LAND RECLAMATION AND IMPROVEMENT WORKS AND SUSTAINABLE LAND MANAGEMENT IN THE CONTEXT OF CLIMATIC CHANGES

Author: Rareș HĂLBAC-COTOARĂ-ZAMFIR

Abstract

The present thesis includes the results of research activities conducted by the candidate after he sustained his PhD thesis in 2010, thesis having the following title „Technical and economical efficient drainage studies for fields with humidity excess". This PhD thesis engaged a very important and actual research theme for land reclamation and improvement and environment protection domains being focused on the necessity of land drainage studies in the perspective of implementing a sustainable agriculture considering the necessity of conserving soil and water resources and the challenges generated by climatic changes.

Because drainage is a vital component of water resources integrated management, process which promotes the coordination of water, soil and other natural resources management and which relates with those for maximizing the economical and social sectors in an equitable manner and without compromising the sustainability of vital ecosystems, this work supposed an interdisciplinary research comprising problems connected with soil science, climatology, drainage, mathematics, informatics, modeling. For realizing some technical and economical efficient drainage studies, IT component become in the last years extremely important, modeling programs being those which can offer the best information referring to the evolution of ecosystem components and services provided by those ecosystems following the implementations of a land drainage system.

In a first stage, as a follow of previous activities conducted by the candidate for his PhD thesis, the candidate activity focused on issues referring to IT products used in land reclamation and improvement technique, especially in studying land drainage systems. Research activity was mainly dedicated to the study of using different software in land drainage systems design and operation, the study of head losses in conditions of using (or not) filtering materials. Strongly connected with the first stage are two other major themes of research covered by the candidate: Natural resources integrated management using technical measures from civil engineering domain and Sustainable development, climatology, climatic changes. Currently, worldwide there is an extraordinary pressure on farmers for

maximizing their social and economical benefits from their lands facing at the same time land degradation and desertification. Sustainable land management is the key answer for these challenges and represents land management through which human society strive to agricultural production living conditions and ecosystems improvement. For including irrigation and drainage arrangements in a natural resources integrated management there are necessary the establishing of a set of factors consisting in coordination and support measures dedicated to the final users.

The candidate also granted a special attention to drought study by analyzing some climatic indicators for monitoring climatic changes in western Romania.

All these studies were correlated with research conducted at international level on climate changes, climate changes effects and management measures practiced at local, regional, national and international levels.

The full abstract at:
http://www.upt.ro/img/files/2015-2016/doctorat/abilitare/halbac/Summary_habilitation_thesis_Halbac.pdf

Habilitation Commission

Prof.univ.dr.eng. Anton ANTON
Technical University of Civil Engineering of Bucharest;
Prof.univ.dr.eng. Ioan BICA
Technical University of Civil Engineering of Bucharest;
Prof.univ.dr. Sorin CÂMPEANU
University of Agronomic Sciences and Veterinary Medicine, Bucharest.