

Workshop on Small-Scale Sanitation
A Roadmap for Decentralised Wastewater Treatment in Nepal

What can we learn from the Indian experience?

Presented by:

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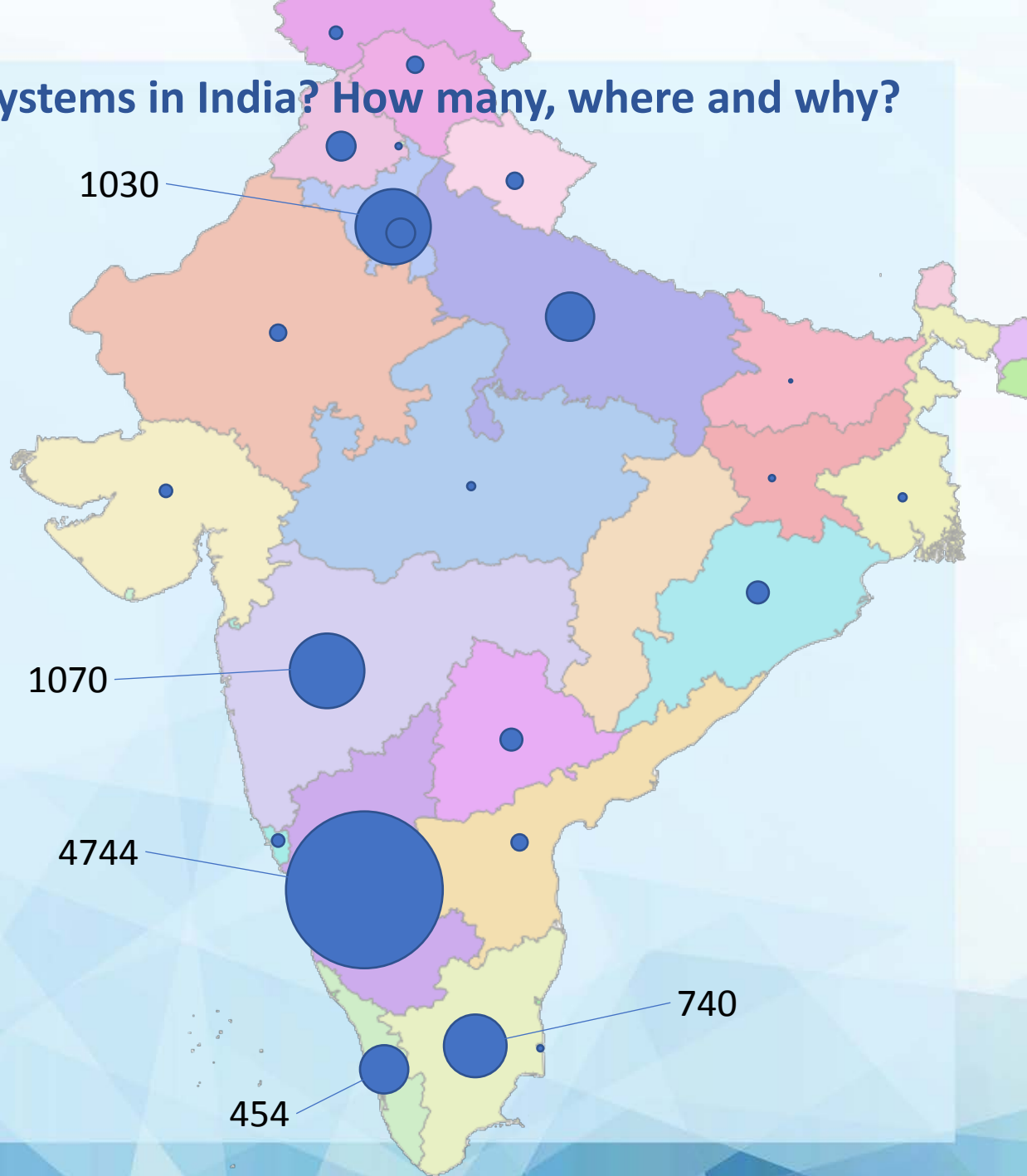
Small-scale sanitation systems in India? How many, where and why?



Existing: >20'000?

>5/day

Found: 9'442



Systems assessed: How many, where, what?

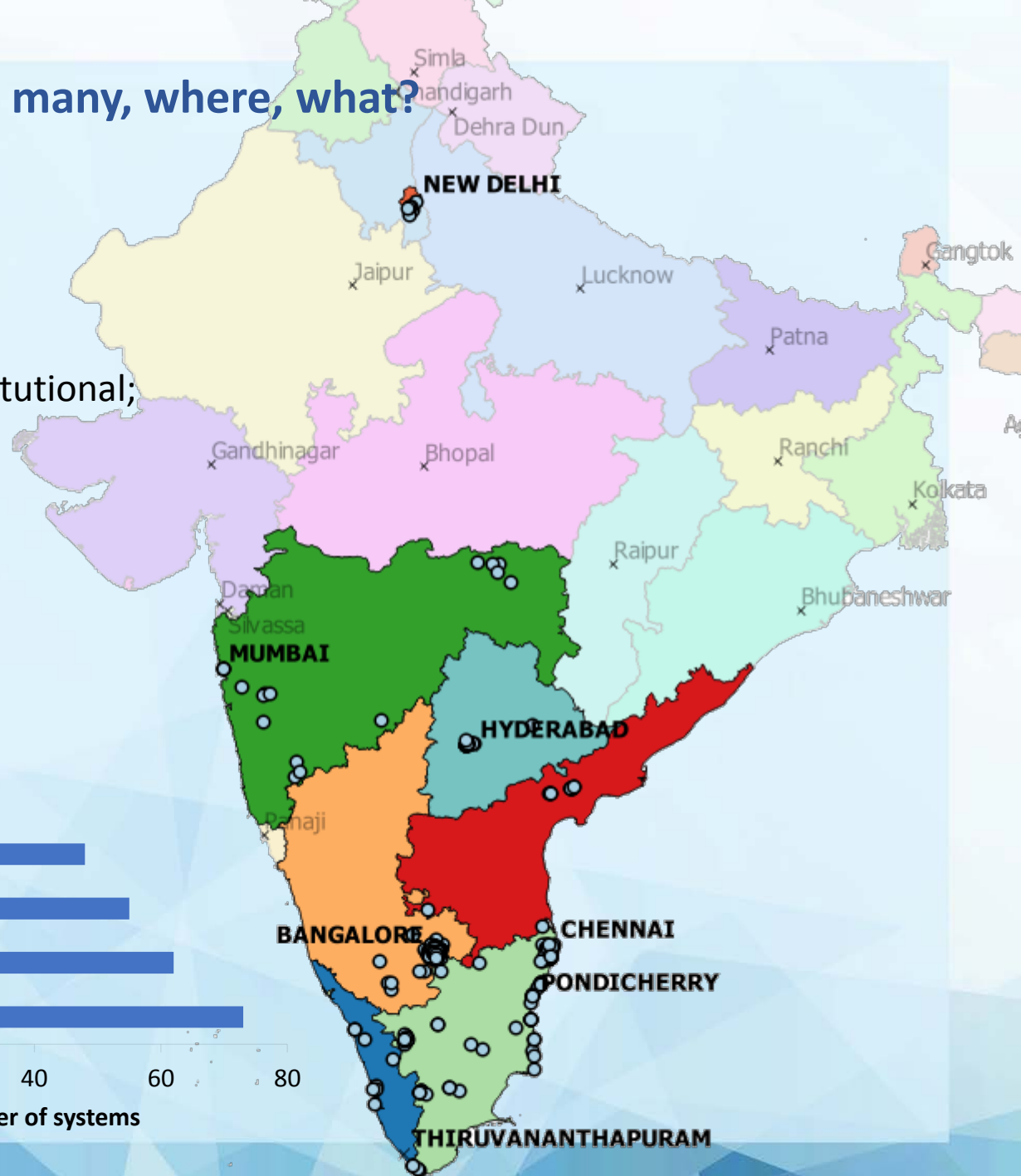
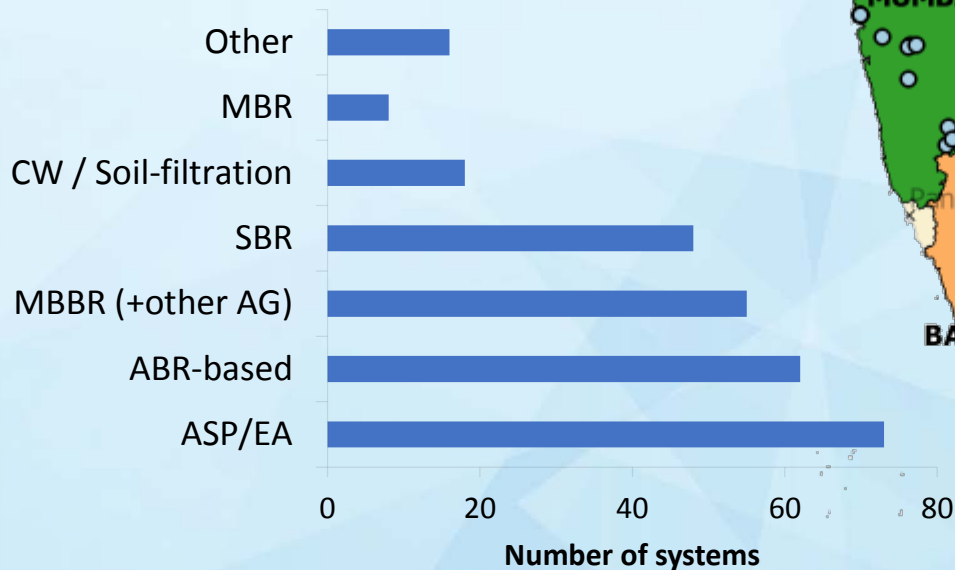
309 sites assessed in 8 states

35 sites sampled

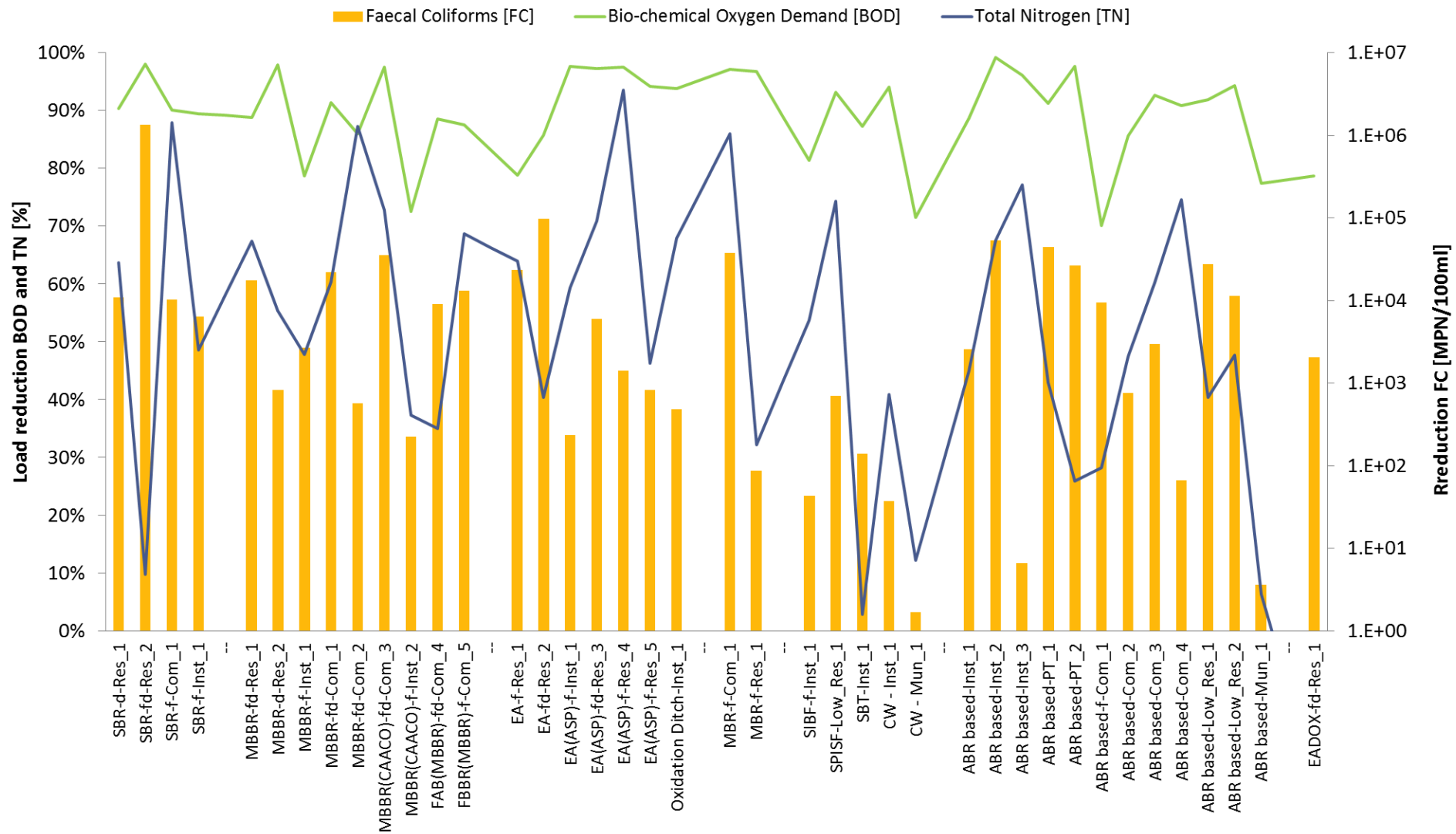
Residential; Commercial; Institutional;
Public/Community toilets

From 5 to 700 KLD

Across 7 technology families



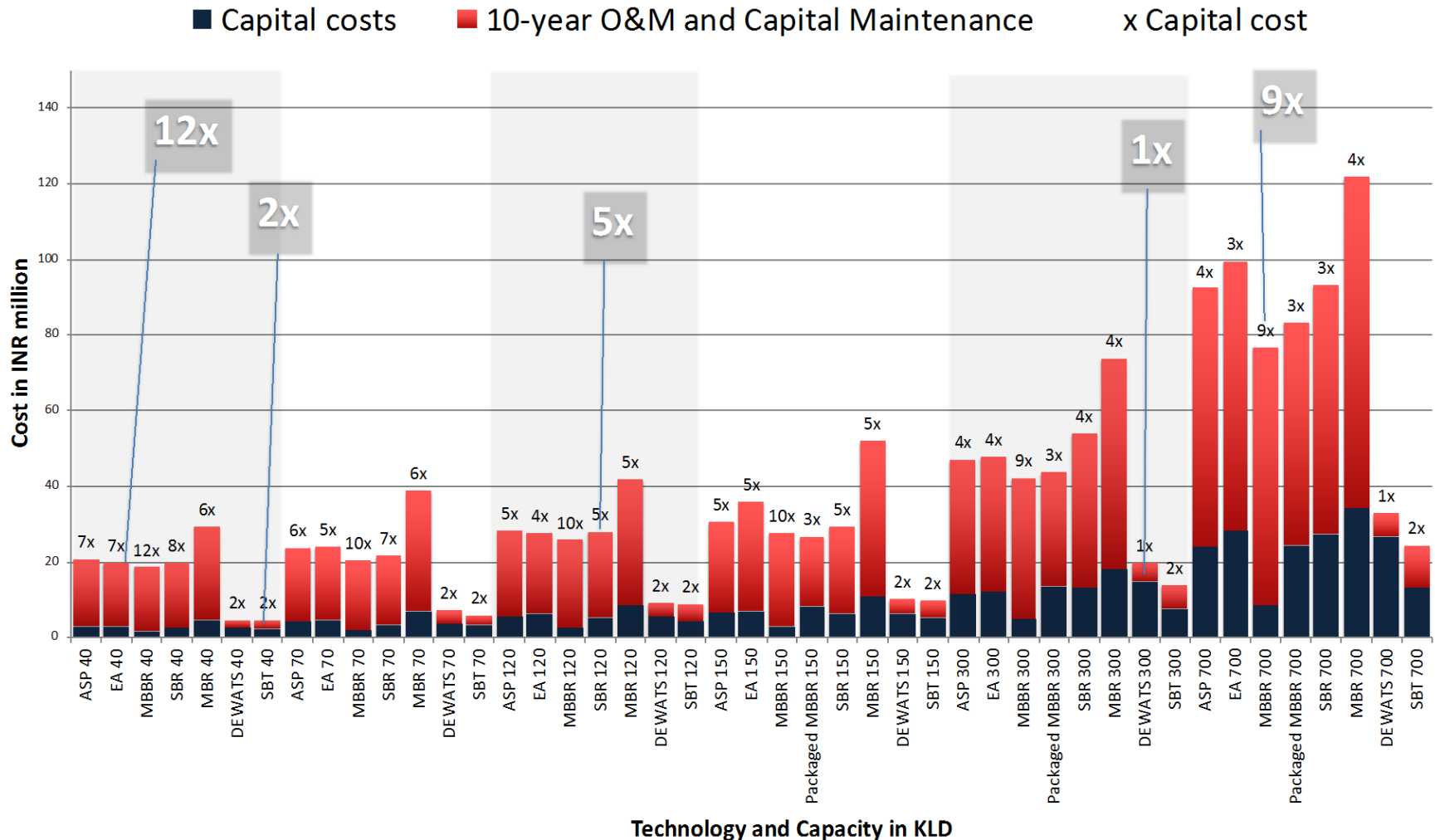
Performance analysis



Financial findings

LCC (10 years) = 2x-12x of Capital Costs

10-year Life Cycle Costs



SSS in the policy and institutional framework

- SSS as requirement for building projects but **currently not on the sanitation map**
- **Responsibilities scattered** between pollution control boards (PCBs), urban local bodies (ULBs) and water supply and sewerage boards (WSSBs)
- **Responsibility for long-term monitoring** is often not allocated
- **Lack of capacities and ownership** by WSSBs and ULBs
- Lack of comprehensive and unified **SSS database**
- **Loopholes** in the technology selection, design, implementation and O&M of SSS systems

⇒ **Leads to observed overall poor performance of SSS**

Challenges identified

- Governments unaware of location and performance of all systems
- Monitoring system not effective and easy to circumvent
- Mismatch between supply and demand for off-site water reuse
- Unpractical discharge standards for SSS
- Skills and capacity of O&M personnel and management entities
- Skills and reliability of private companies
- Sludge management



What can Nepal learn from the Indian experience?

Water reuse is a driver for treatment performance

Sustainable scaling-up process requires

- Recognition as a viable alternative
- Enabling policies
- Development of technical specifications
- Coordination between planning, implementing and monitoring agencies
- Incentives for system owners
- Database of SSS systems as a planning and monitoring tool
- Regulatory framework
 - Clear roles and responsibilities
 - Pragmatic discharge standards
 - Monitoring framework
 - Ecosystem for healthy growth of private sector
- Human resources and skills development



Thank you!

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Small-Scale Sanitation in India: Research Results and Policy Recommendations

This policy brief presents the main results of the first systematic assessment of small-scale sanitation (SSS) in India. Extensive field data was collected in eight States of India in 2016 and 2017. This brief highlights the research findings and provides recommendations for strengthening the functionality and sustainability of India's urban wastewater sector.

There has been an exponential growth in the number of small-scale sewage treatment plants (SSTPs) serving from 10 to 1'000 households in South Asia's rapidly expanding urban areas. An estimated 20'000 such systems are in operation in India today, providing an alternative to conventional, large-scale centralised systems. Can these systems live up to their promise of providing a flexible, modular and cost-effective alternative to large-scale networked solutions? What is the technical, financial and environmental performance of existing SSTPs,

and what determines the success or failure of such systems? These are some of the questions the 4S research consortium has sought to answer. This research aims to strengthen the functionality and adaptability of India's wastewater and sewerage infrastructure in the coming decades.

An overview of the Indian small-scale sanitation sector

Small-scale sanitation has been implemented in India for more than 30 years with NGOs and research institutes spearheading their implementation. More recently, there were major policy revisions by the Ministry of Environment and Forests (MoEF), which introduced the Environmental Impact Assessment (EIA) in 2004 and an amendment in 2006, mandating that buildings with large built up areas (above 20,000 m²) must manage their wastewater on site. This has triggered the uptake of SSTPs across the country. Although there is no formal national small-scale sanitation policy framework, individual states such as Karnataka, Goa, Kerala, Tamil