



## **Impact of floating debris from the Drina River and mitigation measures**

Danica Zupanski (1) and Ratko Ristic (2)

(1) Institute for water resources "Jaroslav Cerni" Belgrade, Serbia (dzupanski@gmail.com) , (2) University of Belgrade, Faculty of Forestry (ratko.ristic@gmail.com)

The local problem of municipalities with uncontrolled landfills in the Drina river watershed, area of 19.570 square kilometers, has escalated to a regional ecological and economical level. In addition to being unsightly, there are different adverse impacts such as: restriction of fishing, of boat navigation, of swimming, of electrical production of the dams, and of water use, as well as degradation of aesthetic appeal, of wildlife population, of water quality, of aquatic population, and of sediment quality. Significant hazardous waste has been disposed of on the municipal landfills in the past and today exists as floating debris at the surface water.

As a shared river between four ex Yougoslav countries, Montenegro, Bosnia and Herzegovina, Serbia, and the Republic of Srpska, the conflicts in water use of the Drina River have sensitive ecological, economical and political aspects. However, legislation for waste in landfills does not force local authorities to sample and monitor activities at uncontrolled landfills in all the above mentioned countries. This is the main reason why this problem of pollution from uncontrolled landfills has been ignored in the past.

The Study of identification of the water bodies for Drina river watershed in Serbia shows a number of heavily modified water bodies. In this paper we present different conceptual models for an explanation of the connection between landfill location and transportation contaminants via floating debris in the watershed of Drina river. Special focus will be on interrelation of source-pathway-receptors. For every conceptual model, we propose adequate mitigation measures. Conceptual models are based on the risk assessment recommendations for uncontrolled landfills as suggested by the EPA, 2002. These models will be useful for an overall River Basin Management plan.