

ESTABLISHING OF THE AREA FRAME SAMPLING SYSTEM AND SURVEY TECHNIQUES FOR AGRICULTURAL STATISTICS PURPOSE



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Introduction

The project "Strengthening and Harmonization of the BiH agriculture and rural sectors Information System" (BiHAIS project - EUROPEAID/126652/C/SER/BA) for the strengthening and harmonizing agriculture of statistical information for rural development has been initiated to improve the accuracy and timeliness of agriculture information that conforms to EU standards in the Bosnia and Herzegovina. One of four main components is: Development of a system of a standardised and harmonised Area Frame Sampling and field Survey (AFSS) AFSS is to develop a sampling and survey system based on Geographical Information System (GIS) with high resolution images and field data collection. This will help in rapid development of baseline agricultural statistics on area under production and productivity of certain production types.

Methodology

The main aim of establishing this methodology is to produce accurate and rapid results on crop statistics compliant with the EU standards particularly with the existing European area frame system LUCAS. Although there are some differences between the LUCAS approach and BiH approach, the core model is used as a basis. The first part in the overall work is defining a suitable sample using GIS techniques and statistical methods and the second part is field survey for crop data collection. At the end of the data collection it needs to be analyzed and disseminated. The methodology will be focused on collecting the information on main crop surfaces in the country and corresponding productions and yields. Main crops in the country are: maize, wheat, barley, potato, vineyards, orchards and possibly some other group of crops. The grid is in ETRS89 Lambert-Azimuthal Equal Area coordinate system which is proposed by the INSPIRE guidelines.

Results

Web GIS application was established - BIH AIS GIS Viewer (Pic.1)

The original sample (205157 points, grid 500m) was reduced to only agricultural areas. This was achieved using the existing land use / land cover maps with some additional photo interpretations - the agricultural area contained 105 958 points (Pic.1)

Three pilot areas were selected for the photo interpretation - 5000 points in total. We used VHSAT images (Landsat7 15 m - Pic.1a. and SPOT 2008 - 2010, resolution 2,5m; Pic.1b.)

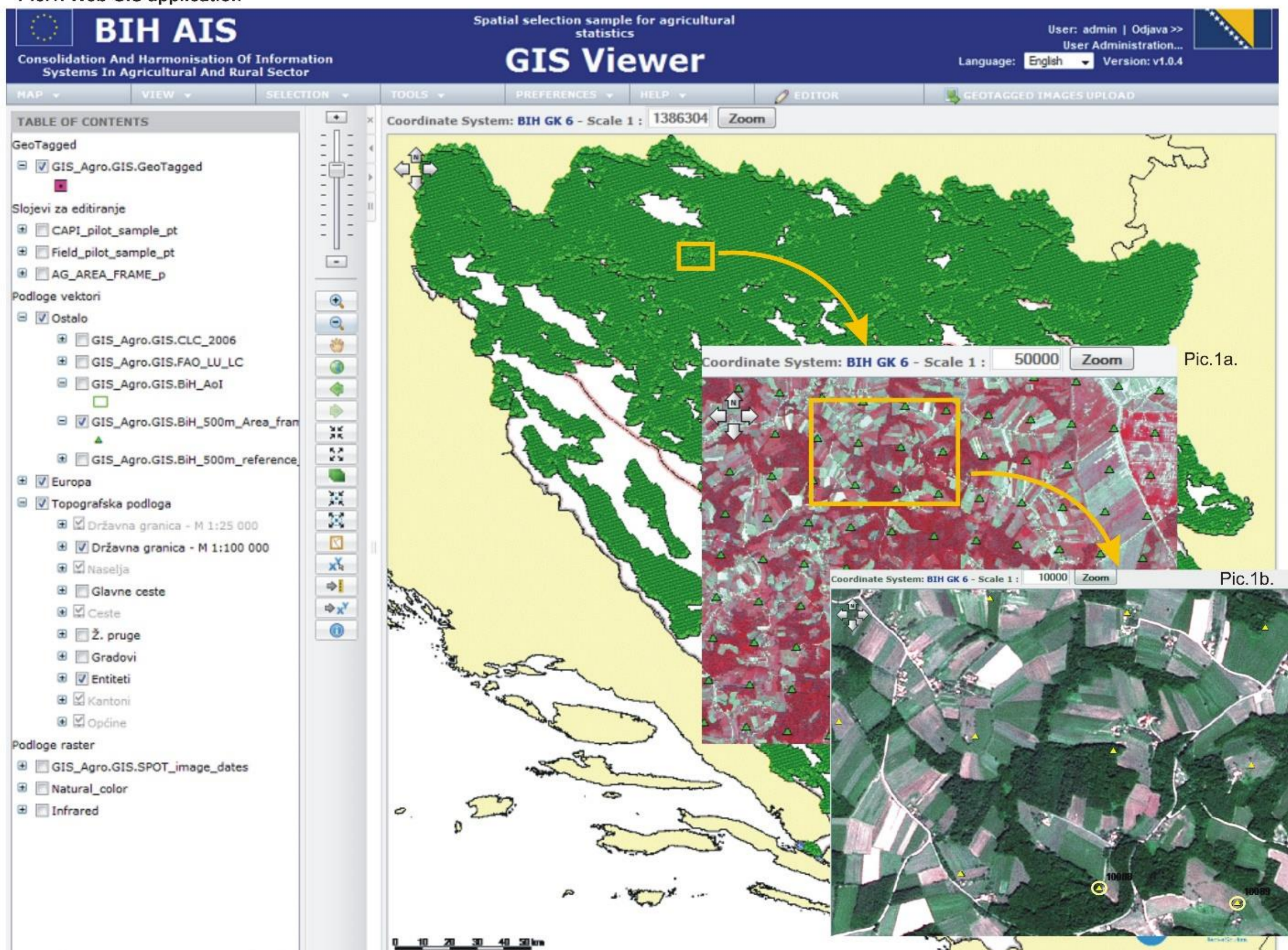
Each of the point classified into 'Arable Land, Permanent Crops, Grassland, 'Woodland, Shrubland, Bare Land, Artificial Areas, Water.

After the photo interpretation 680 points of non agricultural land were eliminated;

The remaining sample of 4320 points covers the agricultural area

20 % of those points (every fourth point) will be used for the field survey where each of the sub-sample point will be visited on the ground to determine the exact crop. This process is on going.

Pic.1. Web GIS application



Finalizing of the pilot phase of the project is expected by the end of 2011. Results to be achieved once the system is in place and methodology established are data on main crop surfaces in the country and corresponding productions and yields which will be used for designing the efficient agricultural policy in the country, for approaching the agricultural funds, for planning the agricultural support schemes, for assisting EU negotiations and much more.