

ECOLOGICAL SANITATION, SUSTAINABLE STRATEGY AS AN ALTERNATIVE URBAN WATER SOURCE

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ABSTRACT

Water supply is one of the basic infrastructure requirements. Water treatment and supply are often granted a much higher priority than wastewater collection and treatment, despite the fact that wastewater deserves a greater emphasis due to the impact of its poor management has on public health. A new commitment to give wastewater the same priority as water supply is a very positive development. A pilot project of greywater ecological treatment is established in Kuching city since 2003. Such treatment facility opens up an opportunity of wastewater reclamation for reuse as secondary sources of water for non-consumptive purposes. This paper aims in exploring the potential of the intended purposes in the newly developed ecological treatment project. By utilizing the Wallingford Software model, InfoWorks WS (Water Supply) is employed to carry out a hydraulic modeling of a hypothetical greywater recycling system as an integrated part of the Kuching urban water supply, where the greywater is treated, recycled and reused in the domestic environment. The modeling efforts had shown water saving of more than 50% from the investigated system reinstating that the system presents an alternative water source worth-investing in an urban environment.

Keywords: Ecological Sanitation; Greywater; Hydraulic modeling; Recycling; Water saving.

BACKGROUND

Kuching is the capital city of the Sarawak State in Malaysia. The authorized water supplier, Kuching Water Board abstracts freshwater sources from upstream Sarawak River to supply clean water to 580,000 population. Though Sarawak River system, where more than 97% of freshwater abstraction for Kuching city, is fortunately rich in its reserve and hydrology, this advantaged physical environment is increasingly challenged when placed in the context of the dynamic social environment of Kuching city. Being the capital city of the Sarawak State, Kuching city is the fastest growing area placing great pressure on the water supply and has seen a rapid growth in water demand.

Effectively managing its demand and supply requires a sustainable approach that manages the natural resource together with community demands, both consumptive and uses, and not forgetting also the environment needs. The local practiced water supply management still focuses on strategic direction and priorities revolved around water supply, infrastructure, water reticulation and management of water storages. Sustainable water supply into the future would embrace the concept of Integrated Water Resources Management (IWRM) where the new challenge requires a very different response.

The current water uses are construed along the lines of a one-time use of water, draining them into the sewer and back into Sarawak River as wastewater sink. The system is