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| Title | Integrating Conventional and Ecological Sanitation in Urban sanitation for the future |
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Integrating Conventional and Ecological Sanitation in Urban sanitation for the future

In general the concepts proposed for urban sanitation has not developed for the last 100 years. Flush toilets, sewer networks and centralised treatment of mixed sewage and wastewater from all types of sources have all through the years been the only solution seriously considered.

However, the costs of centralised sewage are prohibitive for large part of the world's urban areas. Increased demands for improved treatment further add to the costs. At the same time issues related to disposal of contaminated sludge from treatment of mixed sewage and leaking sewers raises environmental and health concerns.

In Kuching, Sarawak in Malaysian Borneo a study has been conducted to assess the possibility of integrating conventional centralised sewage treatment with non-piped ecological sanitation⁴. It has been proposed to limit the coverage of centralised sewage systems to the congested central commercial areas of the city, where it is difficult to find space for local grey water treatment and where the composition of the wastewater hardly can be controlled, due to huge amount of small and fast changing producing and commercial activities. The city's vast residential areas can alternatively be serviced by ecological sanitation, treating the grey water locally at existing green areas and open spaces, and hauling the black water from holding tanks to centralised fermentation for energy and fertiliser production.

The assessments indicates that such a solution is economically very attractive, at the same time the ecological benefits compared to conventional treatment are considerable, due to reduced discharge and the recycling of the clean black water.

Pilot projects for ecological sanitation of residential areas has subsequently been carried out⁵, certainly confirming the expected advantages of the integrated approach.

The presentation will present and discuss the findings from the Integrated Wastewater Framework Planning.

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4 "Framework Plan for Integrated Wastewater Management for the City of Kuching". Sarawak Government, Danida 2004. ISBN 983-40546-9-6.