National Workshop on Small-Scale Sanitation Systems

A Roadmap for Small-Scale STPs in India:
Fulfilling their Potential for Healthy and Water-Secure Cities

Sustainability of Systems: Conditions for Success and Failure

Presented by:

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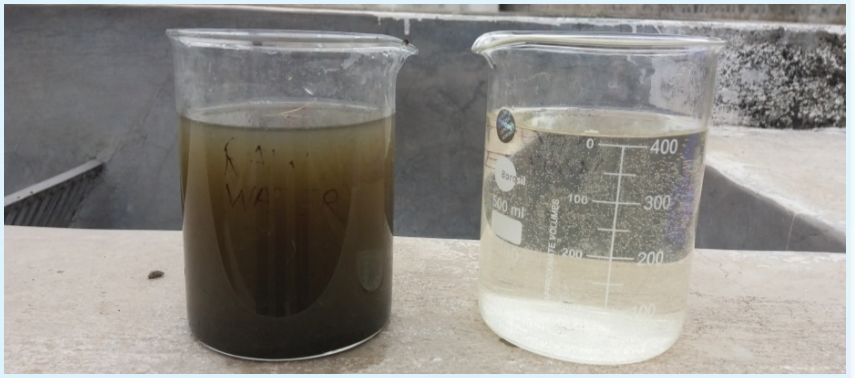
What defines success and failure of a small-scale sanitation system?

What are the ultimate objectives of a SSS system?

Wastewater Treatment

- Treatment effectiveness
- Adequate loading

Proper Solids Management



Resource Recovery

- Water reuse
- Nutrient recovery
- Energy recovery

What influences the long term performance of SSS systems?

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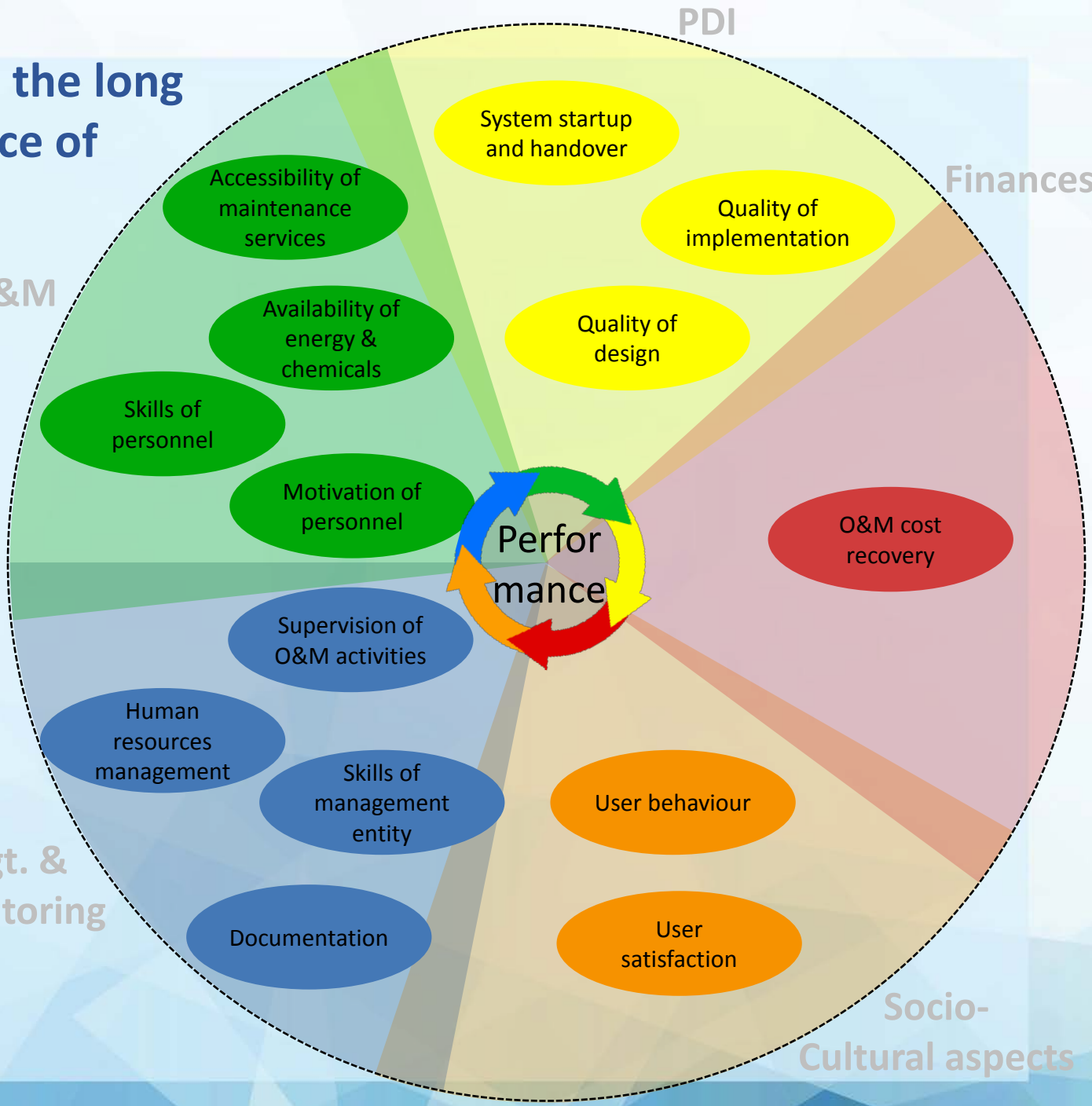
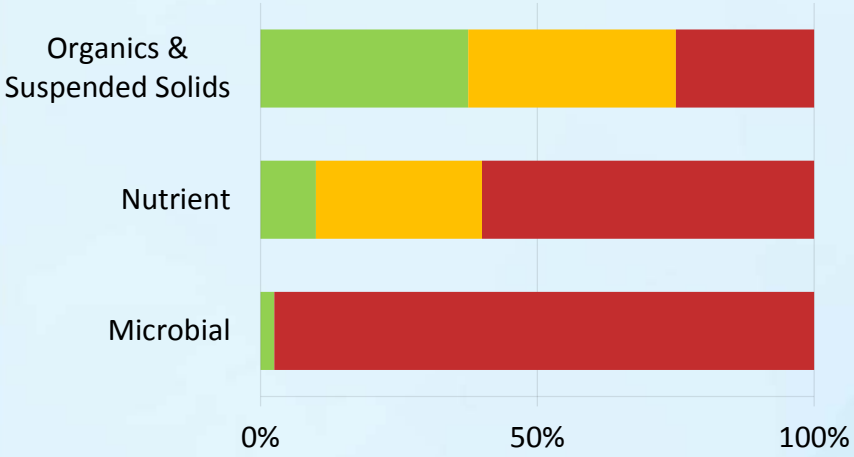


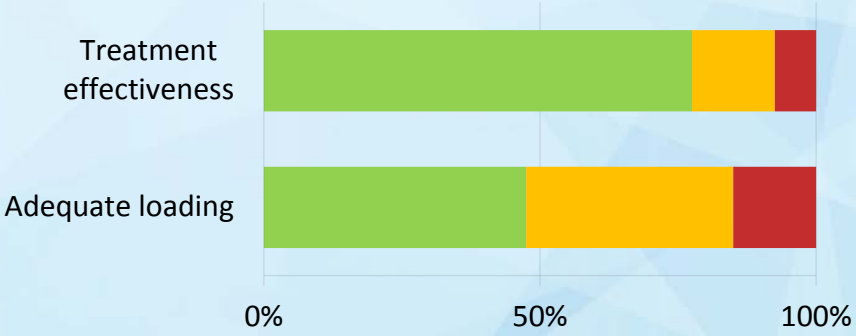
How did the assessed systems perform?

Watewater Treatment

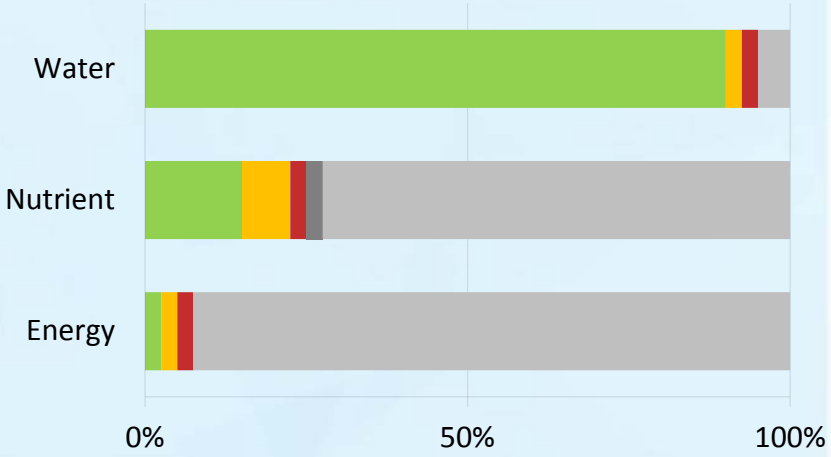
Quantitative assessement (n=40)



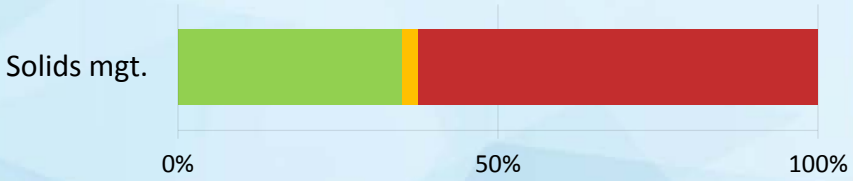
Qualitative assessement (n=309)



Resource Recovery

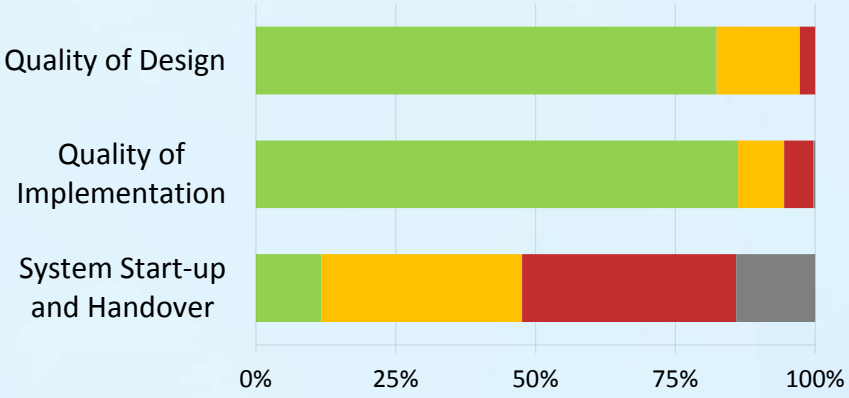


Solids Management

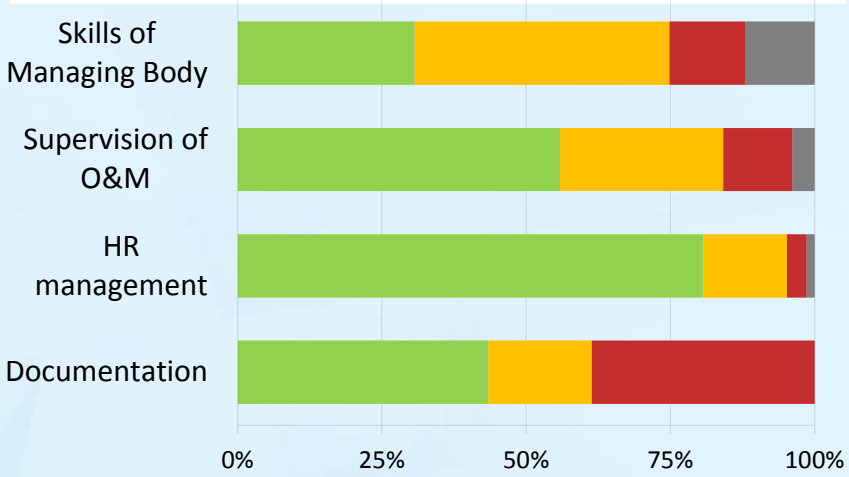


How did the sustainability of the systems score?

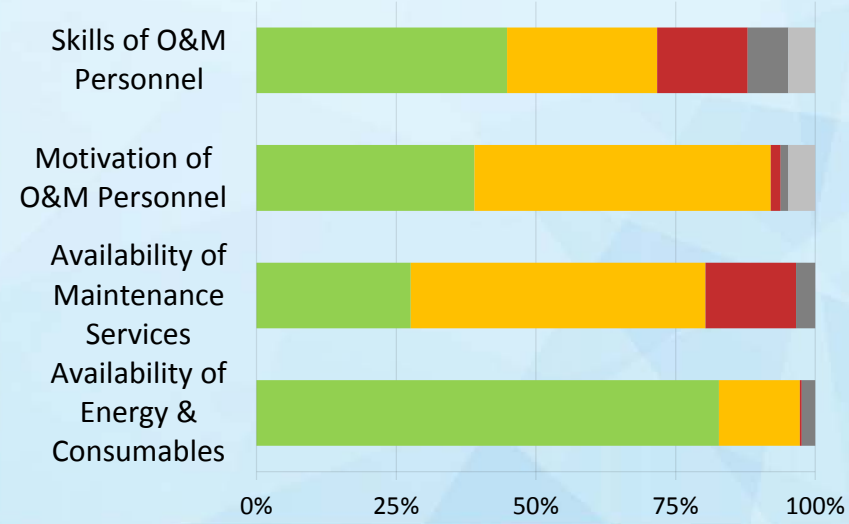
PDI



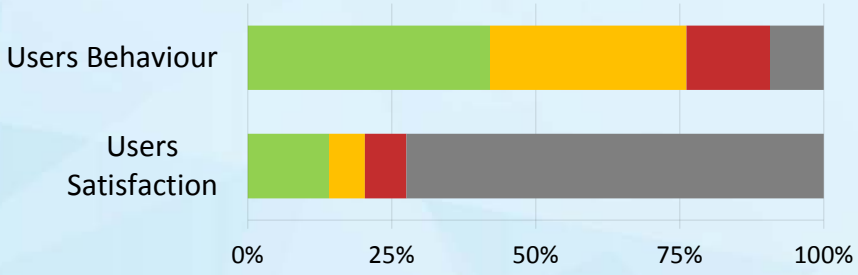
Management & Monitoring



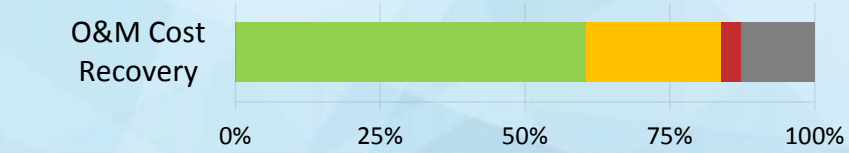
O&M



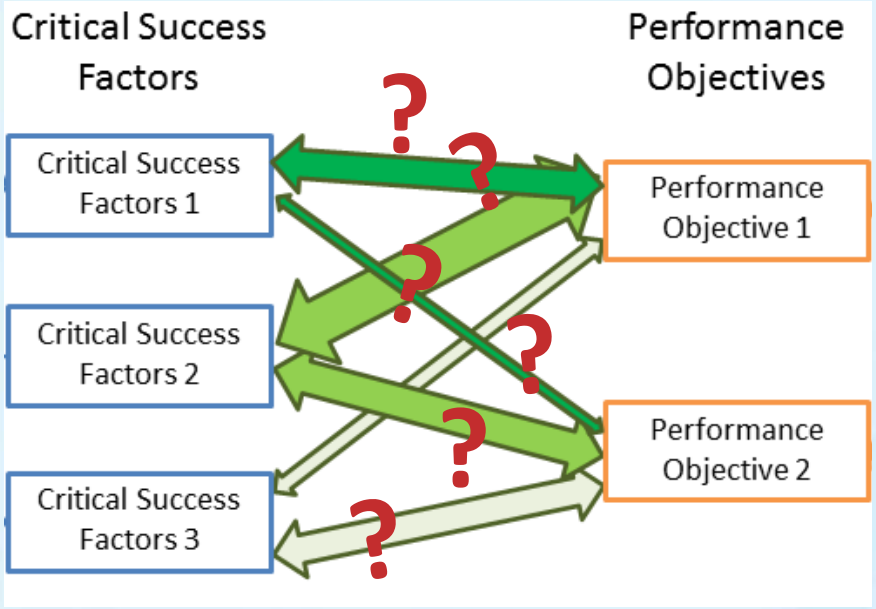
Socio-Cultural Aspects



Finances



Is it possible to predict the level of performance of a system from the assessment of its sustainability?



Why were no correlations found?

- Unbalanced dataset
- Variability of CSF through time
- Long term legacy effects
- Scores accuracy

Learnings from the experience

- Extremely complex and multi-faceted cause-effect framwork
- Long term effect of sustainability of systems difficult to measure
- Non-working system reasons must be analysed

What were the challenges highlighted?

- Discharge standards
- Mgmt of the sludge produced
- Untapped treated water resource
- System start-up and hand-over
- Skills and capacity of O&M personnel and management entity
- Supervision and documentation of O&M and financial flows
- Anticipation of maintenance works and costs

Recommendations

- Reuse-centred discharge standards
- Sludge management to be addressed strategically (onsite/offsite)
- Linking supply and demand for treated wastewater
- Standardize and strengthen system start-up and hand-over
- Mandatory training and licencing for operators
- Promotion of training for plant manager
- Mandatory documentation of financial details and O&M activities
- Inclusion of soft parameters into standardized monitoring (e.g. observations, operational, financial documentation)