

Humboldt Kolleg

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### *Global Challenges of the 21<sup>st</sup> Century*

*1) Technological development and human health/ quality of life*

*2) Climate change and environmental sustainability*

*3) Democracy and cohesion in Europe*

### *Water Resources Vulnerability under Climate and Land Use Change*

Water represents the vital natural resource with the largest influence on all human and environmental ecosystems. The projections regarding climate change coupled with world globalization and urbanization indicate that until 2100 water resources will be increasingly exposed to more pressure. In recent years, many studies focused on assessing water dynamics and conclude that any variation in water quantity and quality could have huge implications for all users in the next decades. Thus, the aim of this paper is to assess the hydrological impact of climate and land use change for mid and short term in a small forested watershed. The results obtained highlight the fact that it is important to adopt significant measures to increase water resources sustainability in the following years and provide an integrated management of the studied watershed.

**Mirabela Marin** is currently working at the Torrent Control department of the 'Marin Drăcea' National Institute of Research and Development in Forestry – Brasov Research Station. She is also a PhD student at the Transilvania University of Brasov. By using the SWAT model in her PhD thesis, Mirabela investigates the hydrological impact of climate and land use changes within a small forested watershed. She particularly wants to explore how discharges, surface runoff and sediments respond to different climate and management practices in order to identify appropriate measures for climate change mitigation.

**Șerban Davidescu** obtained his Ph.D. in forestry in 2013 and has been undergoing research in this field since then. From 2006 until 2008, he was the technical director of the former Forest Research and Management Institute in Bucharest. Since 2016 he has been the manager of the 'Marin Drăcea' National Institute for Research and Development in Forestry - Brașov Regional Unit. His expertise consists of torrential watershed management, forest hydrology, forest ecosystem services and forest and landscape management.