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Application of Decision-Making Techniques for Prioritizing Water Treatment Technology in Flood Events: A Preventive Crisis Management in the Czech Republic

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Flood is one of the phenomena that threaten people's life and property, which occurs every year in developed and developing countries [1]. Meanwhile, rapid response to water quality problems during this natural disaster is one of the most critical factors of an Early-Warning System (EWS). Due to the change in the river network and the washing of urban and rural environments, the quality of water in flood is significantly reduced, and the residents face the problem of water supply during this period [2]. This paper presents a fast response framework for selecting the best water treatment techniques in unusual pollution loads of urban floods based on water qualitative analysis and methods of Game Theory (GT) as decision-making techniques. The main goal of this study is to provide a framework for improving drinking water supply services during flood risk management in the Czech Republic. To achieve the fast water treatment technologies, Ordered Weighted Averaging (OWA), mulTi-noRmalization mUlti-distance aSsessmenT (TRUST) and VIekriterijumsko KOmpromisno Rangiranje (VIKOR) computations as Multi Criteria Decision Making (MCDM) were applied. In fact, based on this structure, an operational model for the Czech Republic as per the Preventive Crisis Management (PCM) approach has been expressed as the primary outcome of this investigation. The results demonstrated that mobile membrane technologies could have higher efficiency than other methods. However, from the economic aspect, many options can be utilized in different scenarios according to the managerial opinions.

Keywords: 󠀥󠀥󠀥󠀥; 󠀥 󠀥󠀥󠀥󠀥 󠀥󠀥󠀥󠀥󠀥 *R* 󠀥󠀥󠀥󠀥*R* 󠀥 󠀥󠀥󠀥 󠀥 󠀥󠀥󠀥*R* 󠀥󠀥󠀥󠀥󠀥󠀥 󠀥󠀥󠀥 󠀥 󠀥󠀥󠀥󠀥󠀥 󠀥󠀥*R* 󠀥󠀥󠀥󠀥*r*󠀥󠀥󠀥󠀥

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