COMPARISON BETWEEN REFERENCE LAND COVER DATA AND THEMATIC SPATIAL DATA

Lozenets test site – Sofia, Bulgaria

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A B S T R A C T

Nowadays there is no common accepted method for land cover classification. This research is addressed to elaborated reference land cover database and its application in different studies. Bulgaria is the first member state of European Union, which has started a land cover database, based on LCCS(1) of FAO-UN(2) for the whole territory of the country. LCCS enables a comparison of land cover classes regardless of data source, economic sector or country. Most other land cover classification systems are single-purpose systems, based on requirements of a specific project or sectorial approach. Land cover classes produced by such systems are generally not comparable. LCCS is an a priori classification. Therefore all the classes must be defined before any data collection and their classification take place. Main advantage of a priori classification systems is that they allow standardization of classes, are independent of geographic area and data collection methodology. The LCCS method enhances the standardization process and minimizes the problem of dealing with a very large amount of pre-defined classes.

ReSAC has long experience in development of land cover datasets. The last product is reference land cover dataset derived on the base of semi-automatic photointerpretation and classification of satellite imageries from the Landsat TM, acquired in the late spring and summer periods of 2009 and 2010. The spatial resolution of the imageries is 30 meters, and the data capture method developed, allowed generation of land cover datasets on a scale 1:50 000. In addition, elevation and slope information from the SRTM Digital Elevation Model (version 4) were used for further refining the spatial objects and enhancing the alphanumeric information assigned to each geospatial feature. Subsequently, there was performed validation, which is relevant to overall thematic accuracy of 85%. This reference database, presented land cover within the territory of Republic of Bulgaria was prepared by the specialists from ASDE(3) and ReSAC. Consultations with land cover and LCCS specialists from the FAO-UN have been made, as well.

The current study is focused on the application of this reference land cover dataset, and its role in quick finding the changes between it and basic thematic layers such as buildings, or for example other land cover data. Available, up-to-date reference land cover database is

useful every time. It allows users to check the actuality of his work data. It can be used to harmonization of various thematic datasets and for quality assessment.

The main purpose of the reference database is to support decision-making process at national and regional level, as well as to give an opportunity for checking the accuracy and reliability of different thematic spatial geodatabases. In the frame of GMES[4], the reference land cover dataset gives also opportunities for applying simulation models, damage assessment, analysis of losses from historical disasters and many other applications.

(1) LCCS: Land Cover Classification System

(2) FAO – UN: Food and Agriculture Organization of United Nations

(3) ASDE: Agency for Sustainable Development and Eurointegration

(4) GMES: Global Monitoring for Environment and Security