

TRANS-EUROPEAN TRANSPORT CORRIDORS REFERENCE LAND COVER DATA

Ground cover along major transport axes of the Republic of Bulgaria

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ABSTRACT

In Europe a major recent development has been the entering in force of the INSPIRE Directive in May 2007, establishing an infrastructure for spatial information in Europe to support Community environmental policies, and policies or activities which may have an impact on the environment. The Directive 2007/2/EC⁽¹⁾ of the European Parliament and of the Council of 14 March 2007 establish an Infrastructure for Spatial Information in the European Community. According to the requirements of the INSPIRE Directive 02/2007/EC the spatial data have to be elaborated using LCCS⁽²⁾ of FAO-UN⁽³⁾.

Concerning the creation of capacity for operative phase on European Earth Observation Programme – GMES⁽⁴⁾, and the Bulgarian contribution by creation of a model of national database – land cover layer, the referential database on ground cover along the Trans-European transport corridors had been created. It uses the classification system LCCS of FAO-UN, and supports the transportation of Directive 2007/02/EC - INSPIRE.

The Trans-European transport corridors pass along the Republic of Bulgaria on the five major transport axes as they are: Corridor Nr. 5 – Vidin – Kulata; Corridor Nr.7 - Dunabe; Corridor Nr. 8 – Gjueshevo – Burgas – Varna; Corridor nr. 9 Ruse – Momchilgrad and Corridor Nr. 10 – Kalotina – Svilengrad. The referential database – land cover is based on satellite imageries of SPOT 5, Landsat 5 TM, and Landsat 7 ETM, with date of acquisition between 11th and 22nd of February 2000, orthorectified in WGS84 by using SRTM.

In purpose to outline the land cover in the buffer zone of 10 km, for the transport corridors, archive satellite images from SPOT 5 with resolution of 5 meters, were used, as well as Landsat TM and Landsat ETM satellite images the spatial resolution is 30 meters. For accomplishment with SPOT 5 the classification, band combination of 2,1,4 - RGB⁽⁵⁾, because in that combination the vegetation is best distinguished from other objects. Thus, the vegetation cover spectral characteristics are colored from red to dark brown. In spite of this the Landsat imageries uses band combination of 4, 5, 3 - RGB spectral bands so that the vegetation is best discovered. Its spectral characteristics are colored from dark green to bright brown.

The covered area by using the both satellite instruments is exactly of 2088344 ha.

The main purpose of the referential database on ground cover along the Trans-European transport corridors is to support decision-making process at national and regional level. This gives an opportunity for checking the accuracy of multifarious geographic maps, city cadastre for the transport infrastructure, and reliability of different thematic spatial geodatabases, as well as various statistical assessments.

Nevertheless this could be used for assessment of economic losses due to disruption of biodiversity, such are Natura 2000 and Ornithological important places.

In the frame of GMES, the reference land cover dataset gives also opportunities for applying simulation models, damage assessment, analysis of losses from historical disasters and many other applications.

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- (1) *EC: European Commission*
 - (2) *LCCS: Land Cover Classification System*
 - (3) *FAO – UN: Food and Agriculture Organization of United Nations*
 - (4) *GMES: Global Monitoring for Environment and Security*
 - (5) *RGB: Red Green Blue band combination*