

# FS Characterization: Science to Practice

**WORKSHOP ON SUSTAINABLE SANITATION**  
**GLOBAL & LOCAL PARTNERSHIPS, EXPERIENCES AND WAY AHEAD**

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# FS Characterization

Science



Practice

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Practice

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Practice



# Reasons for FS Characterization

- design, sizing and costing
- operational parameters
- control parameters
- revenue
- regulatory
- research and development
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**FS book**

# Treatment Processes

- Biological
  - anaerobic
  - genetics
  - agricultural
- Reaction
  - combustion
  - oxidation
  - pyrolysis
  - precipitation
- Separation
  - membrane
  - distillation
  - particle size
  - ion exchange
  - phase diagrams
  - density
- Transport
  - rheology
  - stickiness

# Minimal Laboratory

- **Solids:** total; ash / volatile; dissolved; settled
  - **Flows:** mass and liquid
  - **Nitrogen:** TKN; ammonia; nitrate
  - **Phosphate**
  - **COD:** total, filtered
  - **pH**
- 
- **Pathogens:** E. Coli; helminths only after full treatment

# Specialised FS Laboratories

- Metagenomics research – Columbia University
- Wide range of advanced techniques – Eawag
- Basic teaching; specialized research– UN-IHE
- Basic teaching; specialized research– AIT
- Training; monitoring – CDD
- Accredited; training; monitoring – CSE
- Specialised research; training; monitoring - PRG

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# Inter-Country Shipping Samples

- Safety
- Pasteurise
- Material Transfer Permit
- Ethics (human tissue)
- Export / import permit
- Specialised courier service

# Conclusions

- Fit for purpose - simple
- Network of specialised laboratories
- Training courses
- Assistance in setting up labs
- Inter-laboratory comparisons
- Accreditation (ISO 30500; 31800)