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Water quality modeling through the urban pollution transport processes in river Shkumbini, Elbasan, Albania.

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The management of water quality, or the protection of the aquatic ecosystem in a broader sense, means the control of pollution. Water pollution originates from point and non-point/diffuse sources, and it is in most of cases due to human action. The protection of aquatic ecosystem is thus the control of human activities that result in pollution. In addition to this, man also should make efforts to enhance the capabilities of terrestrial and aquatic ecosystems in assimilating and reducing pollution. This is one of the basic notions of the ecohydrological concept of managing water quality. This also means enhancing the resistance and resilience of freshwater ecosystems to stress. This should be done, starting to first understand and quantify the interaction of hydrological and ecological process of aquatic ecosystems. It represents the basics of river eutrophication models and, the essential very first step from the environmental point of view.
A crucial element in the series of complex activities of planning and implementing water pollution control actions is the quantitative determination and description of the cause-and-effect relationship between human activities and the response of the aquatic ecosystem, its quantity (the hydrological and hydraulic processes) and quality (the chemical and biological processes). These activities, together, can be termed the modeling of aquatic systems. These activities are aimed at calculating the joint effects of natural and anthropogenic processes on the state of water system.
This is the base of the presented study, considering a very important river in Albania that is Shkumbini. This river passes through some important urban areas such as Elbasani, Librazhdi, Perrenjasi, etc, having thus, an signficative impact in the river aquatic ecosystem.