

Contribution of water reuse to improve and sustain water environment in urbanized areas

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A clean and pleasant water environment is an indispensable asset for a city. Apart from allowing low cost water supply, sanitation, and urban heat control, it can also create waterfront tourism, offer eco-friendly transportation alternatives and be a source of renewable energy. In a way, a clean and pleasant water environment even indicates good waste management and control of air and soil pollution. However, climate change can increase the fluctuation of precipitation locally and temporally, thus causing frequent and unexpected flood and drought events. In urbanized areas where inappropriate wastewater treatment and management prevails, water deterioration will be even more serious following draught shocks. Reusing water in a sustainable manner can improve the urban water environment, both in terms of water availability and water quality. However, human activity in urban areas produces waste beyond the absorptive capacity of the environment. This means that while urbanization requires more intensive technological assistance, de-urbanization provides an opportunity to redesign existing urban areas by restoring the natural environment. It is not only necessary to consider direct water reuse, which sometimes requires a high-cost and energy-consuming technology, but also indirect water reuse. In order to achieve this, various technological and management options should be adopted, including among others the decentralization of municipal wastewater treatment and sanitation, groundwater recharge and building-wise water reuse. This presentation introduces some of these technological and management options.



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