Abstract:

Increases in the growth of urban regions along with climate change have contributed to a scarcity in water resources. For arid regions, this problem may be aggravated by inadequate management plans and a lack of proper data collection related to the geographical location of water distribution networks. A possible solution is the utilization of a geographical information system (GIS) as a tool in decision-making process in the field of water distribution management. Coupling external hydraulic calculation models with GIS can further enhance this management tool. The current study utilized these tools in assessing the performance of a drinking water distribution network of an urban cluster in Tlemcen, Algeria. A methodology was developed by coupling GIS to a hydraulic calculation model (EPANET). The results showed that it is possible to obtain an alphanumeric description of the pipes, tanks, and all the accessories constituting the network. Design irregularities in the Tlemcen urban cluster's network were identified. The approach adopted in this chapter contributes effectively to the management of water distribution networks using GIS. This offers operators a management tool that allows for analysis of malfunctions with an instantaneous response, to study various solutions and to plan for future situations.

Keywords:

Modeling GIS Water distribution network Management