



## **Evaluation of decision making and negotiation processes under uncertainties regarding the water management of Peiros-Parapeiros Dam, in Achaia Region (Greece).**

Marianthi V. Podimata and Panayotis C. Yannopoulos

University of Patras, School of Engineering, Department of Civil Engineering, Patras, Greece (p.c.yannopoulos@upatras.gr)

Water managers, decision-makers, water practitioners and others involved in Integrated Water Resources Management often encounter the problem of finding a joint agreement among stakeholders concerning the management of a common water body. Handling conflict situations/disputes over water issues and finding an acceptable joint solution remain a thorny issue in water negotiation processes, since finding a formula for wise, fair and sustainable management of a water resource is a complex process that includes environmental, economic, technical, socio-political criteria and their uncertainties. Decision Support Systems and Adaptive Management are increasingly used in that direction.

To assist decision makers in handling water disputes and execute negotiations, a conceptual tool is required. The Graph Model for Conflict Resolution is a Decision Support flexible tool for negotiation support regarding water conflicts. It includes efficient algorithms for estimating strategic moves of water stakeholders, even though there is a lack of detail concerning their real motives and prospects. It calculates the stability of their states and encourages what-if analyses.

This paper presents a case study of water decision makers' evaluations concerning the management of upcoming technical infrastructure Peiros-Parapeiros Dam, in Achaia Region (Greece). The continuous consultations between institutions and representatives revealed that the formation of a joint agreement between stakeholders is not easy, due to arising conflicts and contradictions regarding the jurisdiction and legal status of the dam operator and the cost undertaking of the dam operation. This paper analyzes the positions of the parties involved in the consultation process and examines possible conflict resolution states, using GMCR II. This methodology tries to minimize uncertainty to a certain extent concerning the possible moves/decisions of involved parties regarding the operation and management of the dam by developing and simulating potential strategic interactions and multilateral negotiations and finding confidence-building cooperation schemes (cooperative arrangements) over water use and management.