

# "CDD's DEWATS experience - Learnings & Challenges"



Presented By:

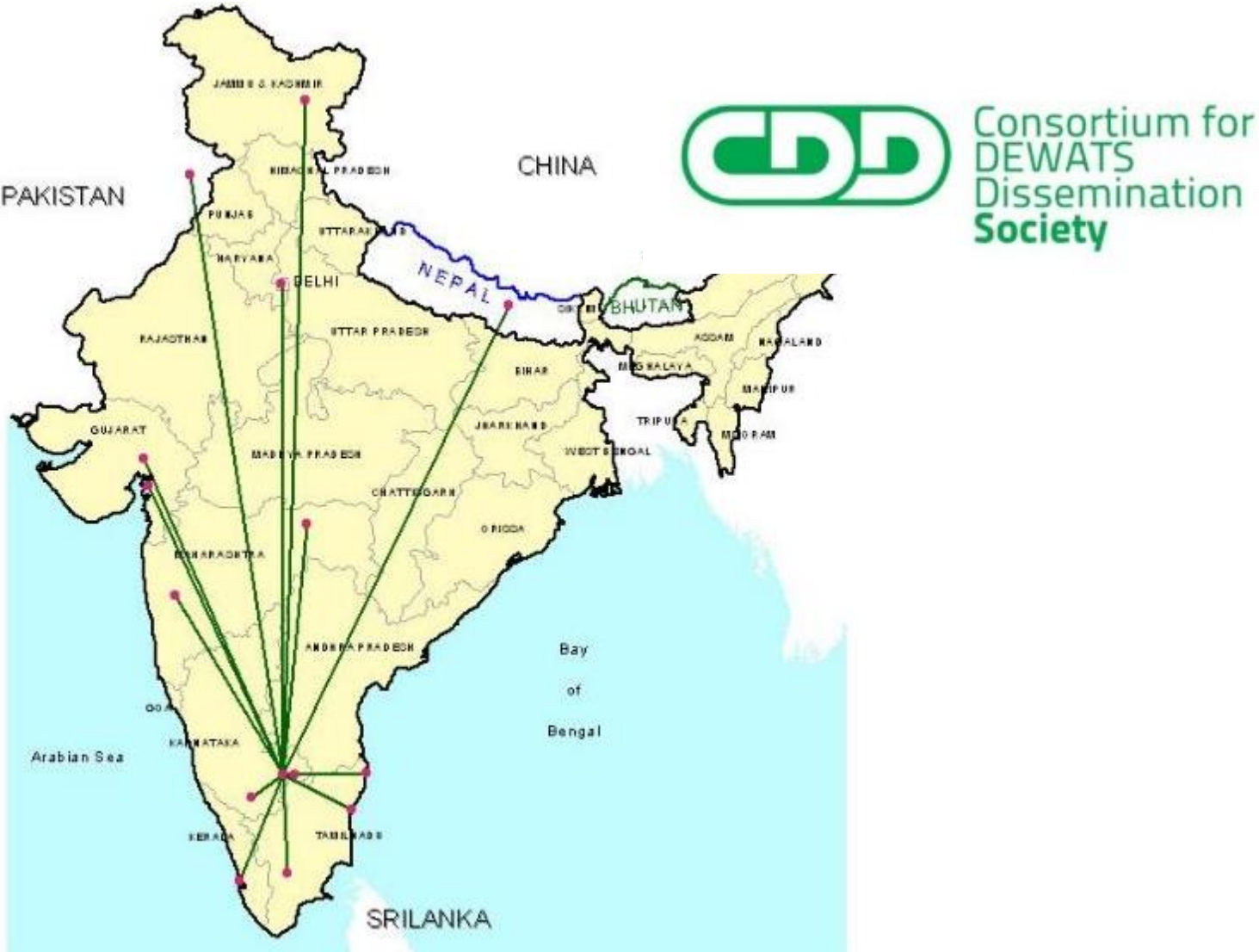
**GANAPATHY P.G**

**DIRECTOR OF PROGRAMS**



Not for profit established in 2005

30+ Partners all over India



BORDA & CDD Network (22 Partners)





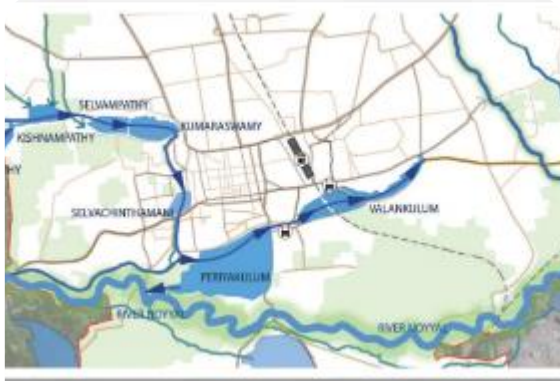
# Our Solutions

*All our products and service portfolio are designed **keeping the community at the centre**, to create long lasting impact*

## Integrated Urban Water Management



Wastewater  
Treatment & Reuse



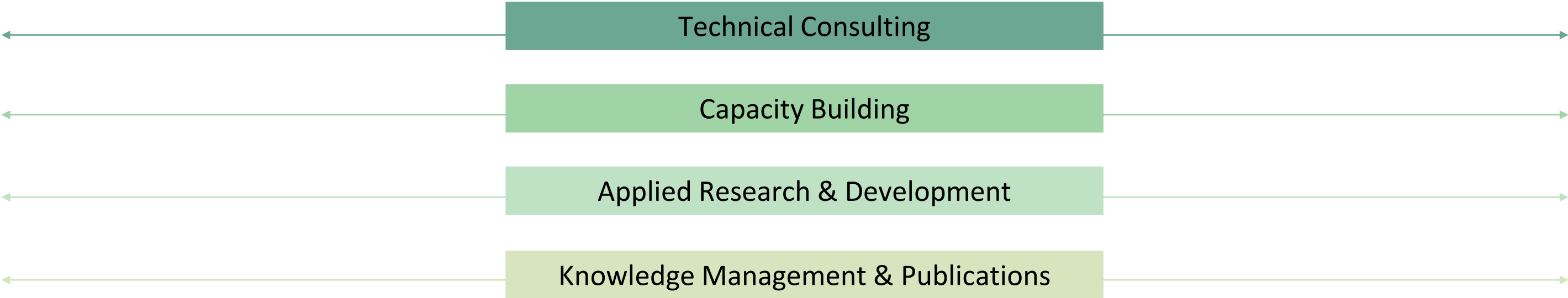
Waterbody  
Rejuvenation




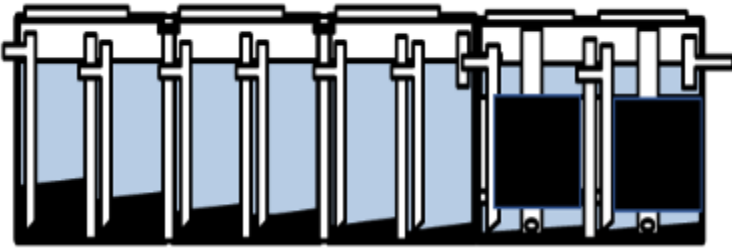
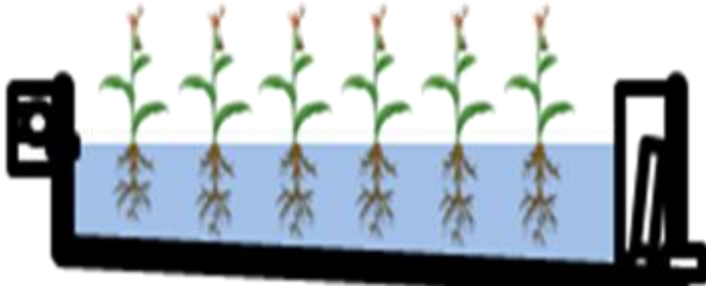
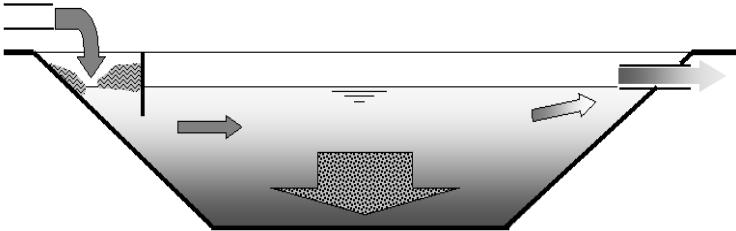




Faecal Sludge  
Management



Solid Waste  
Management



# What is DEWATS?

	Preliminary/Primary Modules	Secondary Modules	Advance secondary/ Tertiary Modules	Post Treatment
Process	<b>Sedimentation</b> Removal of easily settable solids	<b>Anaerobic Decomposition</b> Removal of easily degradable organic solids	<b>Aerobic Decomposition</b> Removal of more degradable solids	<b>Disinfection</b> Further Polishing
Modules				
Cumulative Treatment Efficiency Influent of BOD 250-300mg/l	 30-40% 180-200 mg/l	 70-75% 60-50 mg/l	 85-90% 30 mg/l	 ~95% <20 mg/l

# Why DEWATS?

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## 1 Versatile

- Applicable to wide varieties of context
- Treats organic wastewater from domestic and industrial sources
- 1 m<sup>3</sup>/day -1,000m<sup>3</sup>/day inflow
- Customisable, Modular and Expandable

## 2 Robust

- Tolerance to inflow fluctuations – both organic loads and hydraulic loads (can operate at 20% design loads)
- Passive system with little or NO reliance on electromechanical systems
- Self governing; low operations skill

## 3 Low O&M

- Requires No/minimum electricity, no chemicals or external additives
- Does not require skilled manpower for O&M
- Desludge once in 2-3 years; maintaining PGF is similar to gardening
- Very Low O&M cost

## 4 Simple & efficient

- Simple technology:
  - Easy adoption by masons
  - Executable with Local resources and skills
- Anaerobic process:
  - produces less sludge
  - Completely sealed, space above tanks usable for various purposes



# DEWATS - applicable in wide ranging contexts to treat Domestic Wastewater



**Over 400 systems built by CDD & Network**



# CHALLENGES AND LEARNINGS

1

Keeping up  
with Discharge  
and reuse  
Standards

2

Optimizing  
Footprint &  
CapEx

3

Improving  
efficiency of  
AF module

4

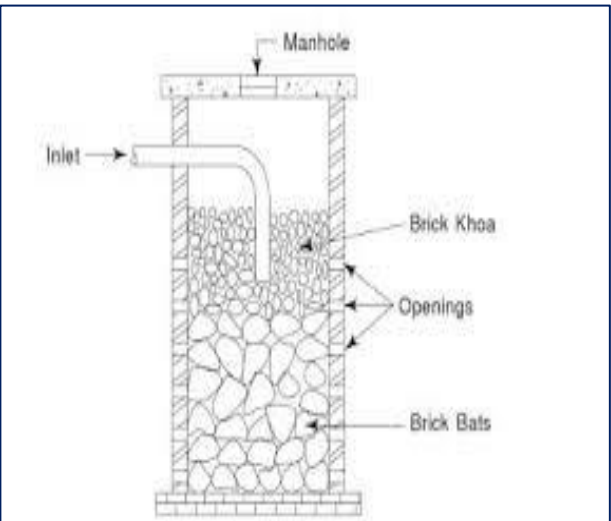
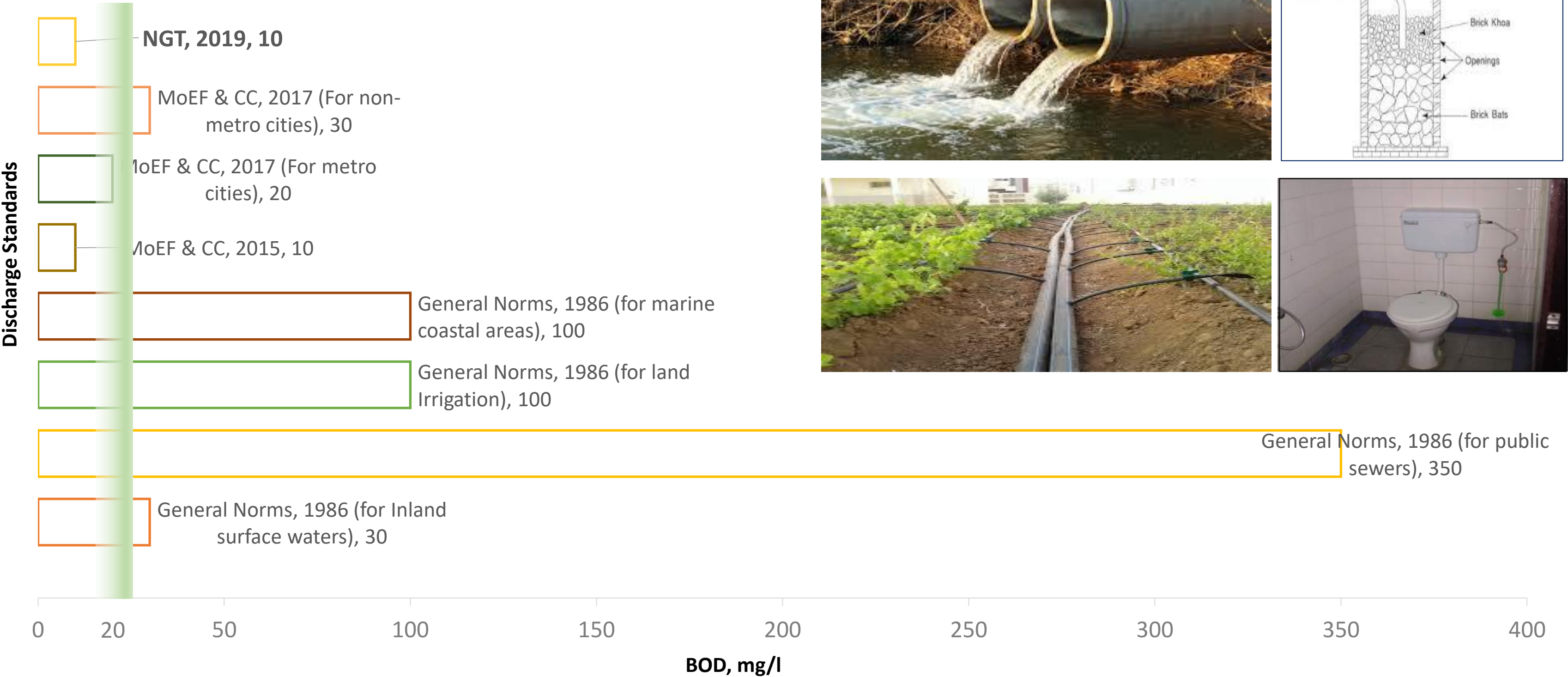
Broadening the  
Application  
areas



# DEWATS needs to adapt to evolving discharge standards and new reuse applications...

In India, effluent discharge standards have been dynamic

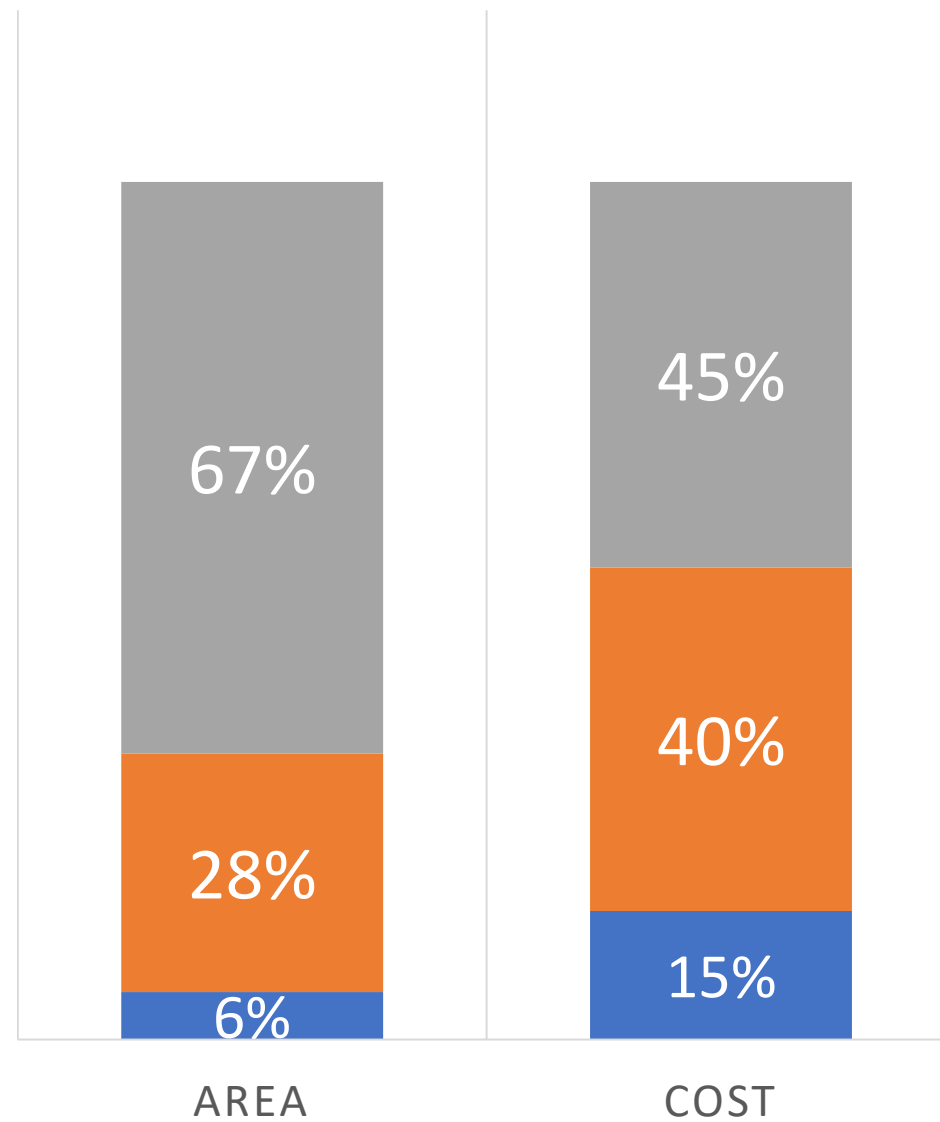
## Achievable quality from DEWATS (Conventional Modules)





# Our innovations have focused on alternatives to PGF for higher treatment efficiency...

## Robust tertiary treatment systems aligned with the DEWATS approach



Module wise DEWATS Cost & Area

- Vortex
- Aeration tanks
- Sand & Carbon filter
- Vertical flow wetlands and similar systems

■ PGF  
■ ABR+AF  
■ Settler

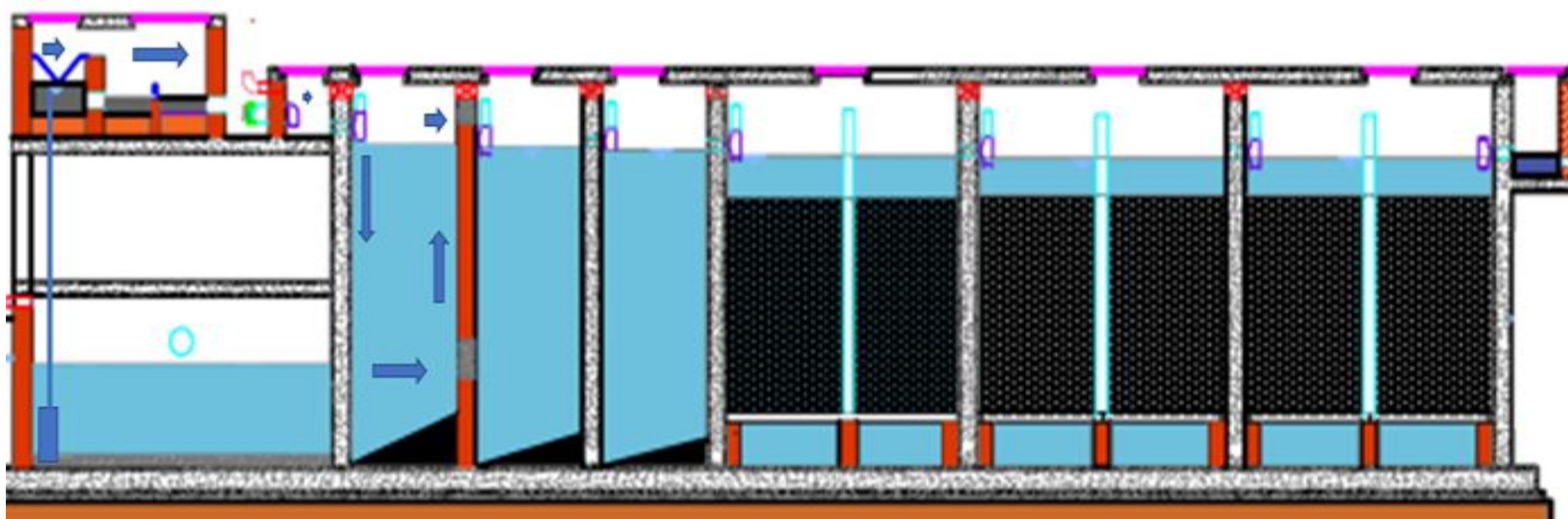




# DEWATS has been getting more efficient on capex and land area requirements...

## Innovations

- Reduction in number of ABR chambers
- Integration of balancing tank with pump arrangements
  - ❖ Higher hydraulic depth
- Alternatives to PGF
- Construction Materials





# There is scope to innovate on alternative filter media...

## Common Filter Media used in the DEWATS Anaerobic Filter



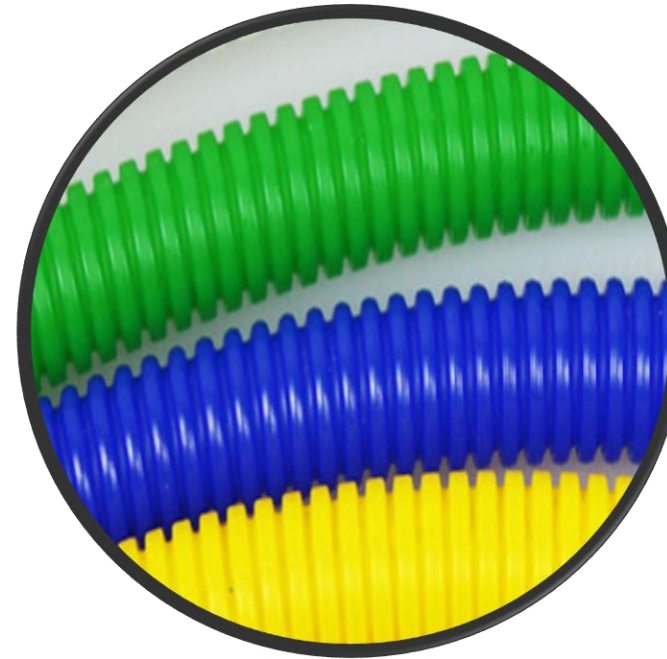
**Gravel**

- Weight of Media
- Low cost in comparison with other media



**Cinder**

- High price for good quality
- Initial leaching occasionally
- High surface area / m<sup>3</sup> +



**Corrugated Plastic Pipes**

- Treatment efficiency?
- Longevity of the product
- Questions about plastic leaching
- High surface area / m<sup>3</sup> +++



**Plastic Bio-media**



## Efforts are ongoing to explore alternate filter media ...

Considerations: Efficiency of Cost, treatment, implementation and environmental



Coal



Plastic fibers Like - mats



Coconut Husk

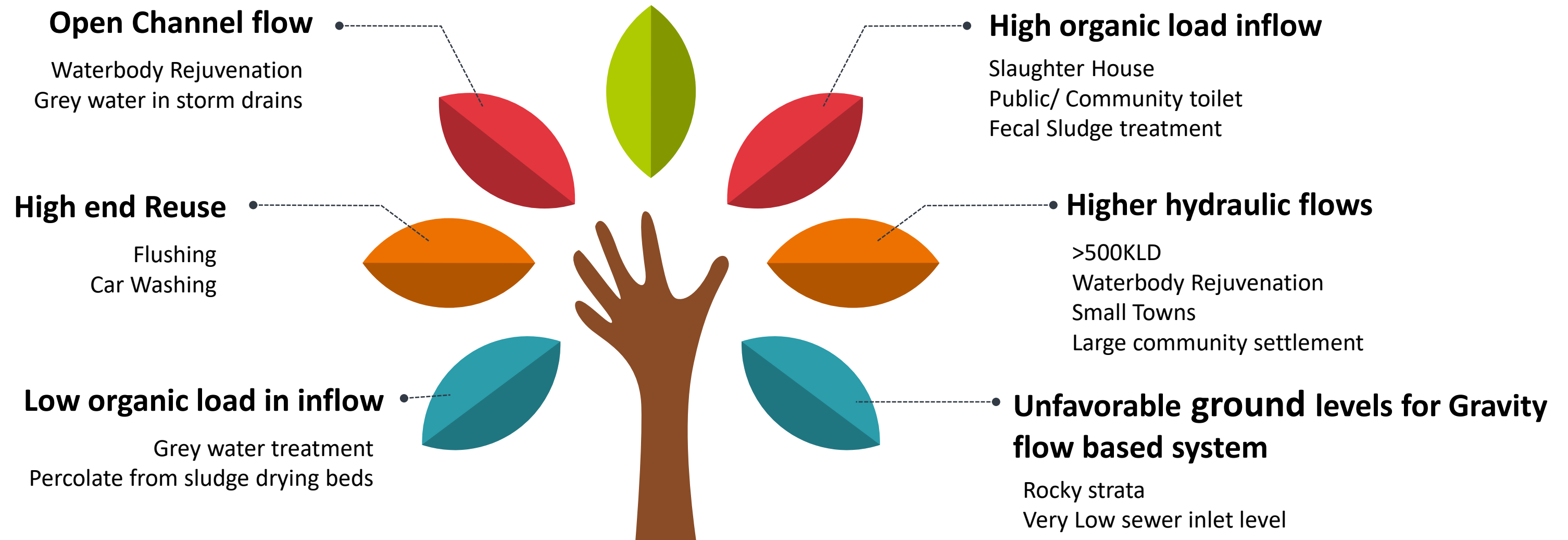


Broken pieces of clay pots/  
Tiles



# Widening the application of DEWATS ...

**Learning: DEWATS can be applied in many new emerging contexts through hybrid systems**











Consortium for  
DEWATS  
Dissemination  
**Society**

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