MsC Project Framework – Multi Criteria Decision Making / Analytic Hierarchy Process applications in solving problems of priority water allocation for agricultural users

1 Objetivo / Research problem
Current developments in water resources management for agriculture are characterized by development and use of a wide spectrum of advanced information technologies, including decision support systems (DSS) and related technologies, e.g. Geographic Information System (GIS). In this context, a project is being developed to apply existing instruments for decision-making support for improving water management of in both Portugal and Serbia.

2 Detalhes / Solution proposal
The project is aimed at determining mechanisms to conduct a process of strategic and operational decision-making, to preserve long-term and sustainably non-dominated (in a multi-criteria sense) water distribution to target locations, namely agricultural irrigation systems (which is a common interest in both Serbia and Portugal). The project will use simulation models to inform original problem descriptions, and collect preference information from selected stakeholders. From this, the project will use simple AHP - Analytic Hierarchical Process – based group methodologies to evaluate the collected/generated data.

3 Metodologia de trabalho / Project development strategy
This proposal assumes a set of stages:

- Data collection for simulation (using MODSIM/AQUANET models) for a selected water system.
- Identification of water users and stakeholders
- Problem refinement, identifying stakeholders concerns and objectives
- (Group) preference elicitation and preference coherence analysis
- Methodology application and results analysis
- International comparison with partner results (if delivery dates allow it).

4 Benefícios do Projeto para o candidato / Project Benefits for the candidate
The MSc candidate will be presented with a real-world problem, applying cutting-edge techniques to solve a important challenge. The candidate will be integrated in a multinational team, comprising members from Portugal and Serbia, and be able to benefit from practical knowledge of international partners.

This project is being submitted for funding by national and Serbian funding institutions. If the project is funded, the MSc candidate will be able to spend a week in Serbia working in place with the Serbian partners and present his/her work in an international setting.

5 Perfil do Candidato / Candidate Profile
Must be able to embrace challenges and engage them with energy. Ability to learn new tools. Ability to communicate in English is relevant to the international components of the work.
Orientador na FEUC / MsC Advisor

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