

SCADA OF AN UPSTREAM CONTROLLED IRRIGATION CANAL SYSTEM

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ABSTRACT

Upstream control in canals is efficient only when associated with rigid water delivery methods. In Portugal, all of the upstream controlled systems work with flexible water delivery schedules and, for this reason, operational water losses become significant. Because there is no storage reserve inside this kind of systems it is necessary to take into account the demand prediction or the command anticipation of the hydraulic control devices in order to improve the system response to demand variations. Real-time monitoring and control can hold an important key in this domain. These innovations allow the manager to react rapidly and effectively to the changing conditions of the system because, on one hand, they permit the manager to survey the real time hydraulic state of the system and, on the other hand, they permit the hydraulic state of the system to be corrected instantaneously. For these reasons, in Portugal, modernization of upstream controlled canals calls for remote monitoring and central control technologies. This paper presents the modernization program of the main canal system of the Sorraia Irrigation Project.

INTRODUCTION

There is an increasing awareness that water resources are limited and have to be managed more carefully. It is already clear that water issues are becoming an important reason for fights and discussions in many countries or regions.

Irrigation is the largest water user in the world, using up to 85% of the available water in the developing countries (Plusquellec et al. 1994) (89% in Portugal – INAG, 1995). In the future, irrigation will have to share the water resources with industrial, urban water users and ecological purposes.

The near future, European Union will establish the principle: user – payer. Agriculture must compete with municipalities and industries for this limited natural resource and pay the same price for unit of used volume. It is not the case, for the moment. In Portugal, for example, most of the farmers pay a tax by area of irrigation. The immediate consequence for irrigation is that present water use efficiencies have to increase drastically and the water management must be more rigorous.

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