



**“Gheorghe Asachi” Technical University of Iasi, Romania**



---

## USING THE GIS TOOLS FOR A SUSTAINABLE FOREST MANAGEMENT

**Cornel Cristian Tereşneu<sup>1\*</sup>, Ioan Clinciu<sup>1</sup>, Maria Magdalena Vasilescu<sup>1</sup>, Gabriela Biali<sup>2</sup>**

<sup>1</sup>*“Transilvania” University of Braşov, Faculty of Silviculture and Forest Engineering, Forest Engineering,  
Forest Management Planning and Terrestrial Measurements Department,*

<sup>2</sup>*“Gheorghe Asachi” Technical University of Iasi, Faculty of Hidrotechnical Engineering,  
Geodesy and Environmental Protection, Iasi, Romania*

---

### Abstract

This paper highlights the benefits of using Geographical Information Systems (GIS) for a Sustainable Forest Management (SFM). A basic forest unit was studied for which a GIS project was performed. For this purpose cadastral base plans, scale 1:5,000 were scanned and vectorized and, in addition, 2704 locations were determined on the fields using the GPS equipment, to make sure that the areas of the compartments and subcompartments are correct. Dendrometric characteristics of the trees (i.e. diameter at breast height – DBH – and height) were collected in the field. Using the GIS model, specific forest management projects calculations were made: calculations of volumes of the trees and calculation of the allowable cut (the amount of wood that can be collected from a forest each year). To perform these calculations, otherwise very laborious, the VBA (Visual Basic for Applications) was used, which, once developed, can be used in any other project. Finally, we showed the possibilities that GIS provides to the user for a judicious control, both in terms of the reliability of results for calculation of the allowable cut (comparing the results with the data obtained from FMP – Forest Management Plan – software which is usually used in Romania), and in order to have a proper scheduling of cuttings.

*Key words:* forest management, Geographical Information Systems (GIS), Sustainable Forest Management (SFM), Visual Basic for Applications (VBA)

*Received: September, 2014; Revised final: September, 2015; Accepted: September, 2015*

---

---

\* Author to whom all correspondence should be addressed: e-mail: cteresneu@unitbv.ro, cristianteresneu@yahoo.com