Major constraints of wastewater management in Puducherry area

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Introduction

This study has been done on the northern part of Puducherry area, namely: Karuvadikuppam STP, Auroville, and Alankuppam.

Even if rural zone is not the topic of this workshop, our study shows that most of the constraints of sanitation development are common to the whole area.
Various methods have been used for this study, including:

- Water tests of physico-chemical and bacteriological parameters;

- Spatial analyses and biogeographical surveys (mainly about plant species);

- Socio-economic surveys.
Major technical constraints

Though the treatment techniques/technologies are efficient, some technical dysfunctions occur frequently due to:

- Contamination by outer elements (e.g. sold waste)

- Lack of adequate materials and tools for O&M;

- Quasi-absence of O&M of most of the sites, generating clogging of the systems, for example.
Major technical constraints

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Major technical constraints

Technical constraints can also be appreciated through spatial factors, such as:

- Distance from the city;
- Elevation of the STP site.

They means a complex system, resulting in high-cost techniques (sewage network, numerous pumping stations etc.) on economic and energetic views.
Major societal constraints

*These techno-spatial factors are mainly due to low land availability, but also to some societal characteristics:*

- *Absence of training of the persons in charge of the O&M;*
- *Lack of technical skills of these very persons;*
- *Lack of sanitarian awareness.*

*These societal constraints are linked with local socio-cultural elements*

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Local socio-cultural characteristics, such as caste structure, notion of purity, symbolic pollution, are a barrier to sanitation development in whole South Asia (Fardin et al., 2013).

Cultural aspect of excreta and urine has to be taken into account in order to develop techniques which could be socially accepted by the populations (Drangert & Nawab, 2011)

Political context, with a high degree of corruption in health and sanitation sector, should be cleaned up (Davis, 2003)
STP phytoresources utilization should be developed. Indeed, biogas production from the duckweed could contribute to improve energetic efficiency of the STP.

Canal (nala) restoration with the help of ecological engineering (phytoremediation techniques) could level up the quality of urban water, and reduce the contamination of environment.

Some of the socio-technical limits of WW management can generate sanitarian risks, in particular for the riverain populations, but mostly for the persons in charge of the O&M.

Water born diseases are considered as one of the main causes of mortality in developing countries (Gleick, 2002).