



© SWF India Project



© SWF India Project

### Problems to be addressed

- Insufficient wastewater collection and treatment infrastructure
- Pollution of water bodies (lakes, River Noyyal, and groundwater)
- Health problems, odor emissions, water scarcity
- Centralized concepts not flexible and complicated to implement (obstruction of streets during construction etc.)
- New facilities currently under construction, but still parts of the growing city without wastewater collection and treatment
- Municipal solid waste separation systems in Coimbatore insufficient, leading to waste of organic resources

### Concept

- **Semi-Centralized Water Management** integrates different technologies, combining benefits of large, centralized infrastructures and smaller systems.
- The system treats wastewater and organic waste.
- At the same time, it produces treated water for non-drinking uses, as well as energy and fertilizer from organic waste and sludge.
- A plant of 1 ha area serves ca. 12,000 inhabitants (roughly one average urban ward).
- A pilot project in a mixed-use urban district in Qingdao, China has been very successful.

### Technical components

- anaerobic digester
- gas turbine
- combustion engine or CHP or trigeneration plant
- pumps and mixing devices
- bioreactor filtration membranes
- blowers, pipes and tanks
- gearboxes for valves
- aeration elements
- valves and electronic control devices for aeration
- measuring and analysis technology
- chamber filter press
- waste shredders
- dewatering and pelletization machine
- pellet packaging facility

### SWF INDIA RESEARCH TEAM:



#### Contact

Dr.-Ing. Marius Mohr  
Project coordinator  
Phone +49 711 970-4216  
marius.mohr@igb.fraunhofer.de  
www.igb.fraunhofer.de

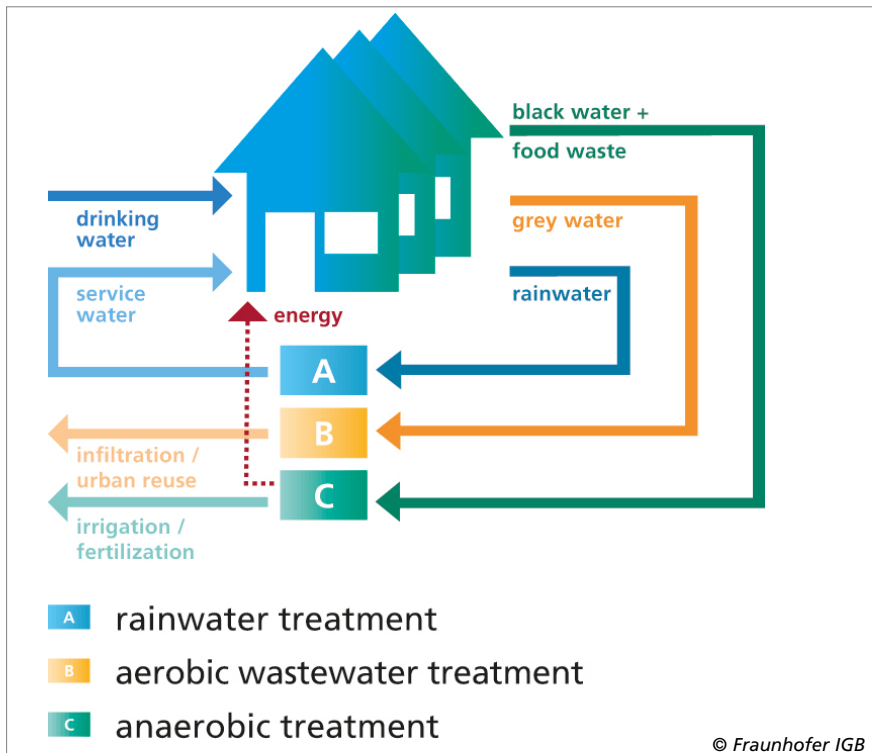
Supported by:



Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety



based on a decision of the German Bundestag



*Exemplary concept for semi-centralized water management. - Treatment modules and use of outputs can be adapted to local requirements.*

### Benefits and potential

- More flexible than conventional solutions
- Smaller service area: easier to get implementation approval
- Energy-efficient treatment of wastewater and organic waste
- Saleable by-products: fertilizer, service water, energy
- Service water use can reduce drinking water consumption by up to 40%
- Reduction of pollution and health risks
- Showcase solution as training and study site
- Large replication potential across the state and country

### Potential trial sites

- Slum resettlement projects (newly built)
- Existing colonies (retrofit)
- Institutional campuses (newly built and/or retrofit)

### Input:

- Domestic and commercial wastewater
- Rain water
- Food waste

### Output:

- Service water for irrigation, washing and toilet flushing
- Specially treated water for industrial purposes
- Fertilizer
- Heat, biogas

### Roles

- Technical coordinator
- Economic coordinator
- Technical component providers
- Financing partners
- Site owner
- Plant owner
- Operator

### SWF INDIA RESEARCH TEAM:

DREES & SOMMER

Fraunhofer  
IGB

Institut für  
sozial-ökologische  
Forschung

trAIDe  
your partner in global business

### Contact

Dr.-Ing. Marius Mohr  
Project coordinator  
Phone +49 711 970-4216  
marius.mohr@igb.fraunhofer.de  
www.igb.fraunhofer.de

Supported by:



Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety



based on a decision of the German Bundestag