

A Geographic Information System Perspective for Large Scale Engineering Systems Design and Management - A Case Study for Sustainable Desalination Network in Saudi Arabia

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Abstract. We introduce a decision support system to evaluate and refine complex scenarios addressing the location, timing and technology of water and energy investments in Saudi Arabia. We start by giving insights on the utility of a geographic information system perspective. We explain the different layers we are addressing such as population, energy and water supply and demand over time, etc. We present the geospatial database model used for that purpose and an interactive website to support participative data collection and interactions with different stakeholders. This work is part of a Strategic Sustainable Desalination Network project. The goal is to develop a platform for planning the efficient deployment of a sustainable desalination network in Saudi Arabia while promoting renewable resources. The platform takes into account key performance attributes such as sustainability, optimality, strategic security and robustness as well as the ideal phasing and deployment of the network.

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