HOW YOU CAN MANAGEA AN EXISTING WATER SUPPLY NETWORK USING GIS AND MODELLING TECHNIQUES: 'THE HYDROGIS LAB'

Ploutarchos Evlogimenos [a], Kyriacos Themistocleous [a], Athos Agapiou [a], Maria Theodorou [a], Chrystalla Demetriadou [a], Apostolos Panis [b], Toula Onoufriou [a] , Panos Papanicolaou [c] , Elena Finikaridou [d] and Diofantos G. Hadjimitsis [a]*

[a] *Cyprus University of Technology, Department of Civil Engineering and Geomatics, Cyprus;*

evloploutarchos@gmail.com, *k.themistocleous@cut.ac.cy; d.hadjimitsis@cut.ac.cy*

[b] *ISOTHERM LTD, isotherm@cytanet.com.cy*

[c] *NTUA, Athens, Greece*

panospap@hydro.ntua.gr

[d] *Water Development Department*

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ABSTRACT:
This paper presents the results obtained from the 'HYDROGIS' project entitled 'Upgrade of the hydraulics laboratory for the modeling of water supply networks & design and operation optimization study' which is co-funded by the Republic of Cyprus and the European Development Reguional Development fund of the EU and the Cyprus Research Promotion Foundation. In the context of this project for upgrading existing laboratory/technological equipment an optimization study for the design and operation - through computational and experimental simulation - of water supply networks was taken place. The Project aims to satisfy the dire need for authorities to solve the extremely serious problem of water supply as a result of continued water shortage. One of the main aims of the developed 'HydroGIS' lab is to develop a comprehensive information infrastructure for the supervision and management of water supply networks, which include a database supported by a Geographic Information System, hydraulic simulation software and optimization model. The mapping and development of a database using GPS and GIS technologies for a selected water supply network in the Pafos Municipality (Cyprus) assisted the experimental modeling and testing. The project assisted in the development of state-of-the-art methodologies for optimizing the water supply networks, both in the design and in the operation phase, using multiple variables and criteria. This paper presents also how the project will assist the development of guidelines which could form the basis for developing a user-friendly network simulation software, able to make up for the lack of communication between the different sciences involved in developing/designing and managing water supply networks. Lessons learned from the GIS, GPR, testing and modeling are good examples for managing existing water supply networks and future network designs.