



## **Increasing Awareness of Sustainable Water Management for Future Civil Engineers**

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There are more than 1.2 billion people around the world that do not have access to drinking water. While there are plans under the United Nations Millennium Development Goals to halve this number by 2015, there are a number of regions that will be exposed to water scarcity in the coming future. Providing sufficient water for future development is a great challenge for planners and designers of water supply systems. In order to design sustainable water supplies for the future, it is important to learn how people consume water and how water consumption can be reduced. The education of future civil engineers should take into account not only technical aspects of the water supply but also the accompanying social and economical issues, and appreciated the strengths and weaknesses of traditional solutions. The Faculty of Civil Engineering, at the University of Rijeka, has begun incorporating a series of activities that engage undergraduate students and the local community to develop a mutual understanding of the future needs for sustainable management. We present one of the activities, collaboration with the Lancaster Environment Centre at Lancaster University in the UK through the field course Water and environmental management in Mediterranean context.

The course, which is designed for the Lancaster University geography students, features a combination of field trips and visits to provide an understanding of the socio-economic and environmental context of water management in two counties (Istra and Primorsko-Goranska). Students from Lancaster visit the Croatian water authority and a regional water company, where they learn about current management practices and problems in managing water supplies and demand through the year. They make their own observations of current management practices in the field and learn about water consumption from the end users. One day field visit to a village in the area that is still not connected to the main water supply system is organised together with civil engineering students from the University of Rijeka. The aims of this field visit are: to learn about traditional water supply from an underground storage of rain water called cisterna; and to find out from inhabitants about their current water usage habits and expectations, and how these might change when they get water from the main water supply system. This joint activity has been beneficial for both groups of students. The engineering students become aware of the importance of the social aspects in designing the water supply system, while the geography students learn about the engineering challenges entailed. Both groups learn that water consumption increases with the provision of water through pipeline systems and that this needs to be taken into account in the design of water supply and management of water resources. Importantly, they learn the benefits of traditional sustainable water supply methods, which could be implemented as primary or additional sources of water supply in other areas. In summary, both groups of students develop their professional knowledge and skills as well as generic and transferable skills, which are very important for those who will continue to a career in the design and management of water systems.