Pre-Conference Workshop on
"A Roadmap for Decentralised Wastewater Treatment in Nepal: Learning from the South Asian Experience"

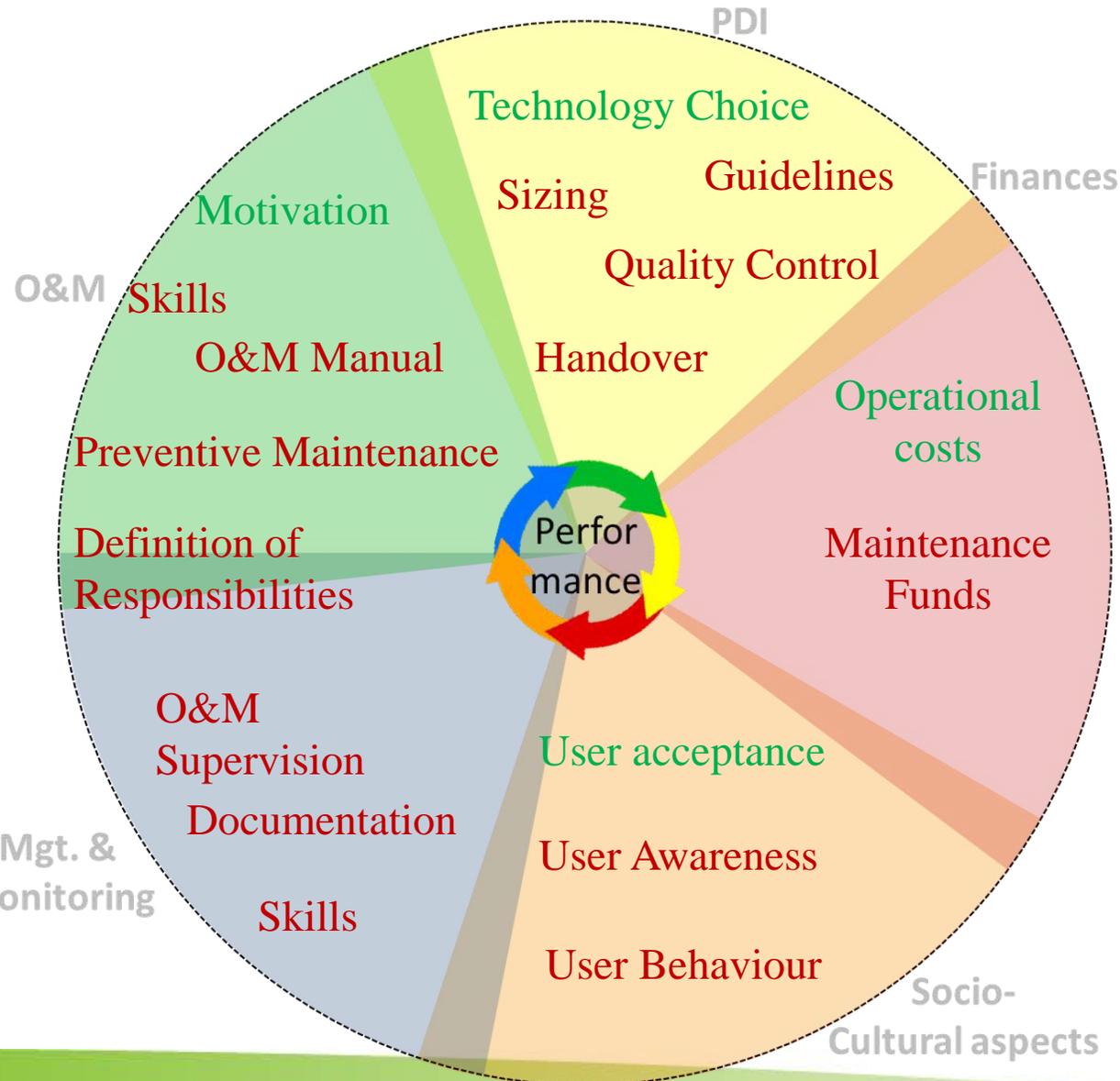## Summary of Conclusions and Recommendations

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Conclusions

Wheel diagram with sectors:

PDI
- Technology Choice
- Sizing
- Guidelines
- Quality Control
- Handover

O&M
- Motivation
- Skills
- O&M Manual
- Preventive Maintenance
- Definition of Responsibilities

Mgt. & Monitoring
- O&M Supervision
- Documentation
- Skills

Socio-Cultural aspects
- User acceptance
- User Awareness
- User Behaviour

Finances
- Operational costs
- Maintenance Funds

Center: Performance

| **Wastewater Treatment** |
| Treatment Effectiveness |
| Loading |

| **Resource Recovery** |
| Water |
| Nutrient and Energy |

| **Proper Solids Management** |
| Sludge Management |

Summary of conclusions and recommendations

Conclusions:

Policy/Institutional arrangements:
- No clear policies, guidelines and by-laws on WWM;
- Roles and responsibilities of federal, provincial and local governments should be clear

Technical/implementation:
- Overall good organics removal;
- Systems with Vertical Flow Beds found to be efficient;
- O&M and Quality Control are major issues -> Inefficiency of the systems

Financial:
- Lack of O&M fund for major repair & maintenance;
- Need innovative financing & cost recovery for scaling up SSS

Social:
- Lack of public awareness;
- Need to increase users' behavior

Key recommendations: System-level Analysis

- Develop guidelines for design, implementation, handover and operation
- Allocate a percentage of capital cost as maintenance fund
  - Blocked and accessible for repair works only
  - Fund should be regularly fed to ensure long-term availability
- Capacity building of operators
  - Standardised training content
  - System implementers should be required to offer trainings on how to operate systems
- Mandatory aftersales support for 5+ years by system implementers. Possibly service contract for maintenance.

Key recommendations: System-level Analysis

- Standardise requirements for documentation and reporting to monitoring agency
- Provision of sludge treatment unit with each SSS system
- Improve user awareness through participatory processes and regular information campaigns;
- Promote innovative, new technologies (semi-mechanical)

Key Recommendations – Inst. Analysis

- Policies for SSS scaling should be part of the overall sanitation strategy
- It should be well aligned with other approaches (on-site sanitation and FSM, and large-scale sewerage and wastewater treatment systems).
- WASH plans/SDP/CSP could accordingly guide the implementation of SSS systems;
- Municipality as a lead and an entry point
- Innovative Financing Models similar to the biogas promotion programme to establish and manage systems
- Engage private sectors to promote the sanitation systems –
- Focusing on systems rather than technologies

Key Recommendations – Inst. Analysis

- Dedicated analysis and support unit for SSS and FS treatment systems.
  - Build up a centralised database of all SSS systems and FSTPs
  - Regular Monitoring visit of each system by environmental officer / experienced engineer
  - Collection of operational, financial and qualitative performance data
  - Technical support for older systems (5+ years old), with hotline.
  - Continuous data analysis and dissemination of learning to inform policy, design and management optimisation
- Monitoring by third party: independent agency such as universities, research institutions, NGOs/private parties
  - Regular, systematic monitoring: Sampling
  - Sharing of data with analysis and support unit as well as with financing programme for performance-based payments

Last but not least!

If we envision establishing clean, green, healthy and smart city – it must be clean. Together we can!!!

Thank You