Approach & Options for Greywater management

Sandhya Haribal
CDD Society

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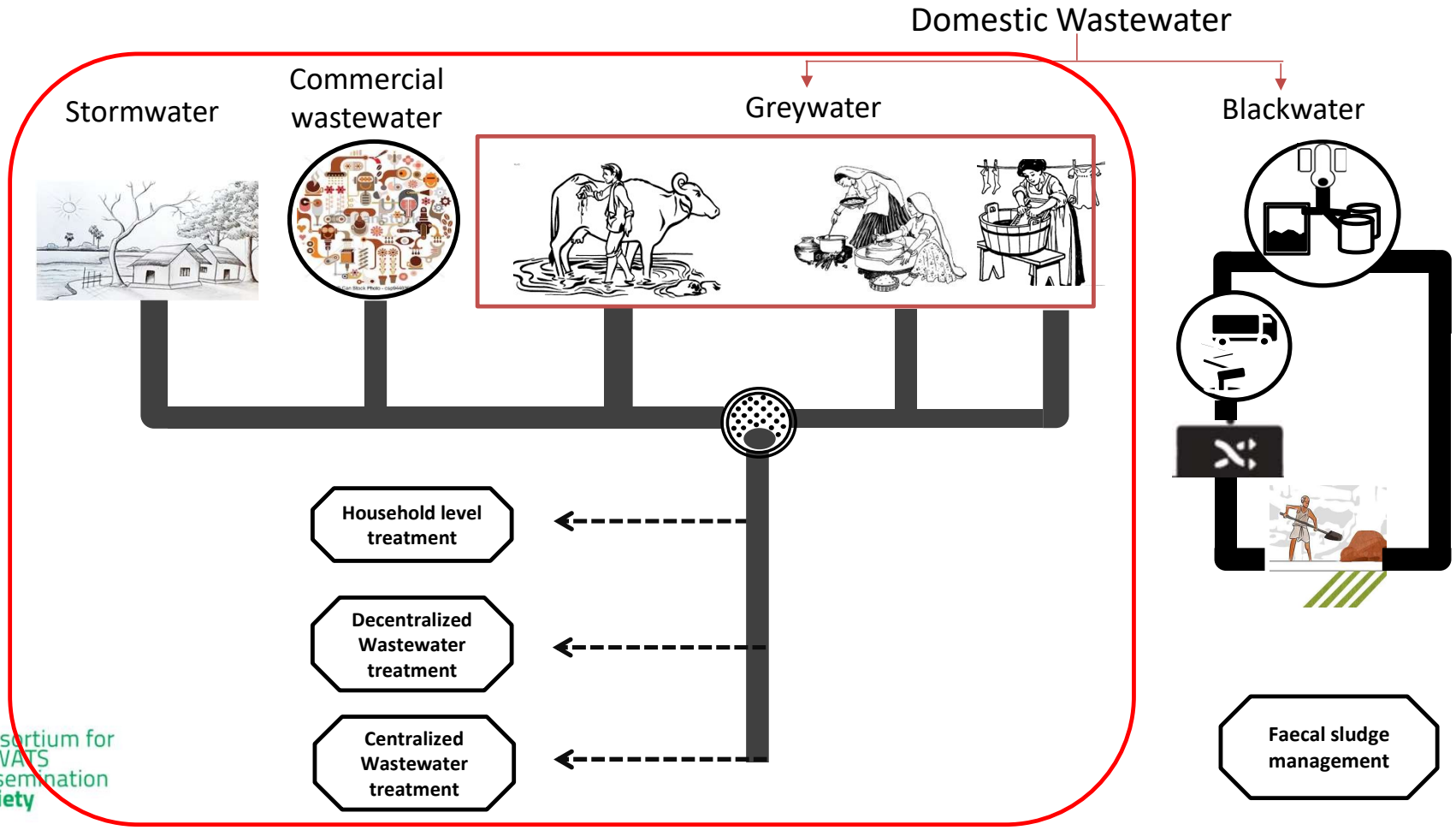
Approach to planning for liquid waste management



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Examples of Typologies observed on ground

Dense developments

Clustered developments

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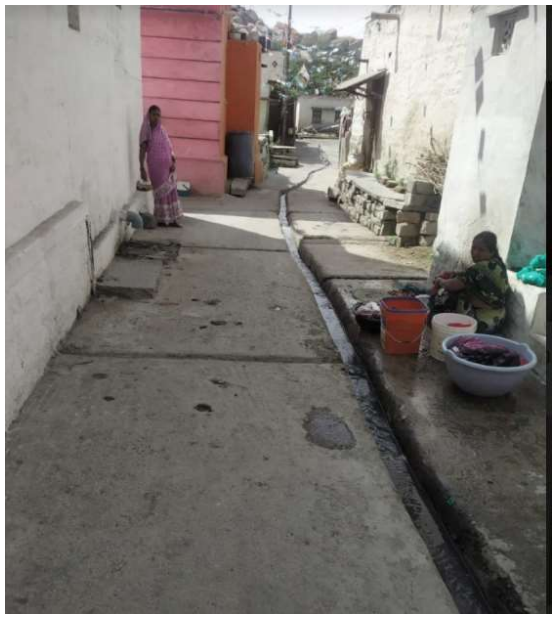
Key challenges observed

- Land/Space availability



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Key challenges observed

- Simple & economical solution specific to a context

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Key challenges observed

- Mixing of blackwater with greywater

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Key challenges observed

- Improper drainage design & handling of solid waste




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Key challenges observed

- Use of untreated greywater for kitchen gardens




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Key challenges observed

- Pollution of water bodies

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Key planning considerations

Scale	Typology of Gram Panchayat	Planning aspects	Capacity of Gram Panchayat
• Population & per capita water supply • Quantity of greywater generated • Density/ Sparsity of development	• Hilly, low-lying or plain terrain • Groundwater table	• Treatment requirement • Re-use options for greywater	• Fund availability • Operation & Maintenance requirements

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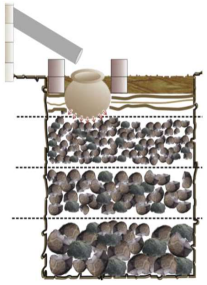
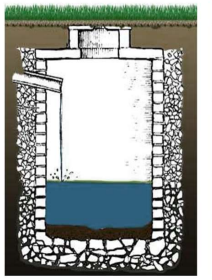
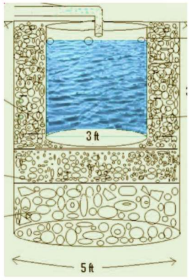
Key principles of greywater management

- Reduce – judicious usage of freshwater
- Reuse – for purposes like kitchen garden, vehicle-washing, toilet flushing etc.
- Recharge- groundwater by appropriate methods like soak pits
- Separate greywater from blackwater flows
- Treatment system at the nearest possible distance from point of generation

Decisions matrix for planning LWM

Point of generation-Household level

- Kitchen gardens
- Soak pits
- Leach pits
- Magic pits

Intermediate-along the flow

- Community/Street/Ward level soak pits
- Settler + Constructed wetland
- Any other simple method-Primary + Secondary treatment


End point-Centralized

- At the outfall location
- Mouth of the water body, if any
  - Settler + Constructed wetland
  - Waste stabilization ponds
  - DEWATS/Phytorid or any other option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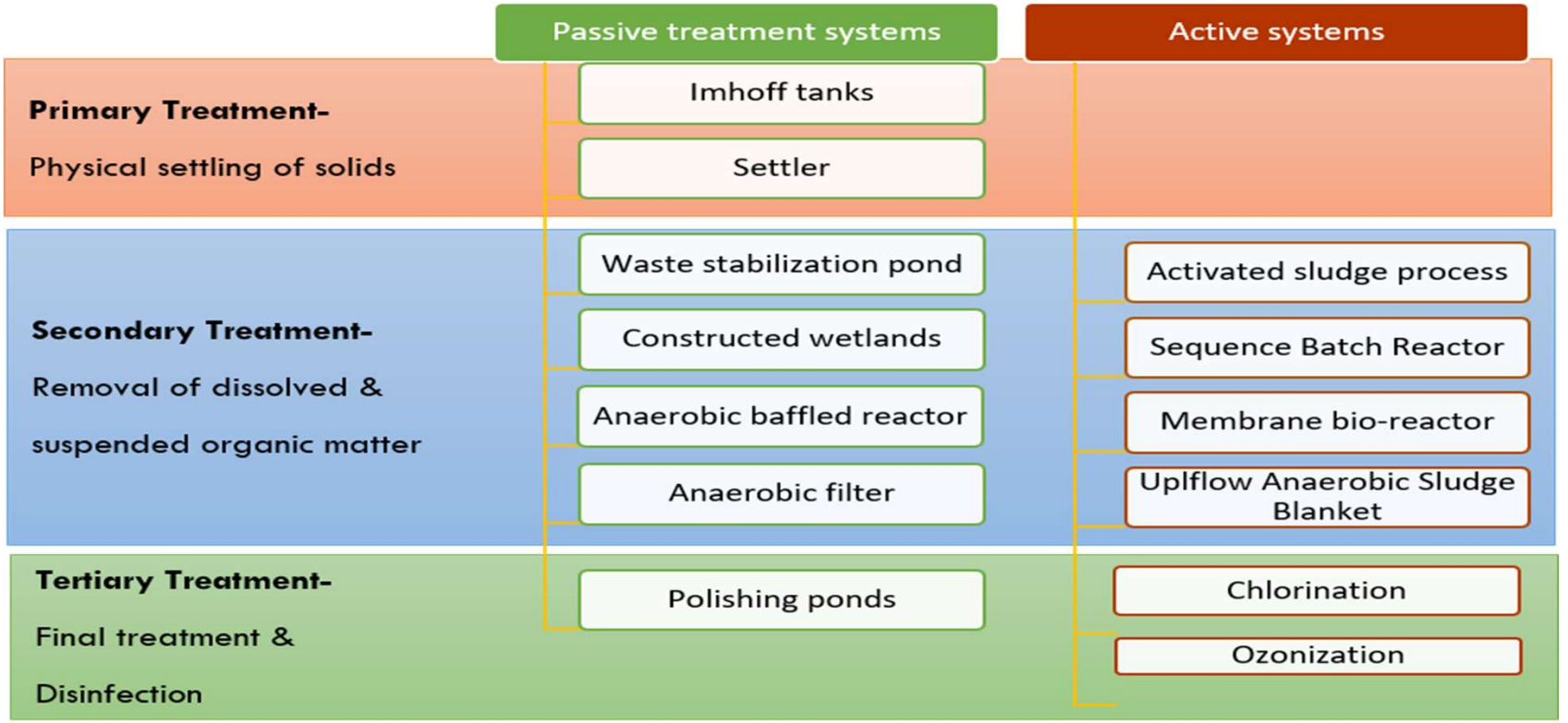
Treatment technology options



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ACTIVE SYSTEMS Active systems depend on external source of energy or addition of certain chemicals to conduct treatment.

PASSIVE SYSTEMS Passive systems are systems that do not require the ongoing addition of chemicals or external source of energy to conduct treatment.

About CDD Society

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Our Evolution

Formal Registration as CDD Society (2005)

Solutions: DEWATS, SWM, City Sanitation Planning

CDD established within WASH eco-system (2011)

Solutions: DEWATS, SWM, *Addition of Capacity building (CB) & City Sanitation Planning (CSP) via CASS*

Scaling up of CDD programs (2015)

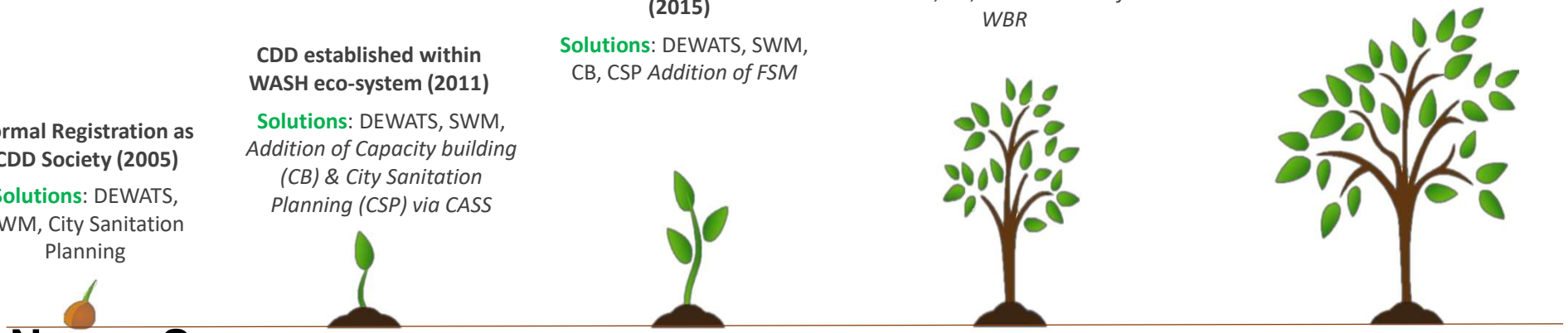
Solutions: DEWATS, SWM, CB, CSP *Addition of FSM*

Diversification of CDD portfolio (2017)

Solutions: DEWATS, FSM, SWM, CB, CSP *Addition of WBR*

Future-looking roadmap (2019)

Solutions: **Integrated Urban Water Management** including aspects of WBR, DEWATS, FSM, SWM



NORTH STAR

"**200 WATSAN systems** in communities are made **clean and thriving by 2030**"

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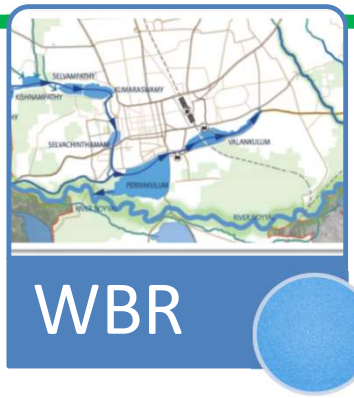
CDD Society's service offerings


WWT


FSM


WBR


SWM


IUWM

Technical Consulting – Design & Engineering support

Capacity Building & Training

Applied Research & Development (R&D)

Knowledge Management & Communications

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CASS
CENTRE FOR ADVANCED
SANITATION SOLUTIONS

Centre for Advanced Sanitation Solutions (CASS)

A one of its kind knowledge hub addressing sanitation concerns in urban and semi urban areas.

Established in collaboration with BORDA and RGRHCL.

Specialised Units to evolve all inclusive solutions for urban/peri-urban areas

1. Exhibition Unit
2. Training Unit
3. Research & Development Unit with a dedicated laboratory
4. Information and Documentation Unit

Training Courses Offered:

- ✓ City Sanitation Planning
- ✓ DEWATS™ – Managers, Engineers
- ✓ School Sanitation
- ✓ DESWAM
- ✓ Project Management
- ✓ Sustainable Community based Sanitation (CBS-DEWATS)

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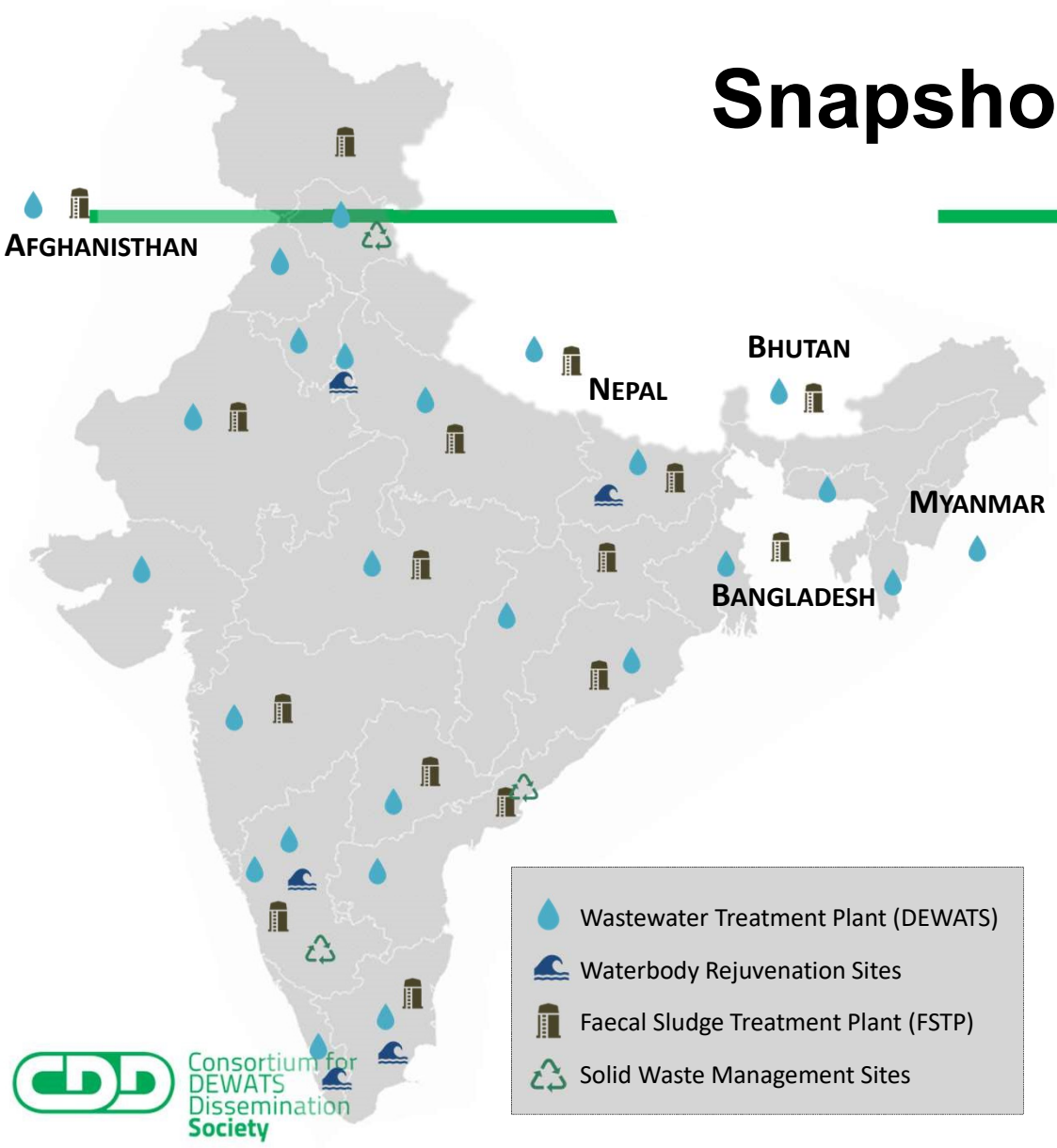
Snapshot of our Reach & Impact



SUSTAINABLE DEVELOPMENT GOALS

400

DEWATS installed by CDD, its partners and trainees

12

States being supported by CDD for FSM implementations

8

Waterbody rejuvenation projects ongoing

169

Trainings hosted

15 million

Litres of wastewater treated everyday

1.2 million

litres of Faecal Sludge treated till date

4.5 lakh

Individuals directly impacted

3,500+

Individuals, NGO's , Government, Panchayats and others trained

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Contact Us

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Villages with population less than 5000

Community level soak pits, depending on-

- Terrain
- Groundwater level
- Density of population

OR conveyance systems with end treatment using WSP/DEWATS/Constructed wetlands

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Villages with population more than 5000

Conveyance systems –

- Underground drainage
- Small bore sewers
- Closed drainages

With end treatment using

- WSP
- DEWATS
- Constructed wetlands

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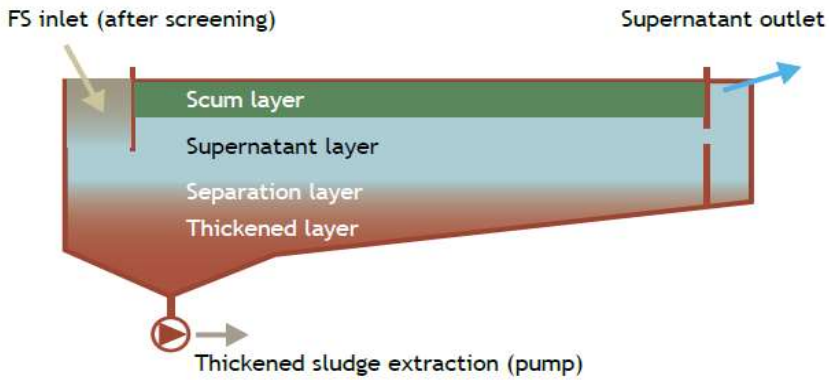
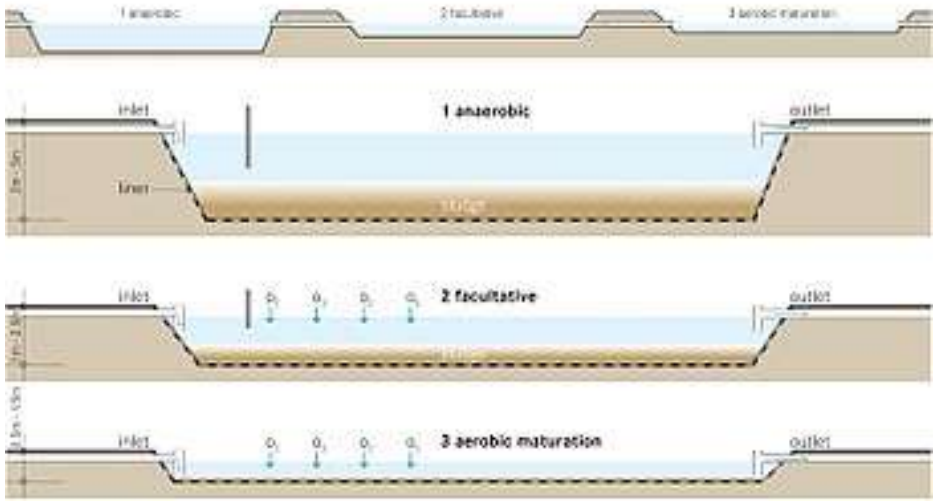
Settling Tanks and waste stabilization ponds



- Cost effective
- Does not provide complete treatment
- Requires large area and sufficient buffer zone from inhabitation



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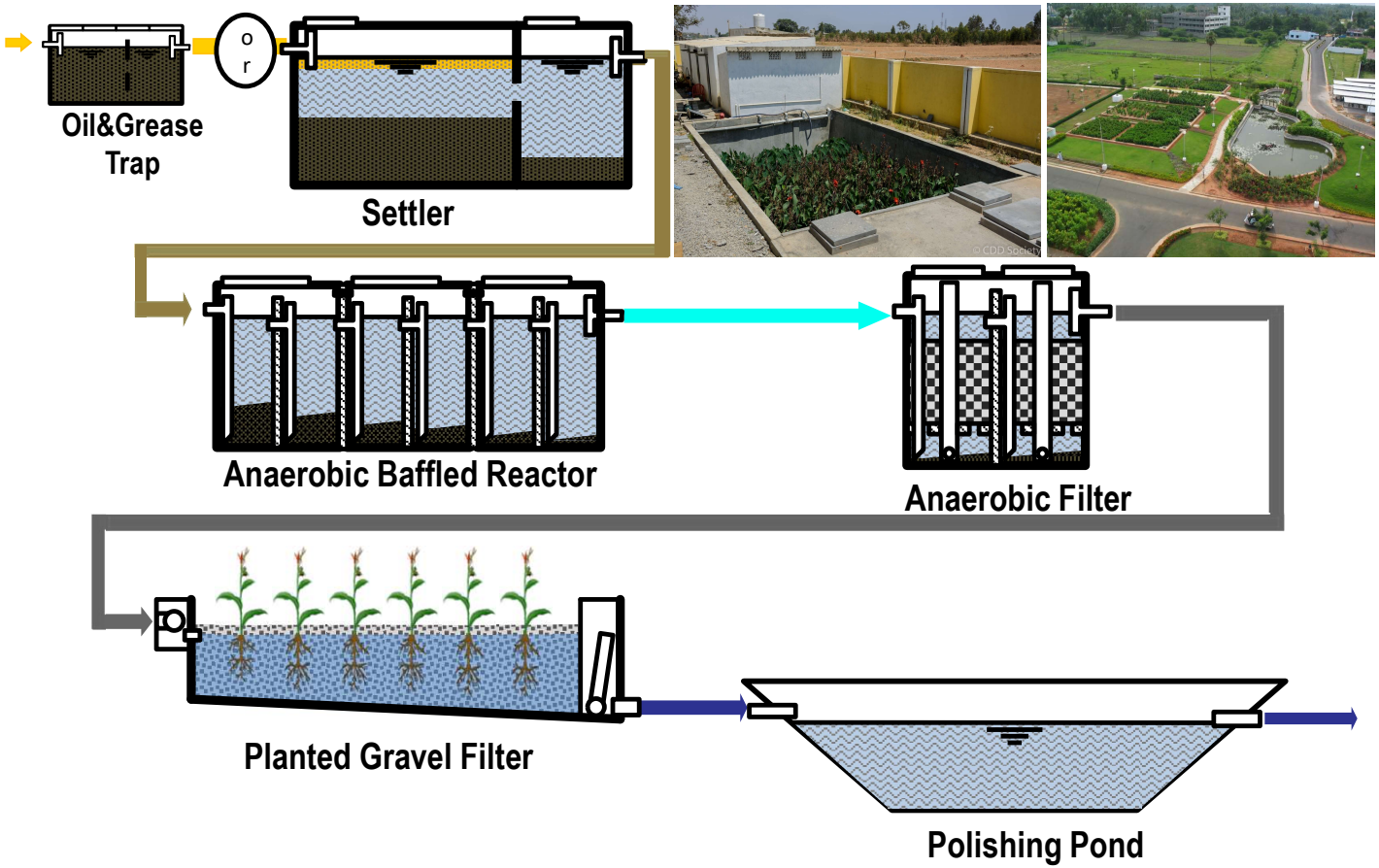
Decentralized STPs- Many technologies available in market

- Robust nature based treatment system
- Low operation & maintenance costs
- Could be designed in a modular form depending treatment requirements
- Requires large area and sufficient buffer zone from inhabitation



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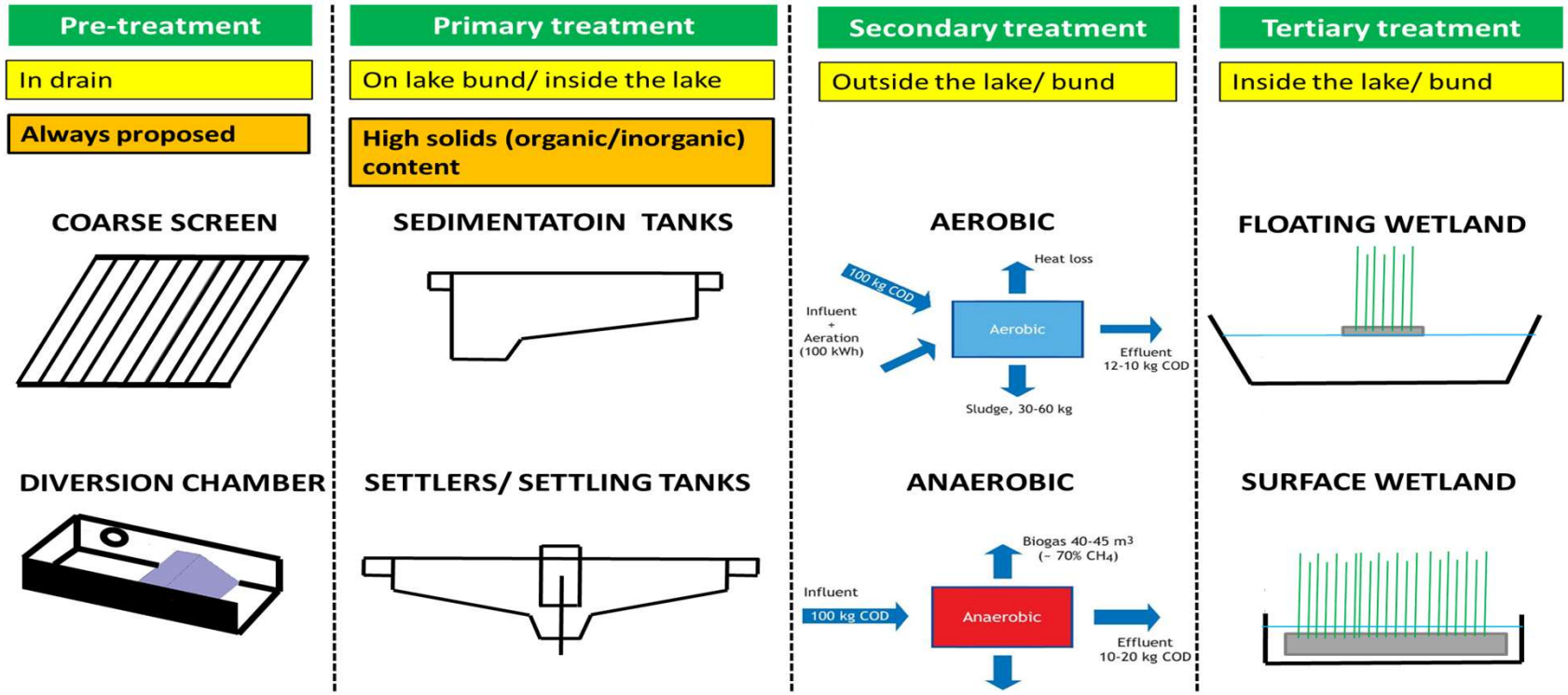
Treatment option at the mouth of waterbodies



- Cost effective and easy to maintain solutions
- Each treatment module provides further treatment from previous one and hence can be contextualized to the particular situation/requirement

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