



Strengthening the Operation & Maintenance Sector for Servicing Decentralized Urban Sanitation Infrastructure in Karnataka, India

Stockholm Water Week,
24th August, 2014



BORDA

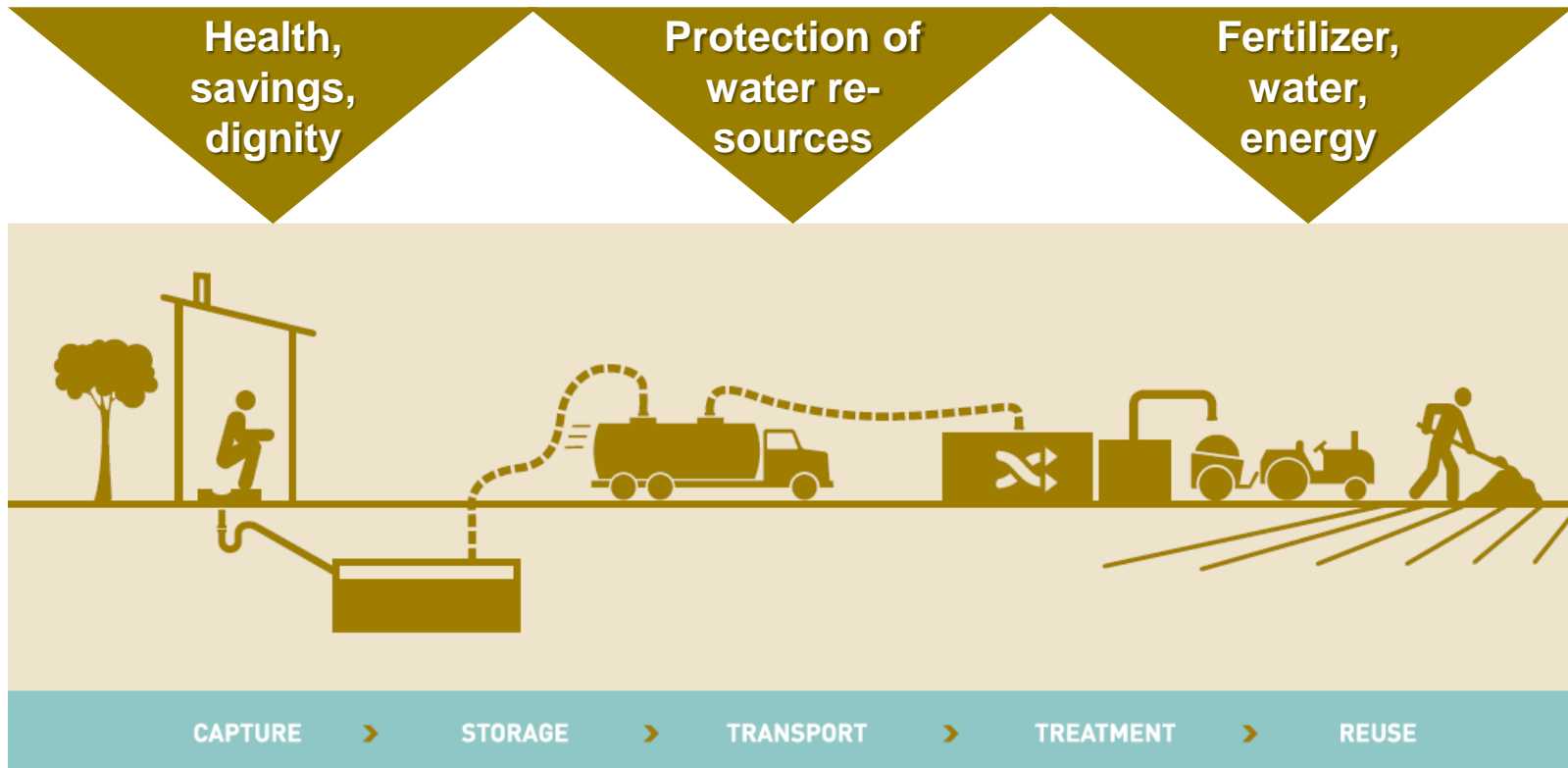
Stefan Reuter , Director, BORDA



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Bremen Overseas Research and Development Association (BORDA) 25 Countries in 3 Continents





Source: BMGF

- Without O&M, no value addition along the sanitation value chain
- Moreover, without O&M, status after project can be worse than before intervention

- Cities wish to have more **centralized** sanitation infrastructure, BUT cities **have and will have** more **decentralized** sanitation infrastructure
- Decentralized sanitation infrastructure sector or market is **fragmentally-regulated** on papers, and **informal in nature**
- There is **no or little incentive** for O&M of decentralized sanitation infrastructure (especially the later part of the value chain, problems with public good characteristic)

- Social stigma attached to sanitation: the O&M service of Decentralized sanitation infrastructure is **socially not attractive**
- **Fail and fix** is the current dominant approach for all development
- Decentralized sanitation infrastructure is often promoted as **zero maintenance**
- No “Professional”/**Certified service provider**
- Lack of O&M for decentralized sanitation infrastructure is the **biggest obstacle for scaling-up**



Project Objectives

Support city governments to **create enabling environment** for O&M of Decentralised sanitation infrastructures

Strengthen the supply side of O&M practices for decentralised urban sanitation infrastructure

Disseminate knowledge of new approaches for O&M of decentralised urban sanitation infrastructure

Low O&M = bad reputation of DSI

80% of the 625 decentralized system do not function as designed in Bangalore

Total No of Public Toilets in Bangalore = 502 Working Condition = 220 (43%)

Mayor Promises More Public Toilets

Express News Service

Bangalore: The city has around 700 public toilets and less than 400 of them are in useable condition. Newly added wards, consisting 110 villages around the city, do not have a single public toilet. This was revealed during the Bruhat Bangalore Mahanagara Palike (BBMP) council meeting here on Tuesday.

Some of the existing public toilets were constructed by Infosys Foundation, while some were constructed under MLAs and MPs funds. A few were constructed by BBMP, but it was not able to maintain them.

Commissioner Lakshminarayana told *Express*, there are around 700 public toilets, of which 300 were constructed by Infosys Foundation. But

can be constructed in their wards.

BBMP is also considering to construct the toilets under Public-Private partnership (PPP) model. "The BBMP is into constructing toilets, but not maintaining them," said Commissioner M Lakshminarayana. "Let us call for tenders and let the bidder put up advertisement hoardings, collect fee from public for usage of toilets and maintain them. Earlier, initiating the debate on the subject during the meeting, Jayamaharaj ward Councilor M K Gunashekar said there are very few public toilets in the city and majority of them do not have water supply. "BWSSB has disconnected water supply as BBMP has not paid water bills," he



Councillors at the BBMP Council meeting on Tuesday | NADESH PALAU

Reclaimed Water Underused, Slurry Ends In Lakes: KSPCB Panel

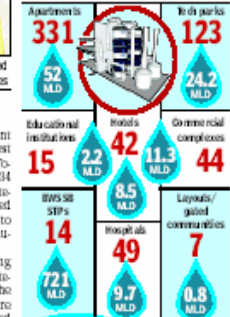
Treated wastewater goes down the drain: Report



TRUTH SHIN'S: Sewage treatment plants used by the private sector score over BWSSB ones

STPs IN CITY AND CAPACITY

The number of wastewater treatment plants and capacity (in million litres per day) in Bangalore



TIMES VIEW

In an age of water scarcity, it may be more realistic to look at treated wastewater as an economic resource, not a waste product. Which is why it must go beyond mere toilet flush or gardening. Studies show reclaimed water is preferred for agriculture in countries that are not water scarce as it sees as a low-cost source of plant nutrients thus reducing depend on soil fertilizers. So the use of such water needs to be maximized, more affordable water treatment options explored and efficacy of toilet-to-tap concept popularised among doubling, non-crinkling end users.

Health B R | 10

There are 625 sewage treatment plants in Bangalore, the highest in any city in the country. Together, these STPs can treat 894 million litres per day (MLD) of wastewater. But truth is, much of the treated water goes down the drain, according to a report by the Karnataka State Pollution Control Board (KSPCB).

The report by KSPCB's monitoring committee on the performance of wastewater treatment plants says though the units work at 81% of their capacity there are no facilities to make use of treated water. Usually, reclaimed water is used for toilet flushing and gardening only.

The STPs are installed in apartment complexes, technology parks, hospitals and gated communities besides those set up by BWSSB. The study by Dr DN Ravi Shankar, technical expert on environment, and MG Yathish, environmental officer with the KSPCB, also says the STPs are not operated scientifically. Often the harmful sludge or slurry generated after sewage treatment is allowed into water bodies. In 96% of the cases, the filter press is not operated at all. In many apartments it is not even commissioned, the report said.

In order to save on space, some apart-

HOW TO OPTIMIZE STPs

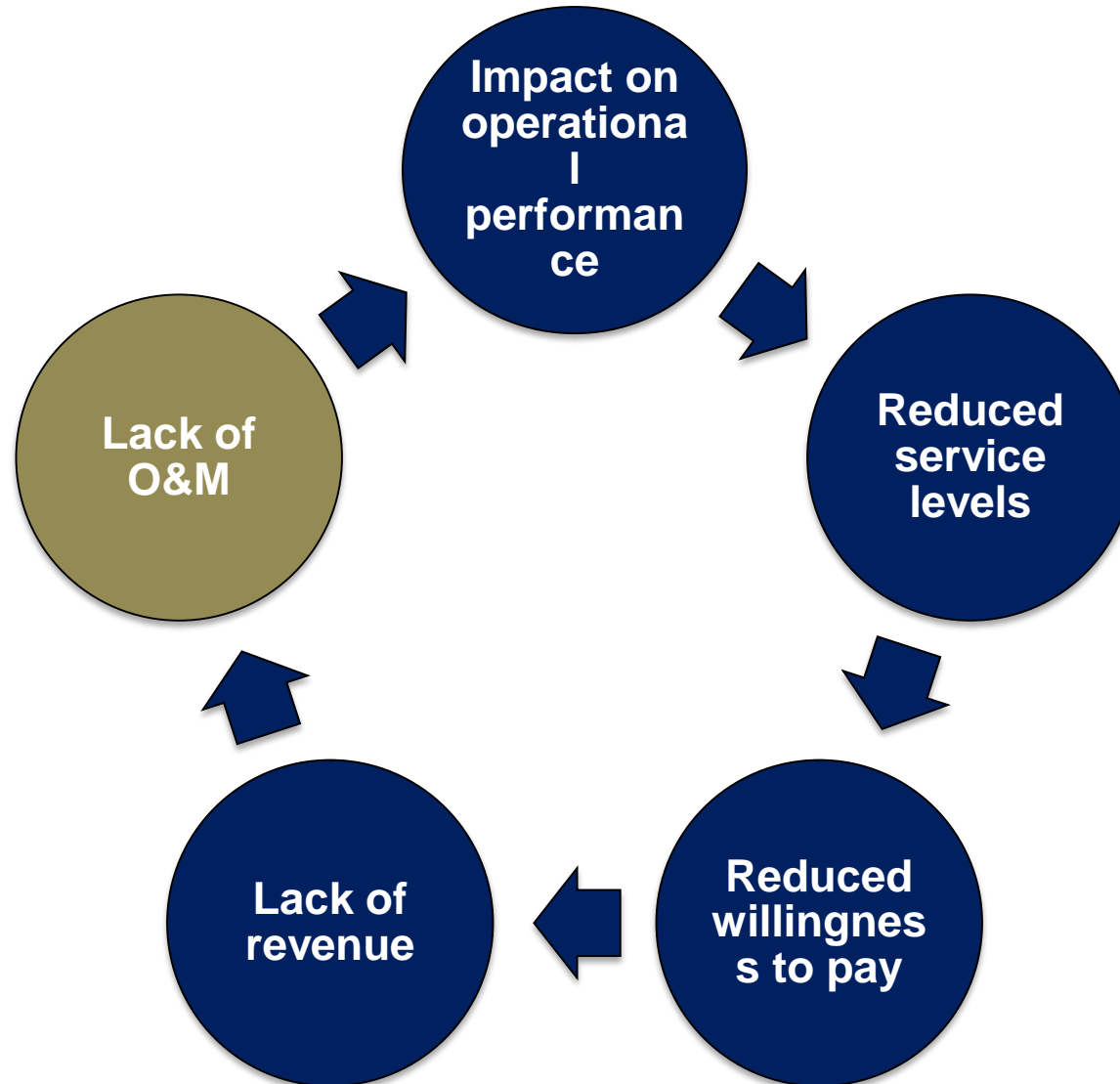
- 1 STP design can do only for 100% commission and not 80%
- 2 Excess sludge will not be discharged outside a permit premises only at the permissible point
- 3 Reclaimed water can be permitted to use it recharged water for gardening and toilet flushing in any multi-story
- 4 STP to be built outside apartment complex, preferably above ground level to avoid flooding in case of king power failure or breakdowns

ment complexes have set up STPs in their cellars, leading to noise and odour pollution to occupants.

Private better than public: Interestingly STPs in private sector treat water to a better extent than their public counterparts. In this case BWSSB, there are 612 wastewater treatment plants in the private sector, with a total capacity of 11.9 MLD. They operate at 75% of the designed capacity. BWSSB operates 14 STPs with a total capacity of 721 MLD, but they operate only at 63.5% of their capacity.

However, it's time KSPCB revisited rules where it does not insist on treatment plants in apartment units with built-up area less than 1,000 sq m in unserved areas.

Lack of O&M → a vicious circle and down-spiral for business environment





Expected Key Interventions

1

Understand the O&M sector /Market

- Technical landscape study
- Financial landscape study
- Market Landscape study

2

Development of 10 improved O&M service packages

- Service packages: O&M Manuals, best practices, O&M tools etc. for different technologies and its process/ services
- Develop certification system for service package

3

Develop Business plan for delivery of O&M Service Package

- Develop plan for improvement of existing business model (informal)
- Develop new formal market approach based business plan



Expected Key Interventions

4

Engagement of private sector players

- Identify and train existing actor
- Invite new players from market for O&M business plan

5

Deliver O&M services

- Facilities provide service to owners of decentralized sanitation

6

Develop and Launch capacity building program

- Service demanders
- Service Providers
- Link capacity building to certification
- Link capacity to existing training institutions



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DSI Governance is complex 'on paper'

Institutional Framework

Ministry of Environment & Forests

Ministry of Urban Development

Ministry of Housing & Poverty Alleviation

Central Government

Technical Wings

CPCB

CPWD

Ministry of Social Justice Empowerment

BIS

Ministry of Human Resource Development

Ministry of Consumer Affairs, Food & Public Distribution
State Pollution Control Board (SPCB)
Public Works Department / Public Health Engineering

State Government

State Government Department

Karnataka Directorate of Municipal Administration
Municipal Finance Corp

Bruhath Bangalore Mahanagara Palike

Local Government

Urban Local Government

DSI Governance is complex 'on paper'

Legislative Framework

Water (Prevention and Control of Pollution) Act, 1974

Water (Prevention and Control of Pollution) CESS Act, 1977

Statutes of the Central Government

2019

The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993 – drafted by MoUD

Karnataka Municipal Corporations Act, 1977

Statutes of the State Government

Bangalore Water Supply and Sewerage Act, 1986

Karnataka Municipal Corporations Act, 1977

Urban Local Government

Local Government

DSI Governance is complex 'on paper'

Policy/Guidelines Framework

Central Government

Planning Commission – Steering Committee Reports
National Mission on Sustainable Habitat (NSHM)
National Urban Sanitation Policy (NUSP)
CPHEEO Manual
CPCB Standards
ILCS Guidelines
National Building Code (Bureau of Indian Standards)
School Sanitation and Hygiene Education Programme

State Government

State Sanitation Strategy
KSPCB Standards
State Level Municipal Building Rules

Local Government

NUSP
NSHM
City Sanitation Plan
2005 Administrative Reforms Commission

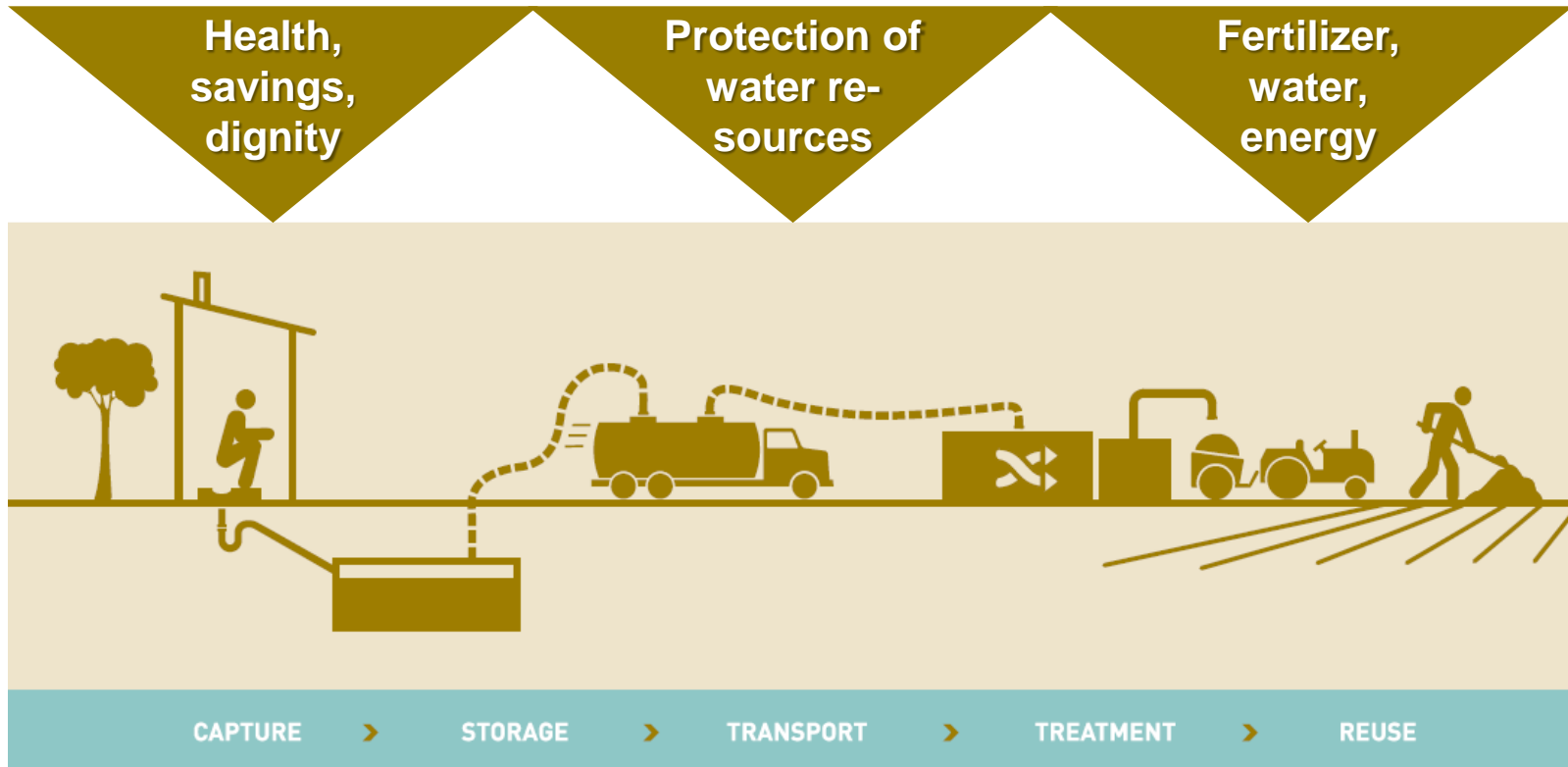
DSI is a “free market” on ground

- Although there are more than 1000 decentralized wastewater treatments system in Bangalore, city and the state government has **no list and awareness of about the status**
- Project has prepared database of wastewater treatments system in city with **563 projects data updated**
- Although many institutions responsible, but decentralized sanitation infrastructure **has no institutional ownership**

DSI O&M = manual scavenging??

- Although many private players are interested to provide O&M Service, but there is fear of getting into **legal complications** due to strict manual scavenging act
- Decision makers sees professionalized O&M service as **solution to manual scavenging problem**
- Most of the current service providers are **traditional manual scavengers**

Want to make resource recovery and safe reuse (RR&R) solutions viable at scale and protective of public health?



Source: BMGF

- Start with O&M!
- What will not be maintained does not need to be built!
- Thank you...