

PROJECT OBJECTIVES

Abandonment of agricultural landscape is an all-European problem. Between 1990 and 2010, forest area in Europe has expanded by 17,000,000 ha.

This phenomenon is especially notable in countries of Eastern and Central Europe, where the formerly intensively worked farmland has been abandoned due to the deep social and political change (disintegration of the socialist agrarian policy, accession to the EU, increased tele-connections and joining the global markets).

An example of such changes of agricultural land is Slovakia, where the abandonment of cultural agricultural landscape has been obvious during recent almost 30 years. It is a phenomenon perceived in this country as a new social and landscape-ecological problem. It is also a large-scale issue as the unused area amounts to approximately 435,000 ha representing 18% of total 2,423,478 ha farmland in the country.

The theme of mapping the abandoned agricultural land (AAL), biomass quantification and its management is covered by the ATBIOMAP project.

OBJECTIVES DESCRIPTION

- Objective 1** Mapping of succession stages (herbaceous, shrub and tree formations) on abandoned agricultural land.
- Objective 2** Quantification of wood stock and increments on abandoned agricultural land and proposal of a system of permanent monitoring of wood biomass within these areas.



Height categories of vegetation on AAL

WORK PACKAGES (WP)

WP 1 – PROJECT MANAGEMENT AND REPORTING

Task 1.1 – Financial and Administrative Management

Management and monitoring the use of project resources (human resources, financial, equipment, sub-contracting), and setting, carrying out and monitoring the financial and administrative procedures. Reporting to ESA.

Task 1.2 – Communication and Management of Meetings

Monitoring smooth communication within the consortium, but also with the ESA and checking the conformity of the project progress regarding the objectives.

WP 2 – IDENTIFICATION OF USER REQUIREMENTS AND BENCHMARKING

Task 2.1 – User needs

Consultations with user organisations, identification of their needs, motivation and defining full set of requirements.

Task 2.2 – State of art and benchmarking

Consultations with experts, identification of state of art, benchmarking and defining full set of innovative solutions.

WP 3 – IDENTIFICATION AND MAPPING OF ABANDONED AGRICULTURAL LAND CLASSES

Task 3.1 – Defining of AAL classes and their dominating interpretation features

Definition of 3 AAL classes, their dominant interpretation features – shape, size, colour, texture and pattern by which these main classes can be identified on satellite images. Selection of study areas and localities.

Task 3.2 – Computer aided visual interpretation combined with OBIA approach within study areas

Identification and mapping of AAL classes in selected study areas. Field research.

WP 4 – ASSESSMENT OF ABOVE GROUND BIOMASS ON ABANDONED AGRICULTURAL LAND

Task 4.1 – Referential database

Creation of reference database (RDB) containing terrestrial and LIDAR data for two study areas. Field research. Estimation of tree and scrub volume based on RDB.

Task 4.2 – Models of AGB determination from satellite images

The proposal of models for wood biomass estimation based on a statistical analysis of radar and optical multispectral satellite images (and derived products) and aboveground biomass from the ground surveys.

Task 4.3 – Calibration and validation of AGB derivation models

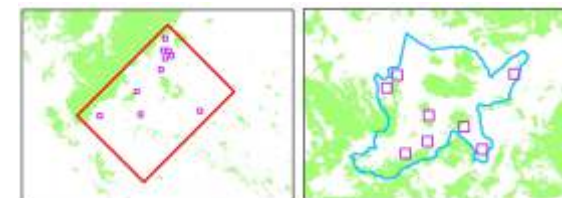
The calibration and validation of models for wood volume estimation on AAL. Proposal of a system for inventory of wood biomass on AAL

PROJECT DELIVERABLES

- Survey of stakeholder's requirements for mapping of abandoned agricultural land
- Theoretical base of mapping abandoned agricultural land
- Map outputs with information on abandoned agricultural land classes
- Theoretical base of proposed algorithm for estimation of biomass stock on abandoned agricultural land
- Models for estimation of biomass stock on abandoned agricultural land
- Innovative methodology of permanent tree and shrub biomass inventory on abandoned agricultural land based on optical and SAR satellite data



Location of the study areas: 1PN (Podunajská nížina Lowland) and 2ZK (Zvolenská kotlina Basin)



Location of the training and test sites in PN and ZK