

# **Major constraints of wastewater management in Puducherry area**

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***I. Introduction***

***II. Methods***

***III. Major technical constraints of wastewater management***

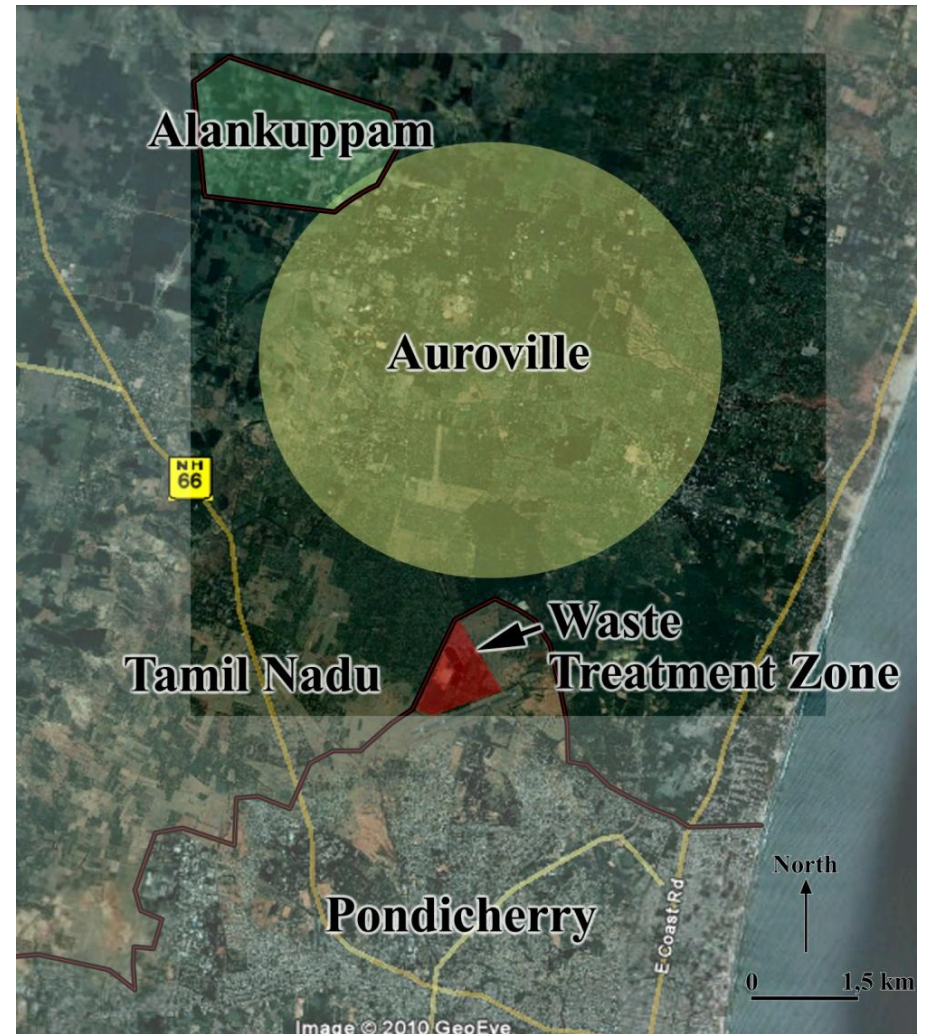
***IV. Major societal constraints***

***V. Conclusion et perspectives***

## ***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***



# ***Methods***

***Various methods have been used for this study, including:***

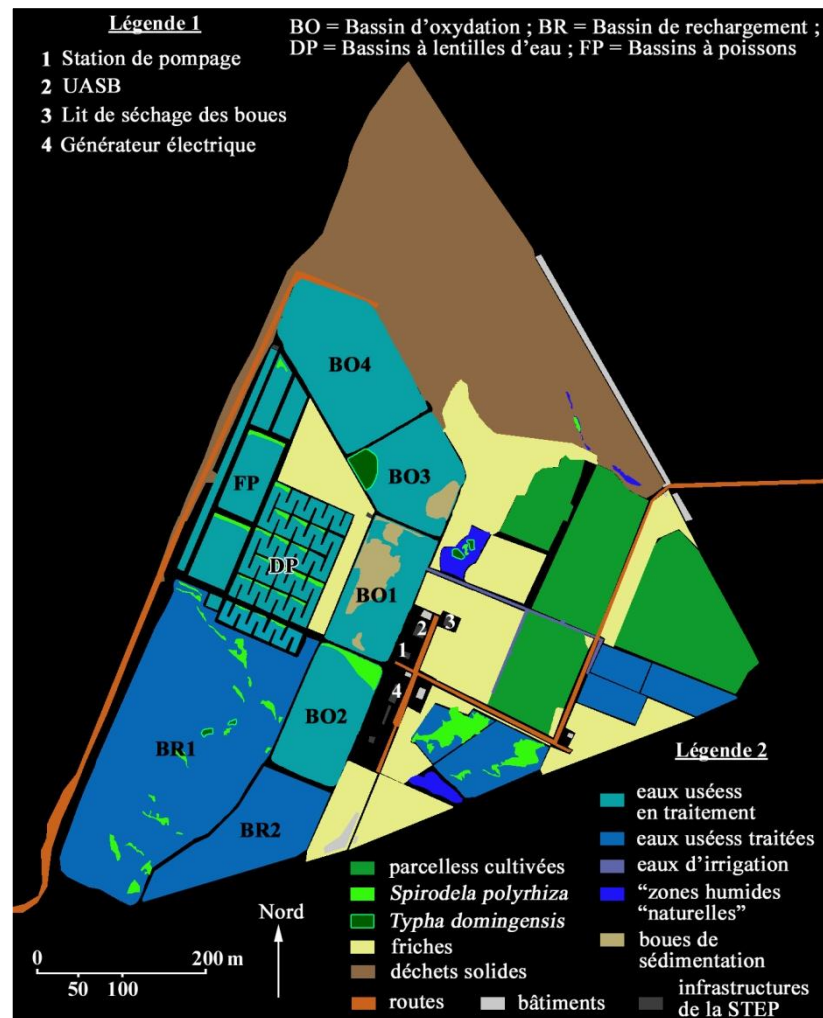
- Water tests of physico-chemical and bacteriological parameters;***
- Spatial analyses and biogeographical surveys (mainly about plant species);***
- Socio-economic surveys.***

## ***Major technical constraints***

***Though the treatment techniques/technologies are efficient, some technical dysfunctions occurs 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



## ***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***



## ***Major societal constraints***

***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)***

## ***Perspectives***

***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)***