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Data in Brief

Data Article

Enhanced land use datasets and future scenarios of land change for Slovakia

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A R T I C L E   I N F O

A B S T R A C T

The presented datasets relate to the research article entitled "Land changes in Slovakia: past processes and future directions" [8]. The datasets include the land use and cover (LUC) maps of Slovakia for the years 2006 and 2012 and maps of five future land use scenarios for 2040 developed along the axes of globalisation vs. regionalisation and low vs. high policy intervention (IPCC). Datasets were produced in raster format by combining thematic maps, outputs of models defining particular LUC sector and statistical data taken from European and national predictions of future land change development.The maps have a spatial resolution of 20 m

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Specifications Table [please fill in right-hand column of the table below]

Subject area	*Geography, Geoinformation, Landscape Ecology*
More specific subject area	*Land use and land cover classification; future land change scenarios*
Type of data	*raster map, text file, graph*
How data was acquired	*Processing of data sources taken from EEA [3] and GCI [2]. Data were processed in form of raster maps by using the raster package in R [4,9].*
Data format	*Raster maps (resolution of 20 metres)*

Experimental factors	
Experimental features	
Data source location	*Slovakia*
Data accessibility	
Related research article	*Pazúr and Bolliger* [8]. *Land changes in Slovakia: Past processes and future directions. Applied Geograph, 85, 163–175.*

Value of the data

- Thematically and spatially enhanced LUC data provide most detailed and accurate temporal layers of LUC for the years 2006 and 2012 available for Slovakia on national level
- Overlay of LUC dataset for 2006 and 2012 improves on existing knowledge of recent changes in LUC
- Five future land use scenarios for 2040 were developed along the axes of globalisation vs. regionalisation and low vs. high policy intervention.
- Future scenarios provide important baseline information for researchers and practitioners for implementation into management practice and to gain insights into likely magnitudes and locations of land-change in the future.

1. Data

The LUC classification for Slovakia was developed using the existing CORINE dataset for 2006 and 2012. Improvements of the CORINE LUC classification encompassed higher thematic improvement (20 m) relied on supplements regarding settlement structures, agricultural areas, forests and water bodies (see Section 2.1). Supplementary dataset also substantially enhanced the spatial resolution which is in original CORINE LUC dataset limited by minimum mapping units of 25 ha and mapped change areas of 5 ha (Fig. 1).

The enhanced LUC datasets were used as an input for developing the spatially explicit future scenarios of land change in Slovakia. Scenarios assumed different development trends as defined by the development pathways from recent years (TREND scenario; [8]), or by storylines compiled from national [6,7], European [5,10] or global (IPCC scenarios) assumptions of development along the axes of globalisation vs. regionalisation and low vs. high policy intervention (scenarios A1,A2,B1,B2; Fig. 2, [8]).

2. Experimental design, materials and methods

2.1. Improving the spatial resolution of land classes

To improve the spatial resolution of urban land cover areas within the CLC dataset, we used the soil sealing layer, which is part of the Pan-European High-Resolution Layers [3] developed within the framework of the Copernicus land monitoring service. Housing, administrative, or industrial buildings localised on non-urban areas with soil sealing greater than 30% were classified either as discontinuous urban fabric or as industrial, commercial and transportation units. Such a distinction depended on the Reference Spatial Database (ZB GIS, the geometric database of the Slovak National infrastructure of spatial data, [2]) which was also used to delineate permanent crops (vineyards, fruit trees and berry plantations CLC class 22) within agricultural fields. Land-use classification of eight major cities in Slovakia classified as Local Administrative Units centres (LAU1, previously called NUTS-4) and their hinterland (so-called Functional Urban Areas) was also improved by using datasets