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RESILIENCE EMERGENCY STRATEGIES FOR URBAN WATER SUPPLY SYSTEM UNDER EMERGENT WATER POLLUTION EVENTS

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Abstract

Aiming at the problem of fluctuations in the supply capacity of urban water supply systems caused by sudden water pollution incidents, an emergency strategy is proposed from the perspective of system resilience. The system resilience is defined from both economic and social aspects, and a single objective mathematical model under the constraints of limited resources is established. The CPLX software was used to solve the emergency dispatch and resource allocation plan. The simulation results show that the economic resilience of the water supply system can be improved by increasing the capacity of the backup water source; the social elasticity value of the water supply system in the rich areas is usually low; stable and continuous water supply It can improve the social resilient value of the water supply system. Finally, the relevant data of the water pollution incident in Harbin were simulated to verify the effectiveness and practicability of the model, and provide a basis for government departments to formulate relevant policies.

Keywords: economic resilience, emergent water pollution, resilience strategies, water supply system, social resilience

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