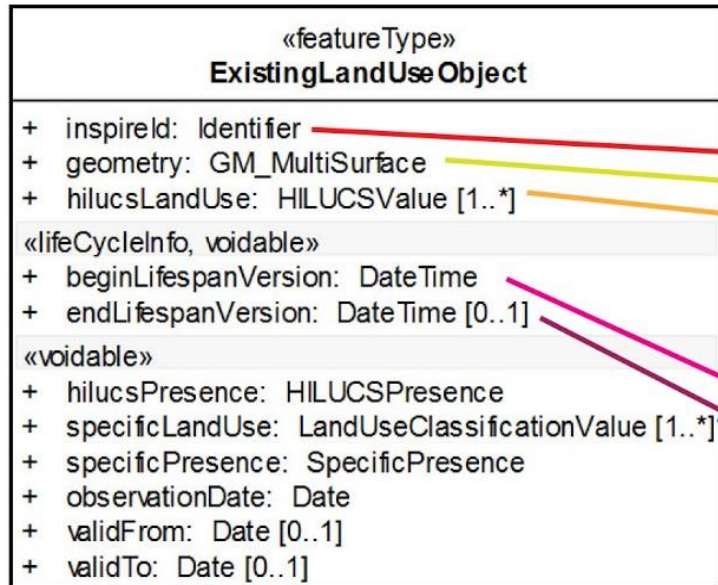
Flanders:

[1\) National data](#)

Madagascar:

[1\) United Nations Office for the Coordination of Humanitarian Affairs Regional Office for Southern Africa](#)

Data model





HILUCS classification

Hierarchical INSPIRE Land Use Classification System (HILUCS)

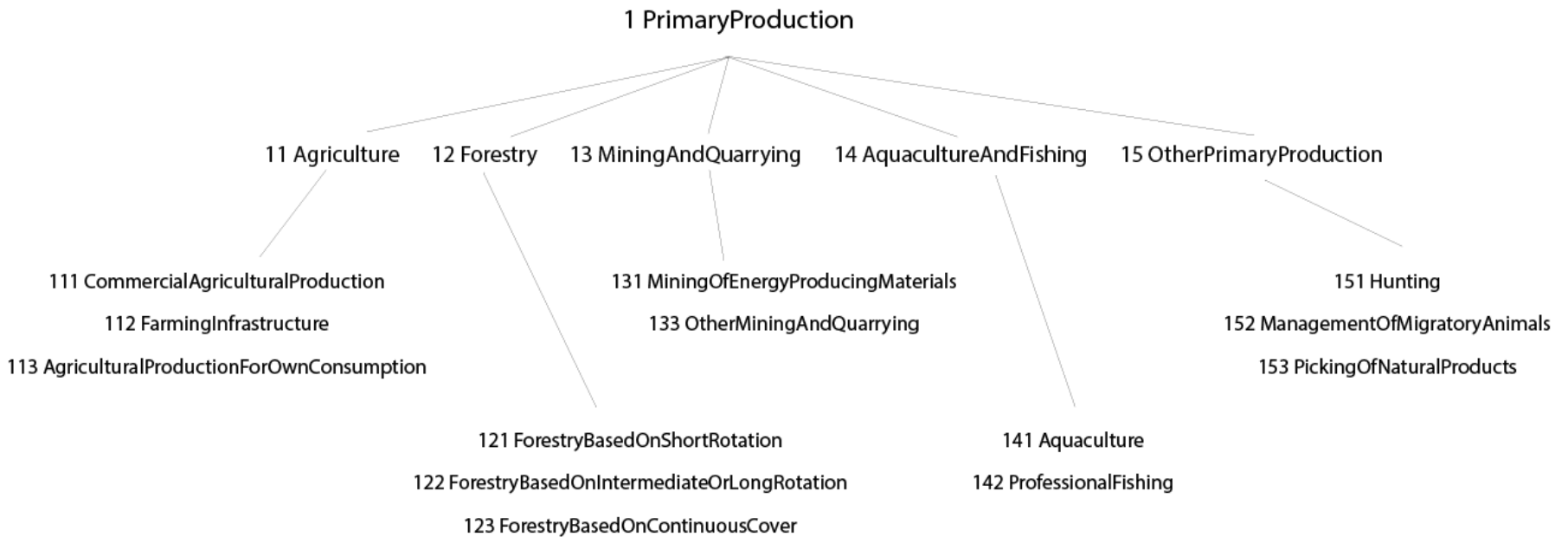
<http://inspire.ec.europa.eu/codelist/HILUCSValue>



HILUCS classification

- 1 Primary Production
- 2 Secondary Production
- 3 Tertiary Production
- 4 Transport Networks Logistics And Utilities
- 5 Residential Use
- 6 Other Uses

HILUCS classification



HILUCS classification

```
CASE
  WHEN original_value='4' THEN 66
  WHEN original_value='*' THEN 66
  WHEN original_value='agricultural' THEN 11
  WHEN original_value='agriculture' THEN 11
  WHEN original_value='aguaculture' THEN 141
  WHEN original_value='airfield' THEN 413
  WHEN original_value='airport' THEN 413
  WHEN original_value='allotments' THEN 11
  WHEN original_value='animal_keeping' THEN 11
  WHEN original_value='aorch' THEN 66
  WHEN original_value='apartments' THEN 51
  WHEN original_value='apiary' THEN 112
  WHEN original_value='aquaculture' THEN 141
  WHEN original_value='arable' THEN 11
  WHEN original_value='area' THEN 66
  WHEN original_value='area_surround_building' THEN 66
  WHEN original_value='areoway' THEN 66
  WHEN original_value='army' THEN 631
  WHEN original_value='assembly ground' THEN 66
  WHEN original_value='b' THEN 66
  WHEN original_value='bare_earth' THEN 631
  WHEN original_value='basin' THEN 66
  WHEN original_value='bath' THEN 66
  WHEN original_value='bing' THEN 66
  WHEN original_value='BIO TECHNOLOGY TREE PROJECT' THEN 11
  WHEN original_value='bm' THEN 66
  WHEN original_value='bois' THEN 66
  WHEN original_value='breeding' THEN 11
  WHEN original_value='brick laying' THEN 6
  WHEN original_value='British American Tobacco' THEN 231
  WHEN original_value='brownfield' THEN 62
  WHEN original_value='brownfiled' THEN 62
  WHEN original_value='building' THEN 66
  WHEN original_value='buildings' THEN 66
  WHEN original_value='Bureau' THEN 66
  WHEN original_value='bush' THEN 12
  WHEN original_value='business_park' THEN 314
  WHEN original_value='cairn' THEN 631
  WHEN original_value='campsite?' THEN 313
  WHEN original_value='campus' THEN 332
  WHEN original_value='CAPRE' THEN 332
  WHEN original_value='carry' THEN 66
  WHEN original_value='cattle_field' THEN 11
  WHEN original_value='cemetery' THEN 33
  WHEN original_value='churchyard' THEN 334
  WHEN original_value='circle' THEN 66
  WHEN original_value='civic' THEN 331
  WHEN original_value='civic_admin' THEN 331

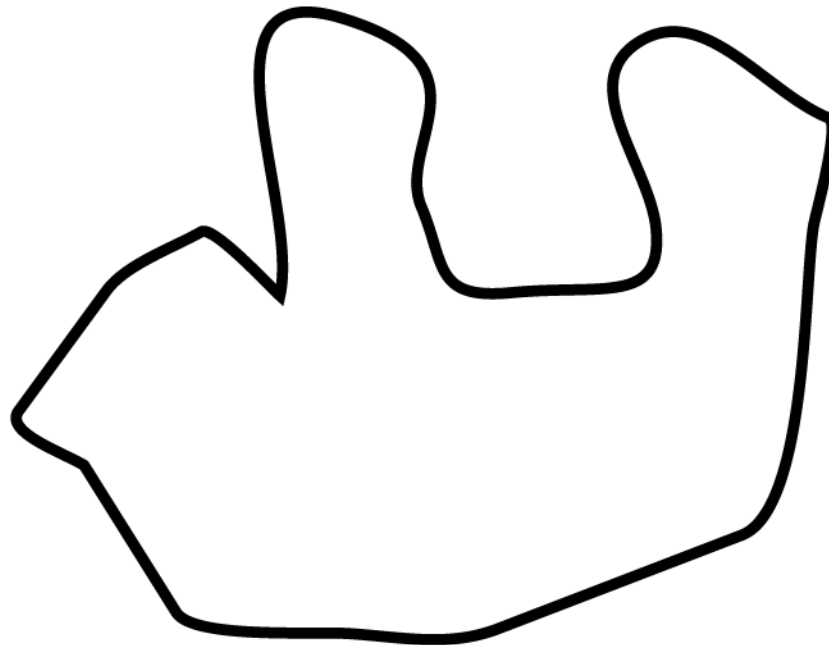
  WHEN original_value='cleared area' THEN 631
  WHEN original_value='clearing' THEN 66
  WHEN original_value='cliffs' THEN 66
  WHEN original_value='commercial' THEN 31
  WHEN original_value='common' THEN 66
  WHEN original_value='compound' THEN 66
  WHEN original_value='conservation' THEN 63
  WHEN original_value='construcion' THEN 6
  WHEN original_value='construciton' THEN 6
  WHEN original_value='construction' THEN 6
  WHEN original_value='container_terminal' THEN 42
  WHEN original_value='Court' THEN 331
  WHEN original_value='customs' THEN 66
  WHEN original_value='d' THEN 66
  WHEN original_value='dam' THEN 66
  WHEN original_value='deforested' THEN 631
  WHEN original_value='Demonstration plot' THEN 66
  WHEN original_value='depot' THEN 42
  WHEN original_value='Dépot' THEN 42
  WHEN original_value='dirt' THEN 631
  WHEN original_value='disused' THEN 62
  WHEN original_value='donga' THEN 631
  WHEN original_value='driving school t' THEN 335
  WHEN original_value='dryfield' THEN 11
  WHEN original_value='Drying yard' THEN 11
  WHEN original_value='dump' THEN 433
  WHEN original_value='dung-yard' THEN 11
  WHEN original_value='education' THEN 332
  WHEN original_value='education;church' THEN 332
  WHEN original_value='educational' THEN 332
  WHEN original_value='entrance' THEN 66
  WHEN original_value='er' THEN 66
  WHEN original_value='ersid' THEN 51
  WHEN original_value='esid' THEN 51
  WHEN original_value='etai' THEN 66
  WHEN original_value='f' THEN 66
  WHEN original_value='failway' THEN 66
  WHEN original_value='fam' THEN 66

  WHEN original_value='famry' THEN 66
  WHEN original_value='famy' THEN 66
  WHEN original_value='famyrd' THEN 11
  WHEN original_value='farl' THEN 66
  WHEN original_value='farm' THEN 11
  WHEN original_value='farm_land' THEN 11
  WHEN original_value='farmland' THEN 11
  WHEN original_value='farmlandor' THEN 11
  WHEN original_value='farmyard' THEN 11
  WHEN original_value='farmyard-Lesaka' THEN 11
  WHEN original_value='farmyards' THEN 11
  WHEN original_value='farrmy' THEN 11
  WHEN original_value='fary' THEN 66
  WHEN original_value='fb' THEN 66
  WHEN original_value='field' THEN 11
  WHEN original_value='field_cropland' THEN 11
  WHEN original_value='fish_pond' THEN 141
  WHEN original_value='fishfarm' THEN 141
  WHEN original_value='fixme' THEN 66
  WHEN original_value='FIXME' THEN 66
  WHEN original_value='FJKM Taniketsa' THEN 66
  WHEN original_value='flood_Plain' THEN 11
  WHEN original_value='flowerbed' THEN 11
  WHEN original_value='ford' THEN 632
  WHEN original_value='forest' THEN 12
  WHEN original_value='fountain' THEN 344
  WHEN original_value='friche' THEN 631
  WHEN original_value='frmym' THEN 12
  WHEN original_value='fuel' THEN 411
  WHEN original_value='garage' THEN 6
  WHEN original_value='garages' THEN 6
  WHEN original_value='garbage' THEN 433
  WHEN original_value='garden' THEN 11
  WHEN original_value='Gold Plant Tailings dam' THEN 66
  WHEN original_value='government' THEN 331
  WHEN original_value='government' THEN 331
  WHEN original_value='grass' THEN 11
  WHEN original_value='grassland' THEN 11
  ...
END
```

Geometry processing

Mask:

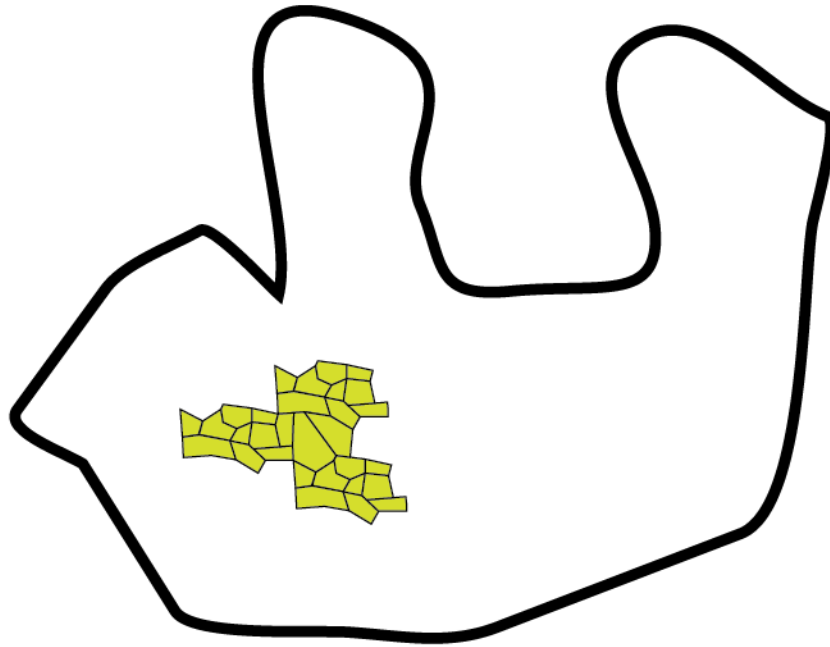
Municipal border



Geometry processing

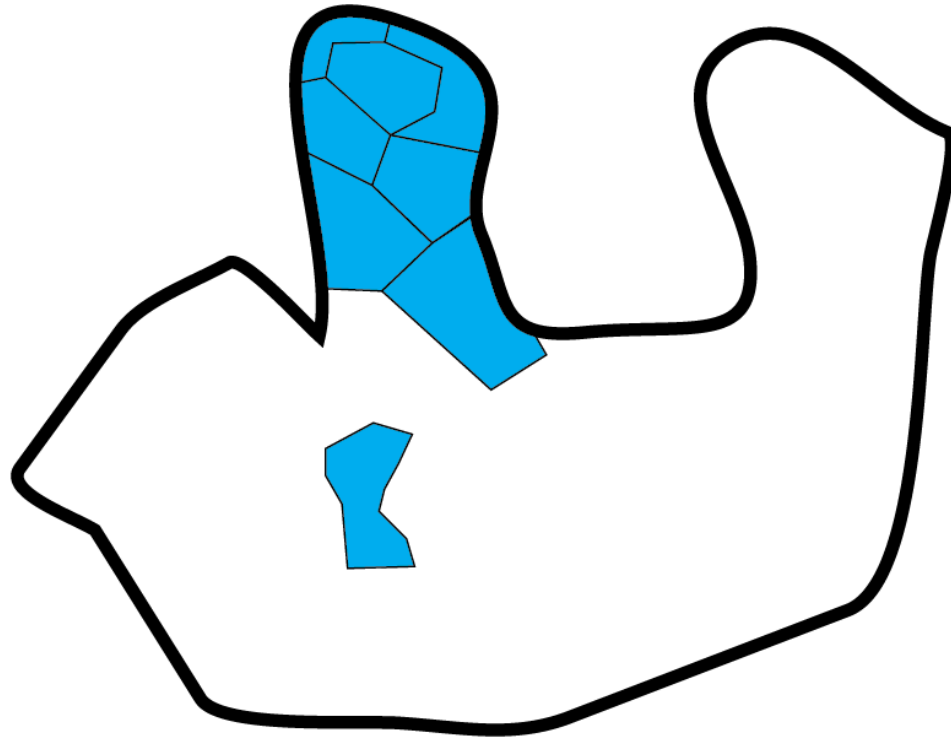
Sources of Data:

RUIAN (digital cadastral data)



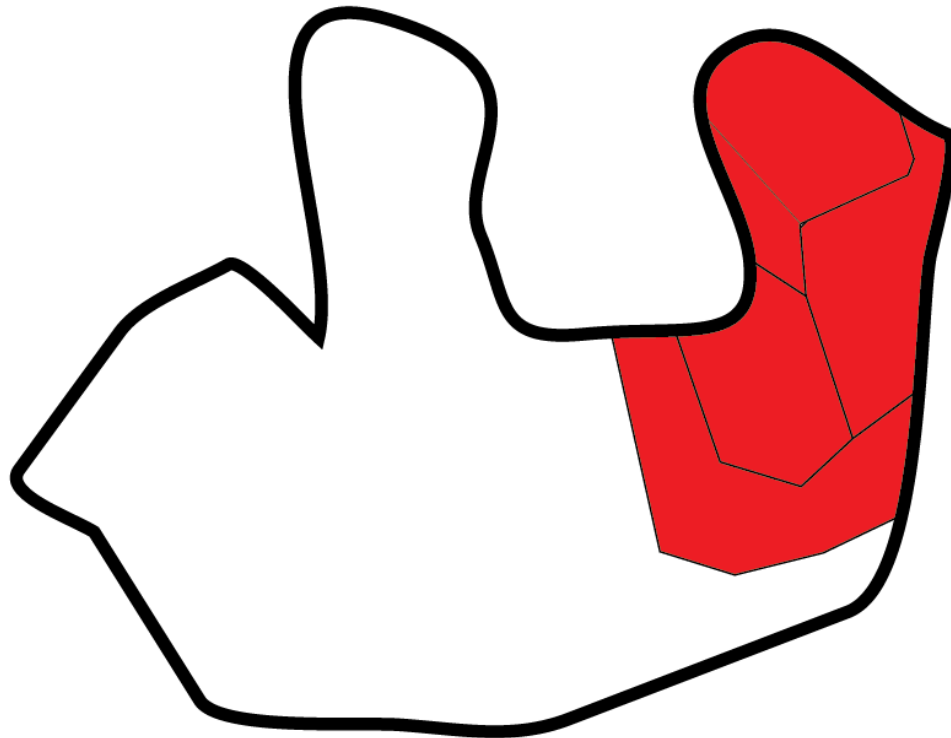
Geometry processing

LPIS



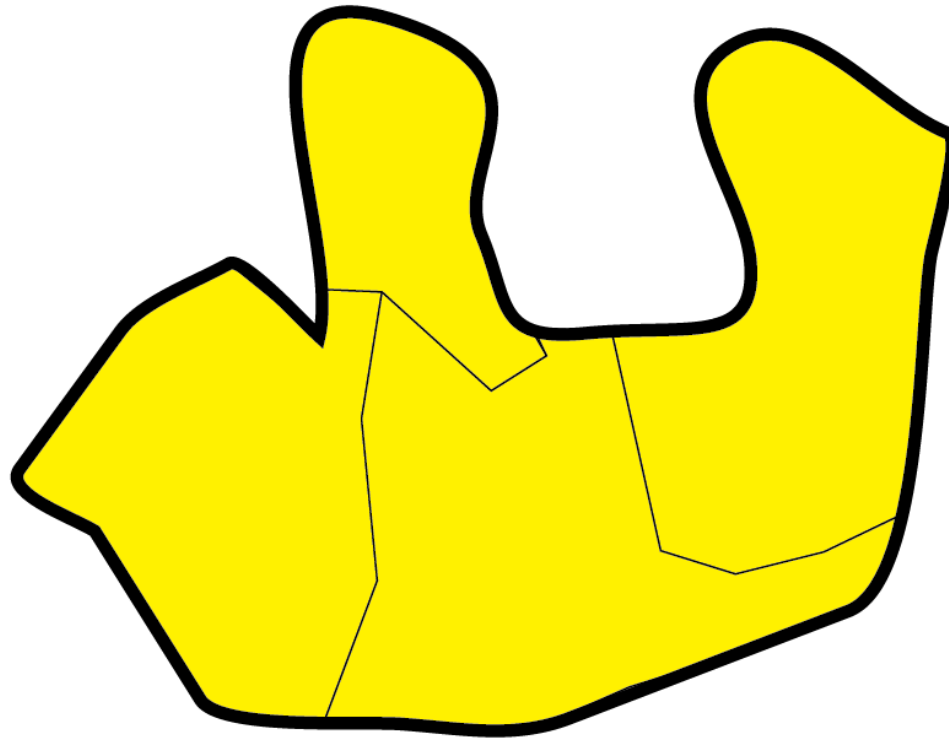
Geometry processing

Urban Atlas

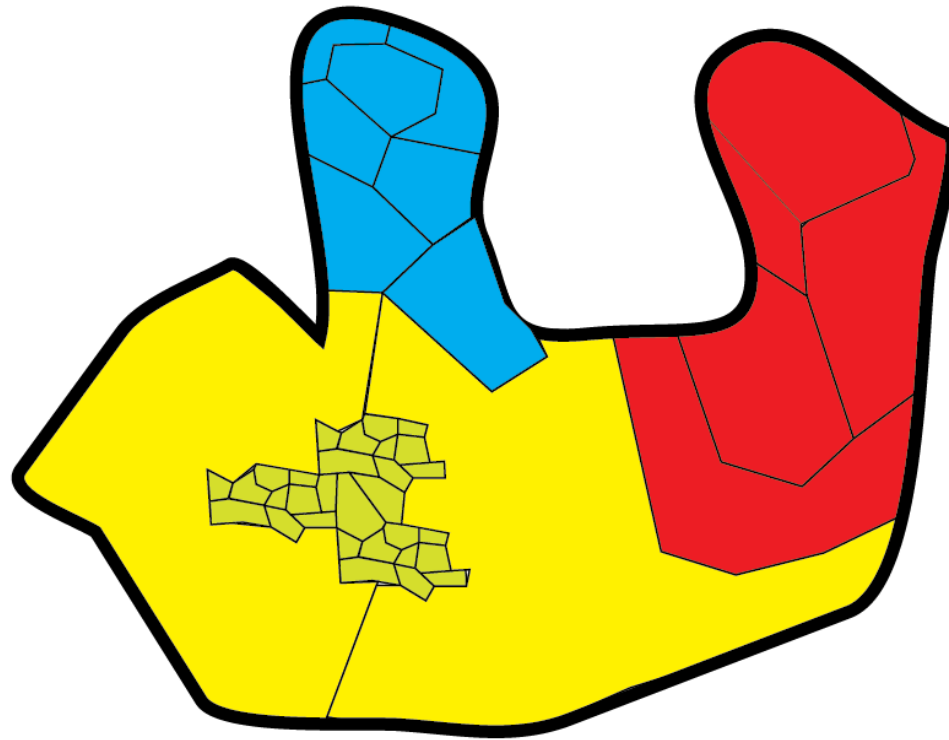


Geometry processing

Corine Land Cover



Geometry processing



Geometry processing

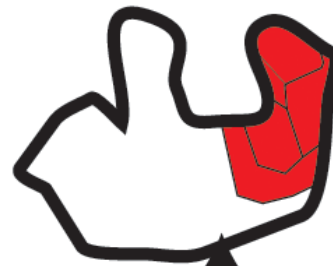
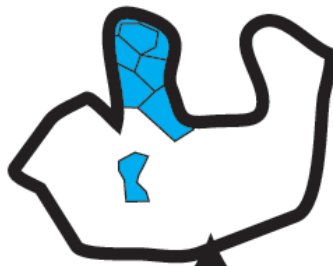
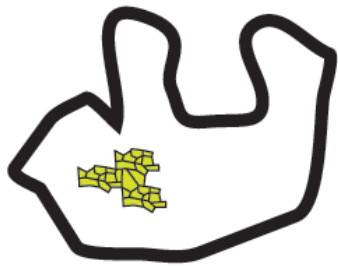
Sources:

Cadastral map

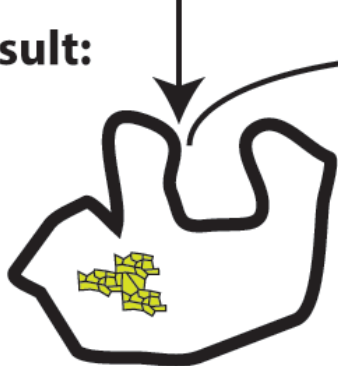
LPIS

Urban Atlas

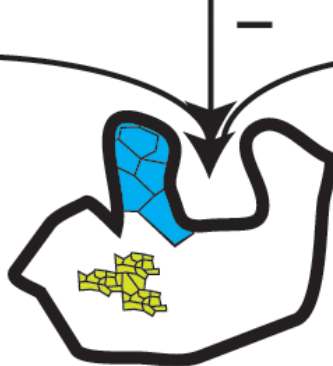
Corine Land Cover



Result:

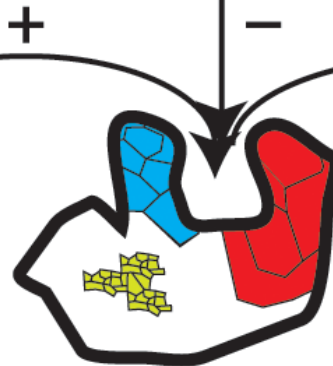


+



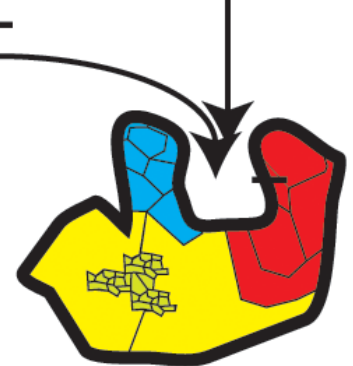
-

+



-

+



Attribute processing

Creating reference geometries - partitioning space

1) buildings



2) parcels



3) roads



4) railways



5) other areas



6) waterways



Attribute processing

Filling land use attribute

1) Urban Atlas



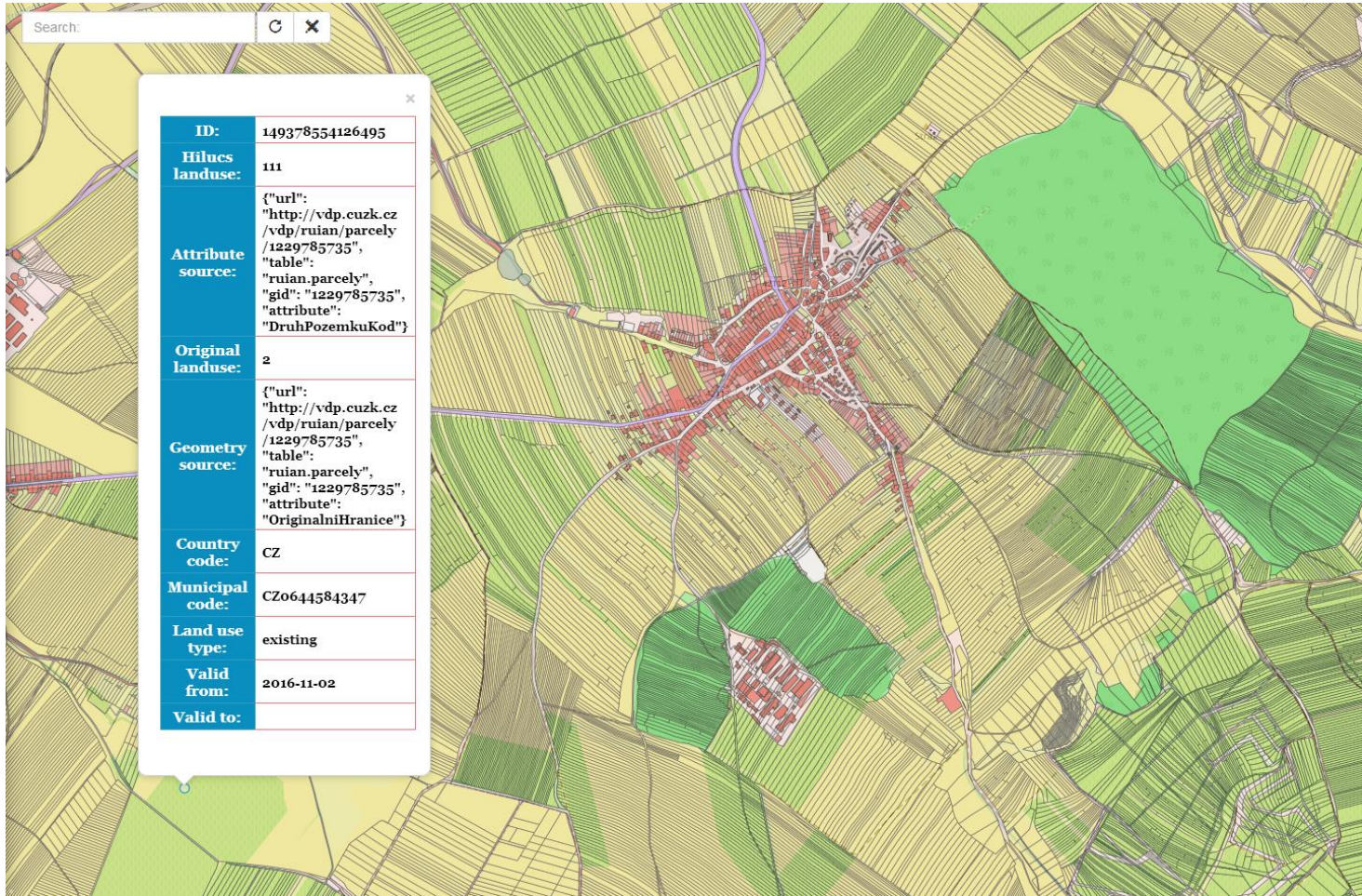
Result



Results

Application:

http://app.hslayers.org/open_land_use/map.html

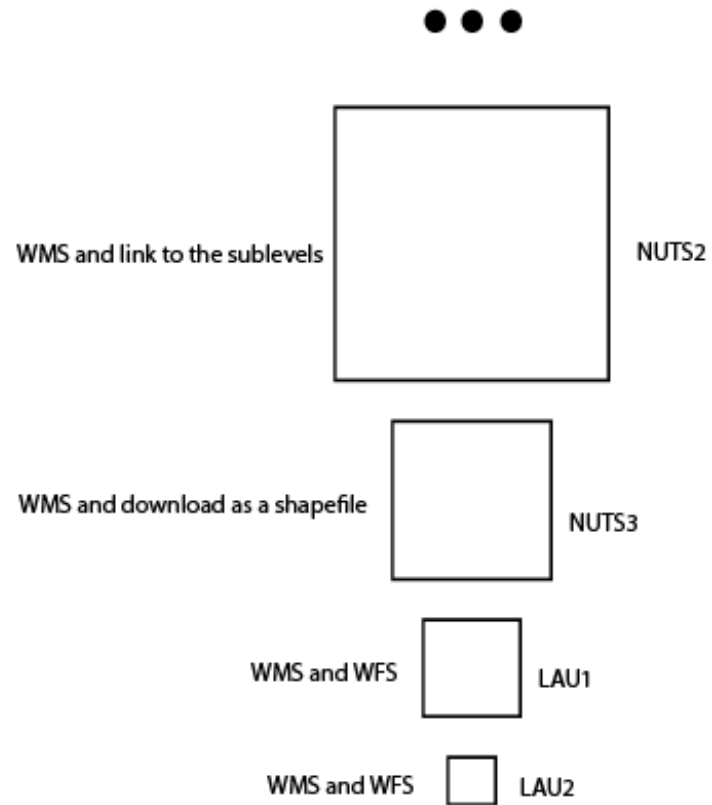


The screenshot displays a web-based land use map application. A search bar is visible at the top left. The map shows a rural area with various land use types, including agricultural fields and a small settlement. A popup window is open, providing detailed information for a specific parcel.

ID:	149378554126495
Hilucs landuse:	111
Attribute source:	{ "url": "http://vdp.euzk.cz/vdp/ruian/parcely/1229785735", "table": "ruian.parcely", "gid": "1229785735", "attribute": "DruhPozemkuKod" }
Original landuse:	2
Geometry source:	{ "url": "http://vdp.euzk.cz/vdp/ruian/parcely/1229785735", "table": "ruian.parcely", "gid": "1229785735", "attribute": "OriginalniHranice" }
Country code:	CZ
Municipal code:	CZ0644584347
Land use type:	existing
Valid from:	2016-11-02
Valid to:	

Results

Services:



Results

- Shapefile download:

http://sdi4apps.eu/open_land_use/download/

Download Open Land Use dataset in format of shapefile for available countries.

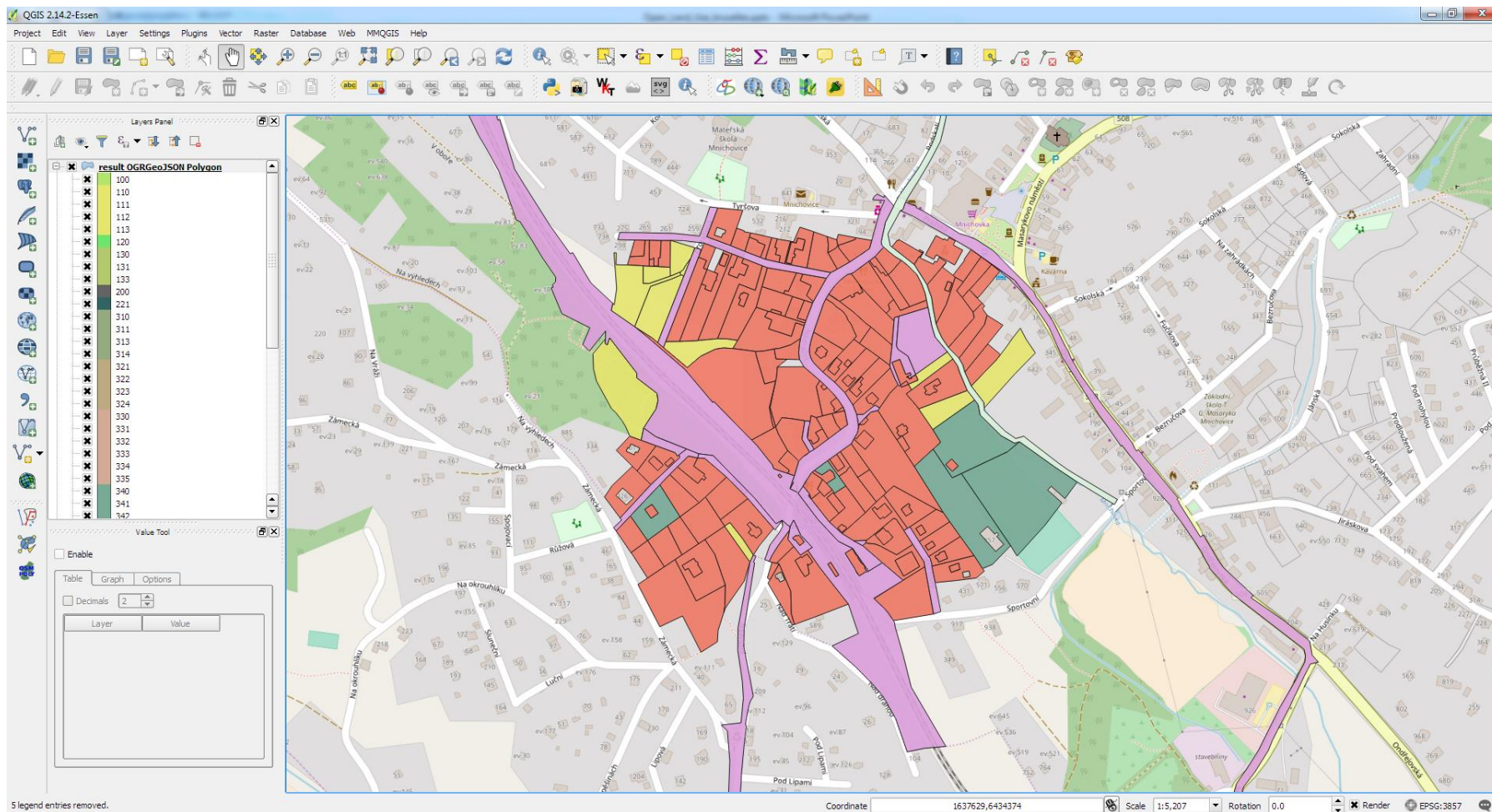
Download

If you don't want to use GUI - please feel free to use URLs in form of [sdi4apps.eu/open_land_use/download/adm_unit/\[code of country\]](http://sdi4apps.eu/open_land_use/download/adm_unit/[code of country])
For example to download data for Romania go to: sdi4apps.eu/open_land_use/download/adm_unit/ro

Results

- WFS, for instance:

[http://gis.lesprojekt.cz/wms/open land use/european open land use?service=WFS&VERSION=1.1.0&REQUEST=GetFeature&TYPENAME=elu_by_municipalities&SRSNAME=EPSG:3857&BBOX=1637090,6434763,1637122,6434812&municipality=%27CZ0209%27&outputformat=geojson](http://gis.lesprojekt.cz/wms/open%20land%20use/european%20open%20land%20use?service=WFS&VERSION=1.1.0&REQUEST=GetFeature&TYPENAME=elu_by_municipalities&SRSNAME=EPSG:3857&BBOX=1637090,6434763,1637122,6434812&municipality=%27CZ0209%27&outputformat=geojson)



Results

- WMS, for instance:

http://gis.lesprojekt.cz/wms/open_land_use/european_open_land_use?SERVICE=WMS&VERSION=1.3.0&REQUEST=GetMap&FORMAT=image/png&TRANSPARENT=true&LAYERS=olu&WIDTH=256&HEIGHT=256&CRS=EPSG:3857&STYLES=&BBOX=1849164.5882749856,6134530.142055105,1858948.527895488,6144314.081675608





Results

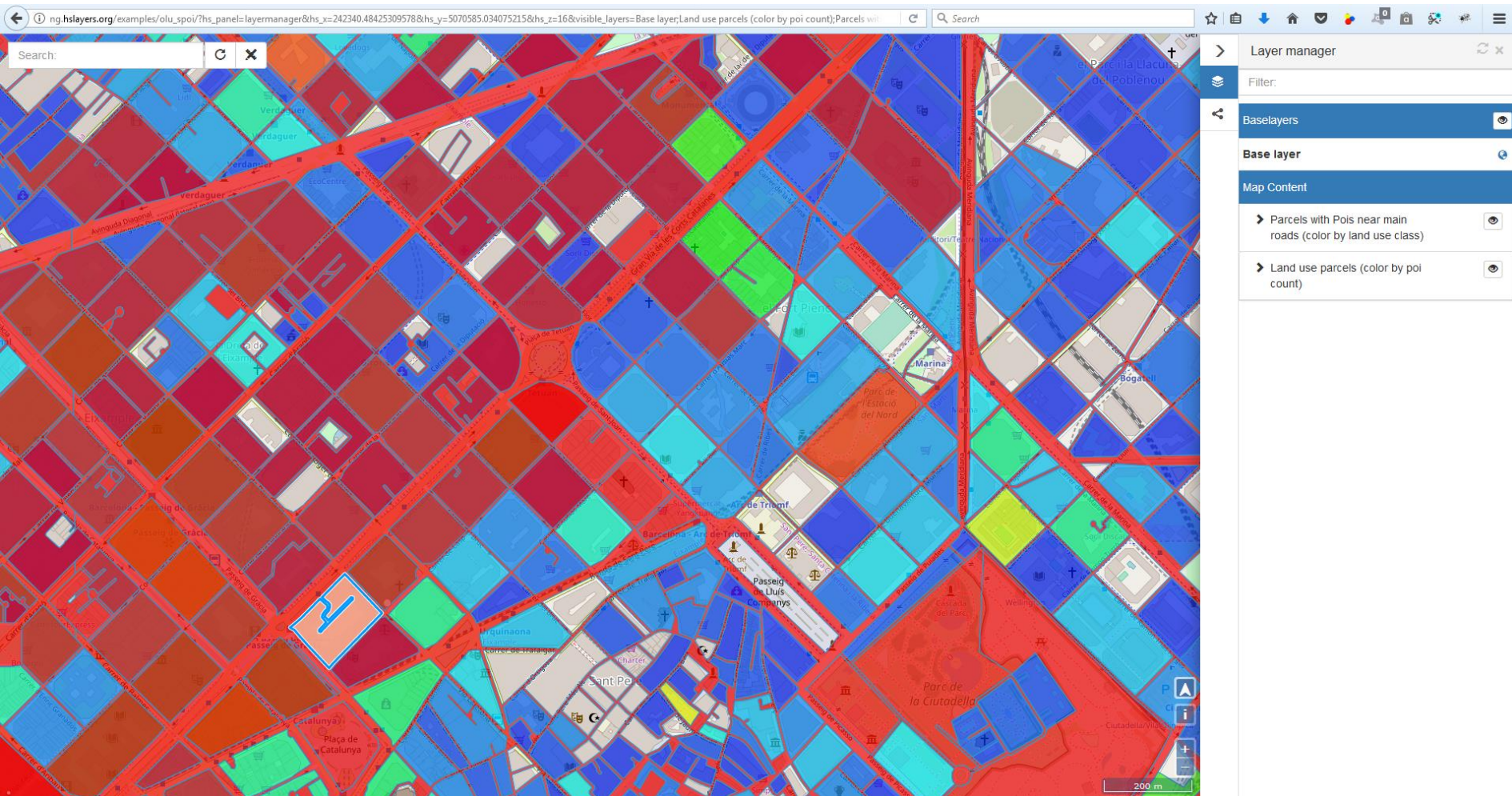
- RDF:

Graph <http://w3id.org/foodie/olu#>

SPARQL Endpoint <http://www.foodie-cloud.org/sparql>

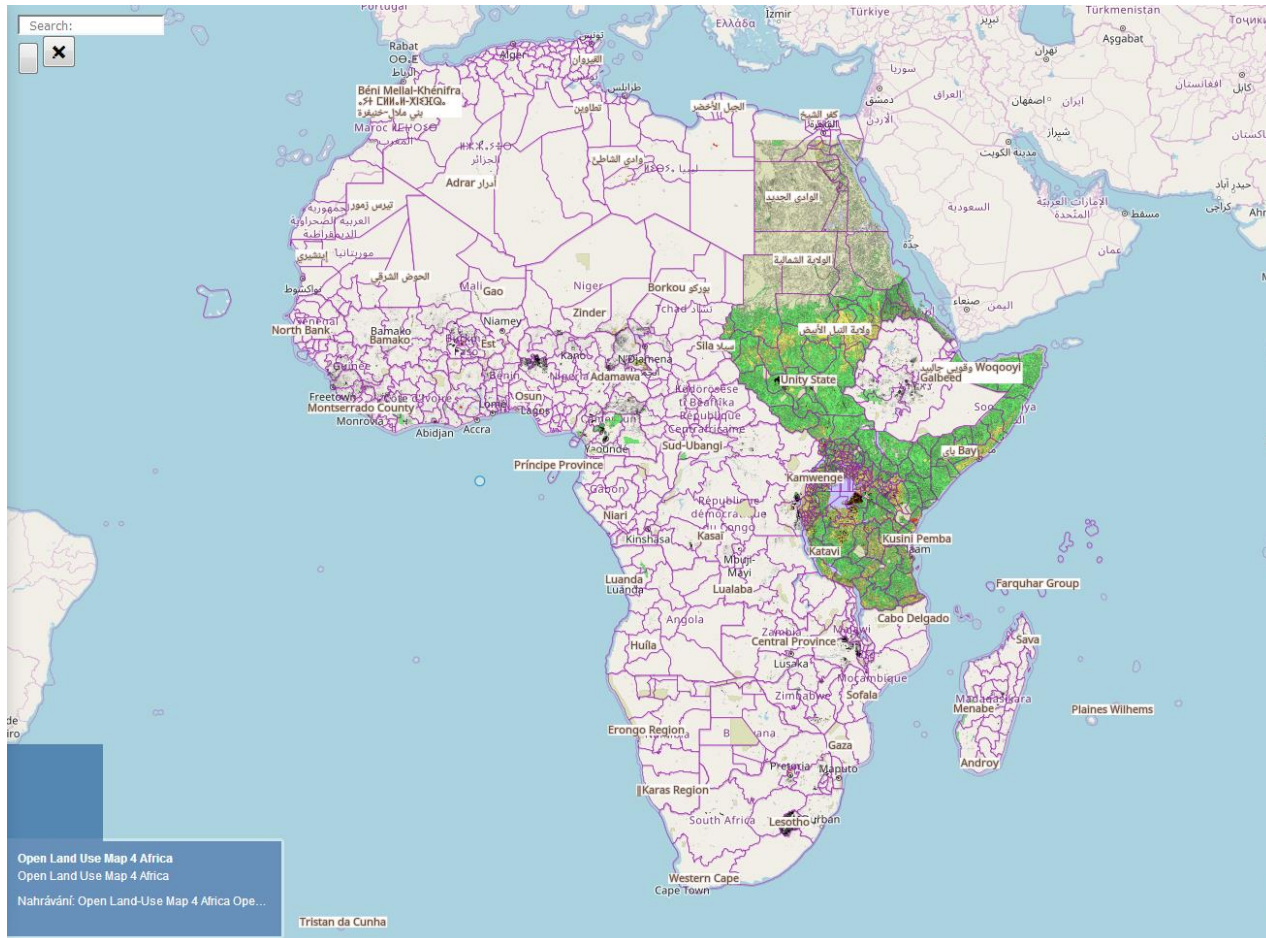
Results

- Application based on SPARQL endpoint:



Results

- Open Land Use Map of Africa visualization:



Results

- Open Land Use Map of Africa visualization:

The screenshot shows a web-based map interface. The main map area displays a dense urban area with red buildings and grey roads. A sidebar on the left displays metadata for a selected feature. The top navigation bar includes search, register, and sign in options.

Info

Coordinates

EPSG:4326 17° 53' 32" S 31° 01' 45" E

EPSG:3857 3454151.0896930, -2024941.0894453

Open Land-Use Map 4 Africa

Feature

id	381419
hilucs_value	510
original_value	residential
geometry_source	{ "table": "osm", "gid": "/relation/6083513" }
attribute_source	{ "table": "osm", "gid": "/relation/6083513" }
country_code	ZW
municipal_code	318467
discr	discr
validfrom	2017-09-04
validto	validto

Feature

id	318467
name	Harare Province

Open Land Use Map 4 Africa
Open Land Use Map 4 Africa

Open Transport Net



Plans for the future

- Editing tool
- Metadata and statistics publication
- Expanding to other continents/countries
- Exploiting RDF based application
- Defining land use category by SPOI

A stylized map of a city with various colored regions and roads. The map features a central urban area with a grid of streets, surrounded by green fields and a network of roads. The colors used include green, purple, red, and grey. The text "Thanks for your attention!" is overlaid in the center of the map.

Thanks for your attention!