

Challenges of Extending Safely Managed Sanitation Services in Urban Kerala: A Systems Approach

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INTRODUCTION

- The world is not on track to meet SDG sanitation targets, and
- Non- conventional solutions like faecal sludge management (FSM) need to be rapidly deployed
- **The FSM paradox:** nearly one third of the global urban population relies on on-site sanitation (OSS), but faecal sludge (FS) treatment received little attention
- Faecal sludge treatment plants (FSTPs) are a critical missing piece of infrastructure in Indian small cities (Chhajed-Picha and Narayanan, 2023)
- **Kerala paradox:** Highest HDI, social development indicators comparable with European countries, 100% coverage of toilets, yet 90 out of 93 cities have no facilities to treat wastewater
 - Seven out of nine AMRUT cities proposed FSM, but none implemented

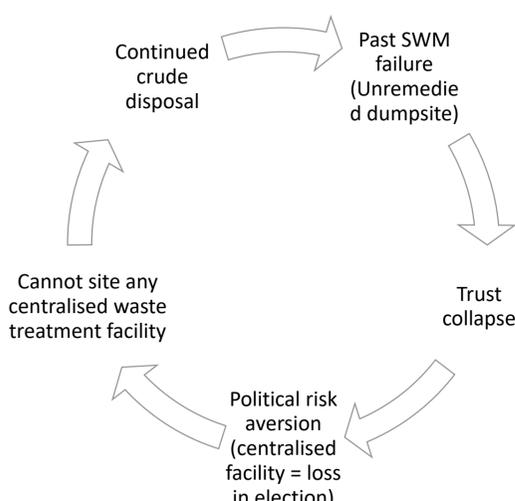
METHODOLOGY

Systems Approach

- **Case study design:** Intensive analysis of Alappuzha (2018-2021) using enabling environment framework
- **Data collection:** 25 semi-structured interviews (municipal officials, elected representatives, state agencies, private providers, civil society); extensive document review; field observations
- Systematically evaluated 8 dimensions of the enabling environment framework - policy, legislation, organisations, monitoring, regulation, finance, knowledge, and socio-cultural acceptance
- **Systems analysis:** Traced temporal dynamics (how past shapes present), mapped cross-sectoral spillovers (SWM→FSM), identified feedback loops creating implementation paralysis
- **Root cause identification:** by distinguishing symptoms from underlying structural barriers; validated rival explanations
- **Key innovation:** Supplemented standard sectoral assessment with historical performance analysis and cross-sectoral trust spillover mapping

FINDINGS

- All dimensions of enabling environment are favourable: State policy supportive, funding for capital works available, technical knowledge manageable, legislation adequate
- **Public resistance** to centralised treatment facilities and **political risk aversion** at the local level ensure no proposal moves ahead



Research Question:
Why have repeated attempts to implement treatment infrastructure in Kerala's cities failed?

CAUSE

Past SWM failures + protest handling → distrust

INTERPRETATION

Opposition is rational and evidence-based

MECHANISM

Distrust spills over from SWM to FSM

OUTCOME

Implementation paralysis → no new centralised treatment facility

RECOMMENDATIONS

- **Sequence matters—remediation first:** Clean up failed SWM dumpsites (Sarvodayapuram and equivalents in other cities) before initiating new FSTPs
 - demonstrate commitment and competence
 - Allocate remediation budgets separately for "fixing past mistakes", distinct from "building new infrastructure"
 - change political incentives to value remediation
- **Facilitate local governments own their sanitation mandate**
 - Allow LGs to be the lead agency with state agencies playing a supporting role
 - Make sanitation politically and administratively rewarding
- **Create 1-2 state-level demonstration facilities:** Invest in exemplary FSTPs with transparent operations, zero complaints, professional management; use for training, site visits, proof of capability

LESSONS

- **Favorable conditions ≠ guaranteed implementation**, especially in contexts with infrastructure failure histories;
 - must assess temporal and relational dimensions
 - material persistence of failure makes forgetting impossible, constraining future action
 - In such contexts, **building trust must precede infrastructure investment**,
- **Cross-sectoral spillovers are decisive:** They fundamentally shape possibilities in related sectors
 - sectoral assessments miss these constraints—need meta-assessments
- **Distinguish Evidence-Based Opposition from NIMBY:** Resistance rooted in demonstrated incapacity requires **institutional remediation** (cleanup, accountability, demonstrated learning), not public education or procedural justice
- **Systems approach reveals feedback loops:** Linear frameworks miss reinforcing cycles (failure → distrust → resistance → continued failure → more distrust); breaking cycles requires **intervening at leverage points** (remediation, demonstration facilities) not adding more "enabling" components