

A Study on Utilizing Temporary Water Treatment Facilities to Tackle Century-Long Drought and Emergency Water Supply

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Abstract : Taiwan is an island located along the southeastern coast of the Asian continent, located between Japan and the Philippines. It is surrounded by the sea on all sides. However, due to the presence of the Central Mountain Range, the rivers on the east and west coasts of Taiwan are relatively short. This geographical feature results in a phenomenon where, despite having rainfall that is 2.6 times the world average, 58.5% of the rainwater flows into the ocean. Moreover, approximately 80% of the annual rainfall occurs between May and October, leading to distinct wet and dry periods. To address these challenges, Taiwan relies on large reservoirs, storage ponds, and groundwater extraction for water resource allocation. It is necessary to construct water treatment facilities at suitable locations to provide the population with a stable and reliable water supply. In general, the construction of a new water treatment plant requires careful planning and evaluation. The process involves acquiring land and issuing contracts for construction in a sequential manner. With the increasing severity of global warming and climate change, there is a heightened risk of extreme hydrological events and severe water situations in the future. In cases of urgent water supply needs in a region, relying on traditional lengthy processes for constructing water treatment plants might not be sufficient to meet the urgent demand. Therefore, this study aims to explore the use of simplified water treatment procedures and the construction of rapid "temporary water treatment plants" to tackle the challenges posed by extreme climate conditions (such as a century-long drought) and situations where water treatment plant construction cannot keep up with the pace of water source development.

Keywords : temporary water treatment plant, emergency water supply, construction site groundwater, drought

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