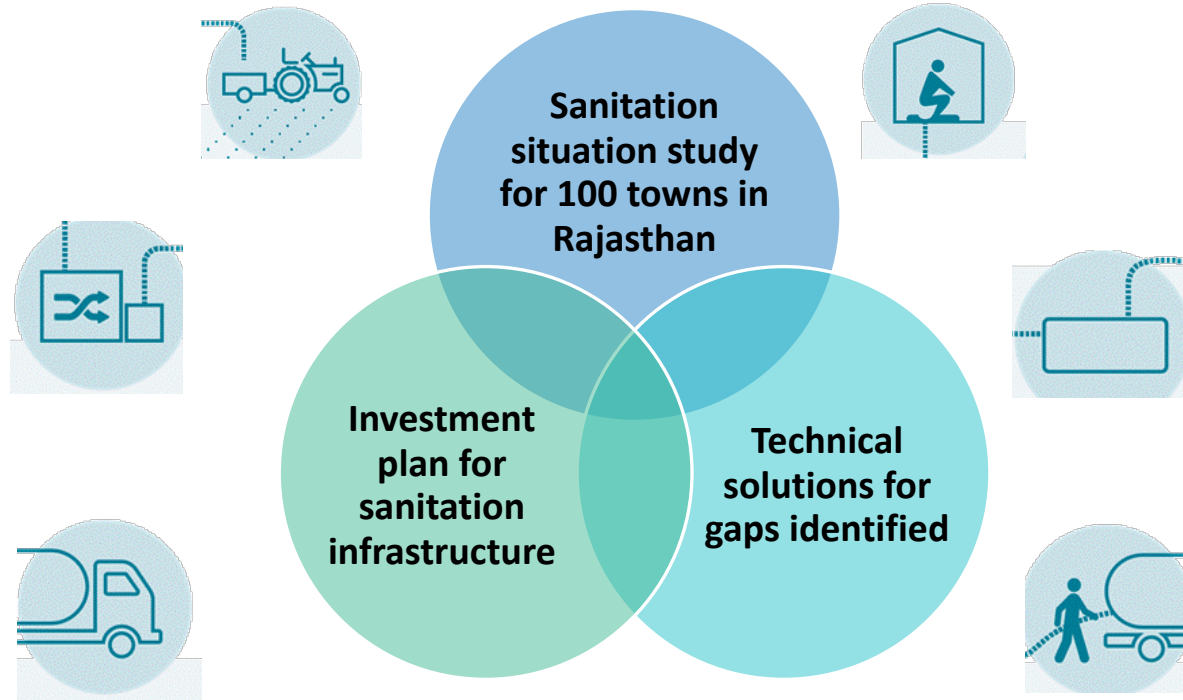


Rapid Assessment Of Sanitation Situation In 100 Towns of Rajasthan

JANUARY – MAY 2017

Study Objectives





Consortium for
DEWATS
Dissemination
Society



National Institute of Urban Affairs





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Transportation

Type of Cesspool vehicle	Number of trucks	Volume of trucks (Avg)	Type and details	Part of cesspool vehicle	Capital cost (INR)
Government owned	44	3500 liters	Tractor mounted	Tractor	4-5 lakhs
Privately owned	100+	4500 liters	Tractor mounted	Vacuum pump and truck	2-3 lakhs



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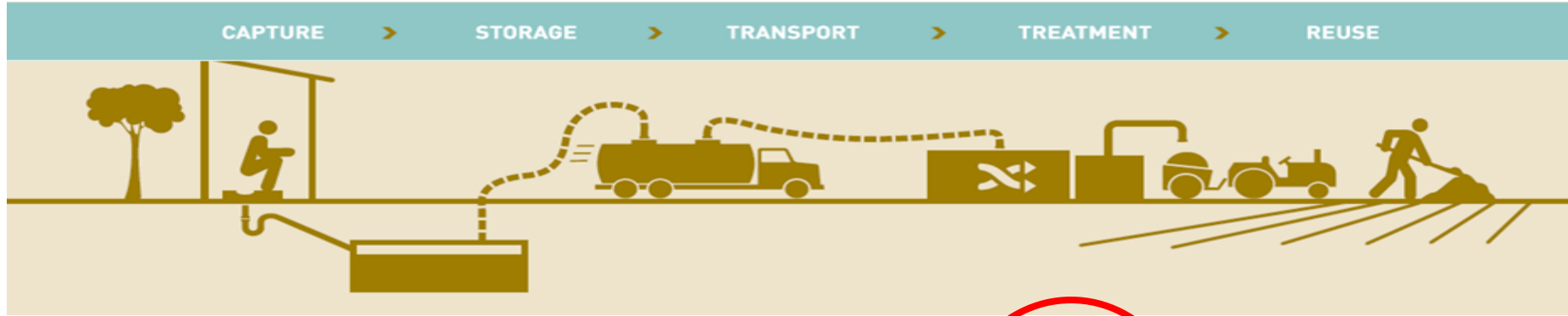


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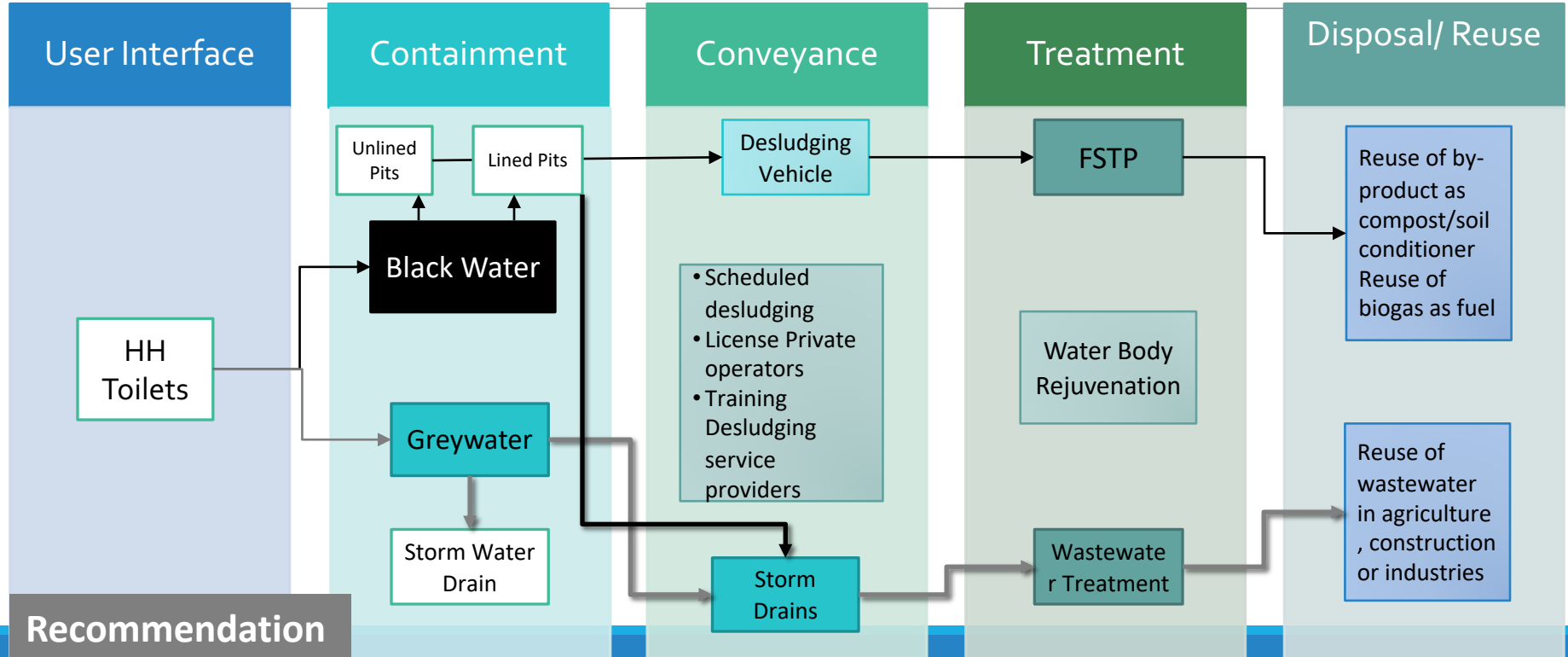


Rajasthan Scenario





Sanitation Situation In Rajasthan Towns





55% Agriculture Farms

25% Water Bodies

20% Open Land



Odourless | Almost zero Electricity* | Safe | 100% Re-use

Centralized Vs FSM

Approach	Notes	Cap Ex per Capita
1. Centralized Sewerage Systems	<ul style="list-style-type: none"> • Difficult and disruptive • Many failed / partial treatment 	Rs 20,000 [pop 500,000= Rs 100Cr]
2. De-centralized Wastewater Treatment Systems	<ul style="list-style-type: none"> • Implement in phased manner • Local re-cycling of water • Regulations—bulk generators invest 	Rs 4,000 – 6,000 [Rs 20Cr]
3. Faecal Sludge Management	<ul style="list-style-type: none"> • Very simple, quick and low cost • Need good logistics operations • Technical skills not easily available 	Rs 750 [Rs 3-4 Cr]




Phulera - Sambhar Cluster DPR

RUIDP, GOVERNMENT OF RAJASTHAN



Beneficiary

Legend

-  Beneficiary population
-  FSTP site
-  ULB

Phulera - Sambhar FSTP

Faecal sludge management plan for cluster towns in Rajasthan

Sambhar
2011 Population: 22327
% of Septic tanks: 89.1%

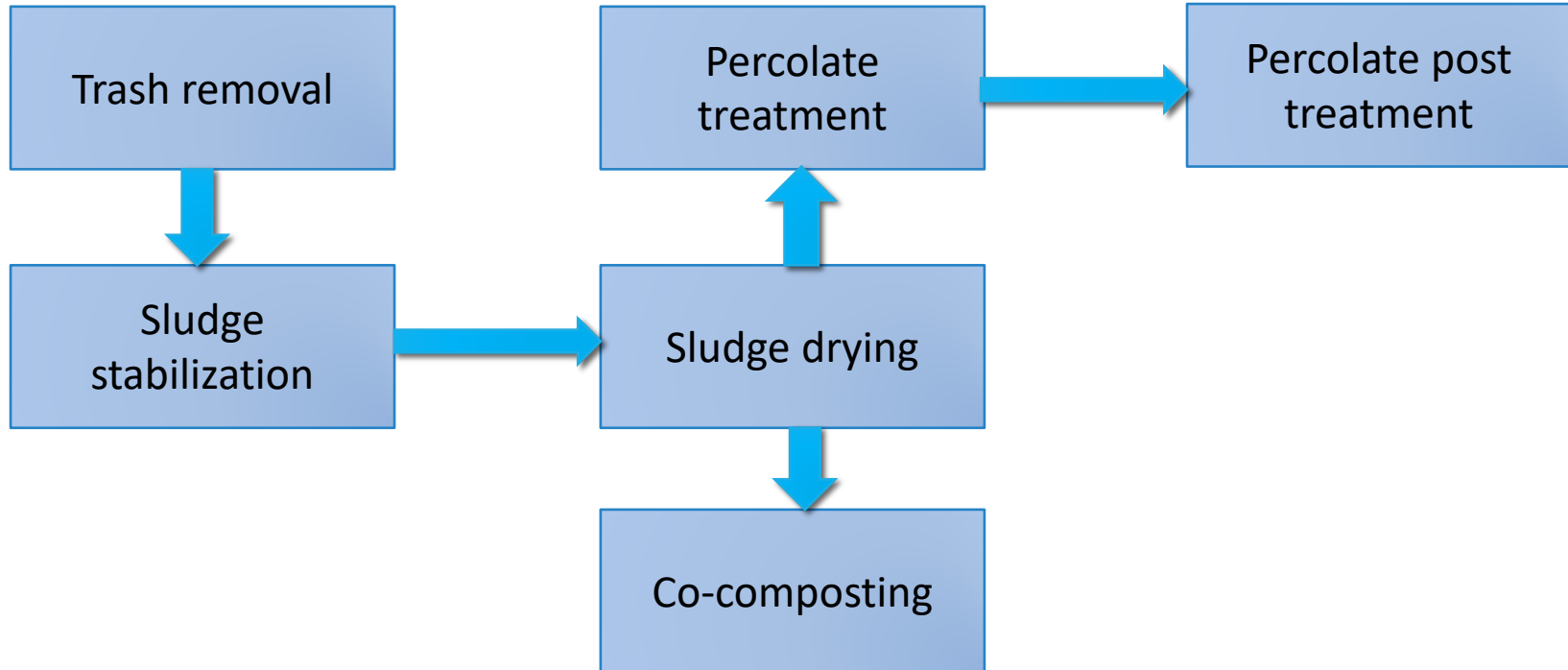
6.5 kms

Phulera
2011 Population: 26091
% of Septic tanks: 95.4%



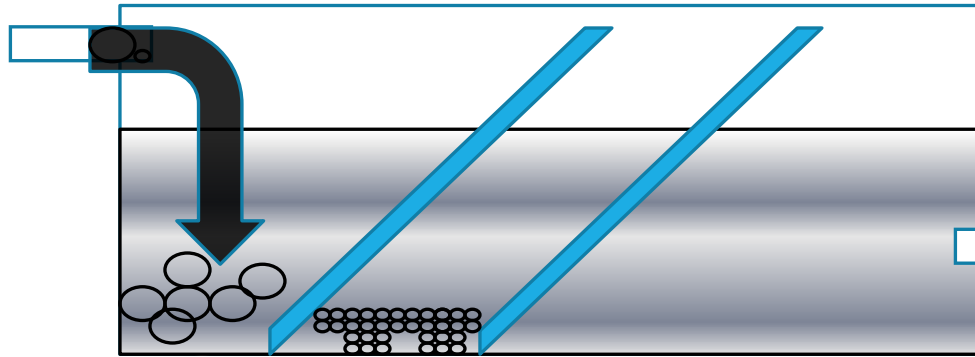


Faecal sludge treatment



Screen chamber

Faecal sludge
from truck

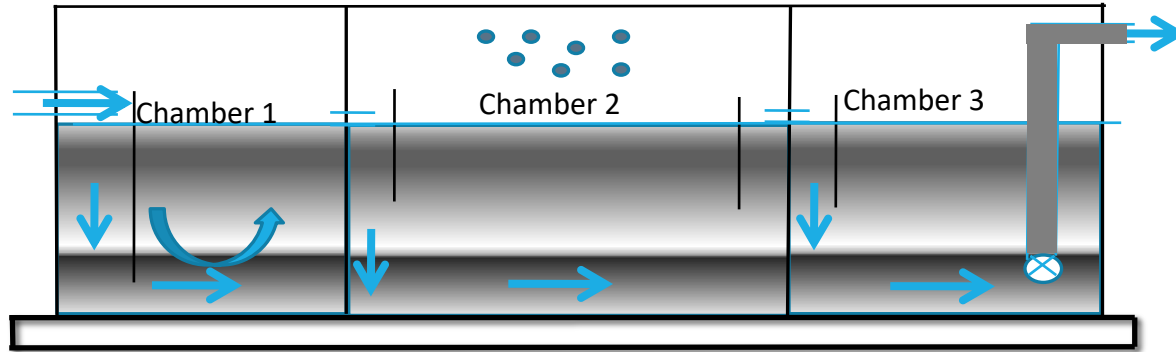


Solid waste

Solid waste free
sludge To stabilization
reactor

Stabilization reactor

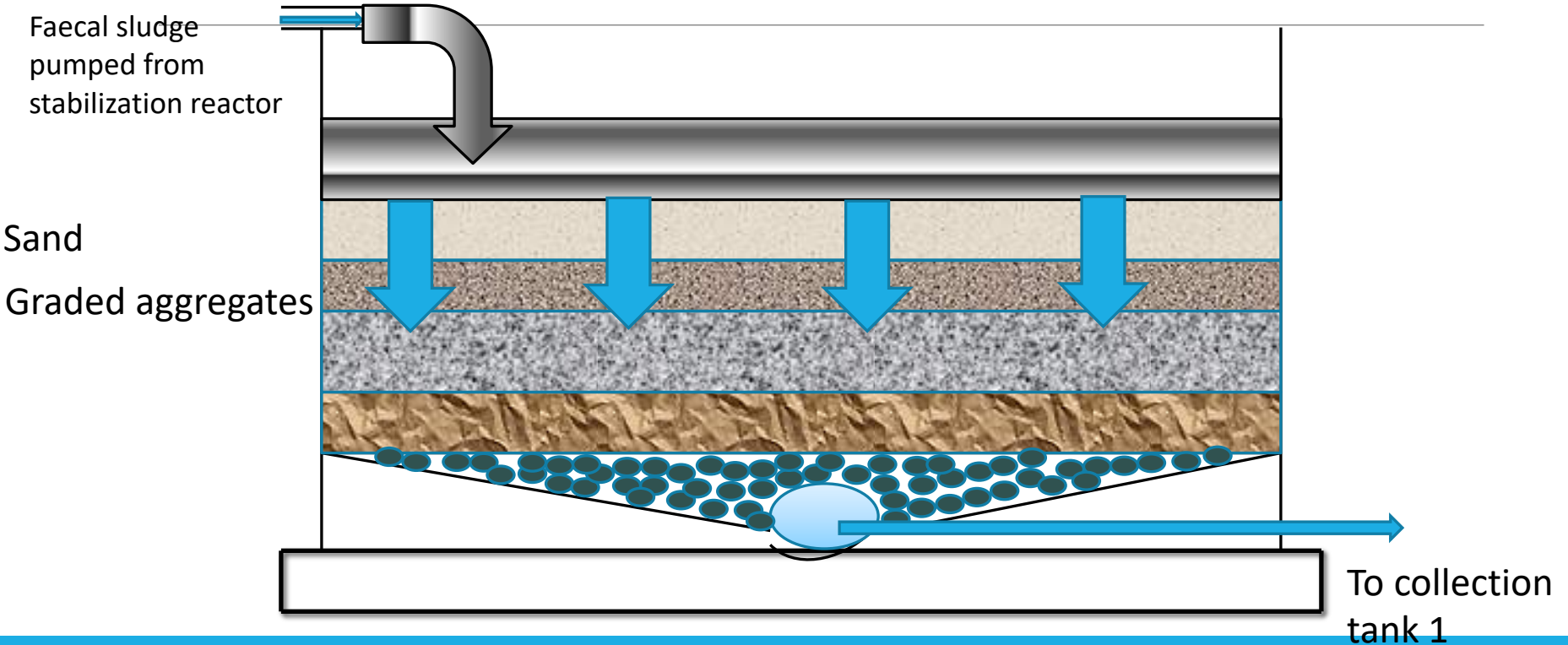
Screened
Faecal
Sludge



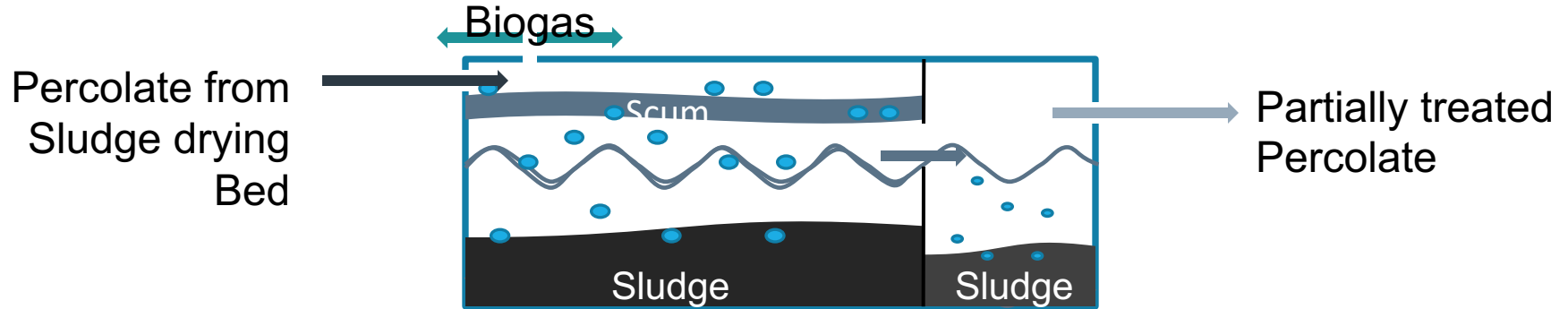
Stabilized sludge
pumped to Sludge
drying bed



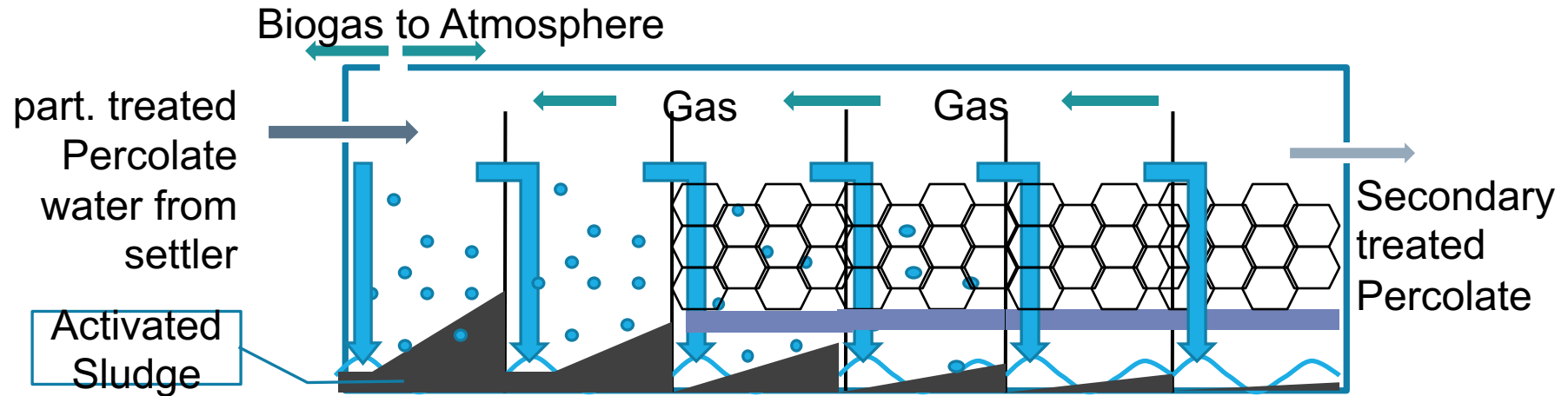
Sludge drying



Percolate treatment- primary

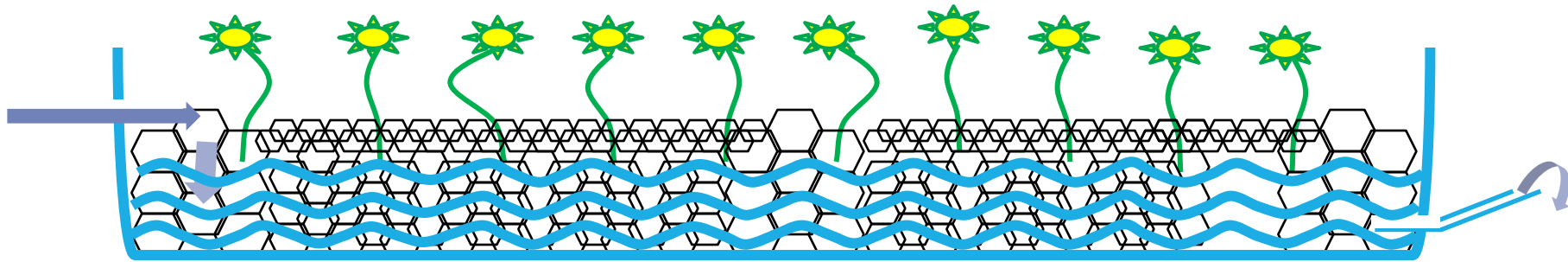


Percolate treatment –Secondary

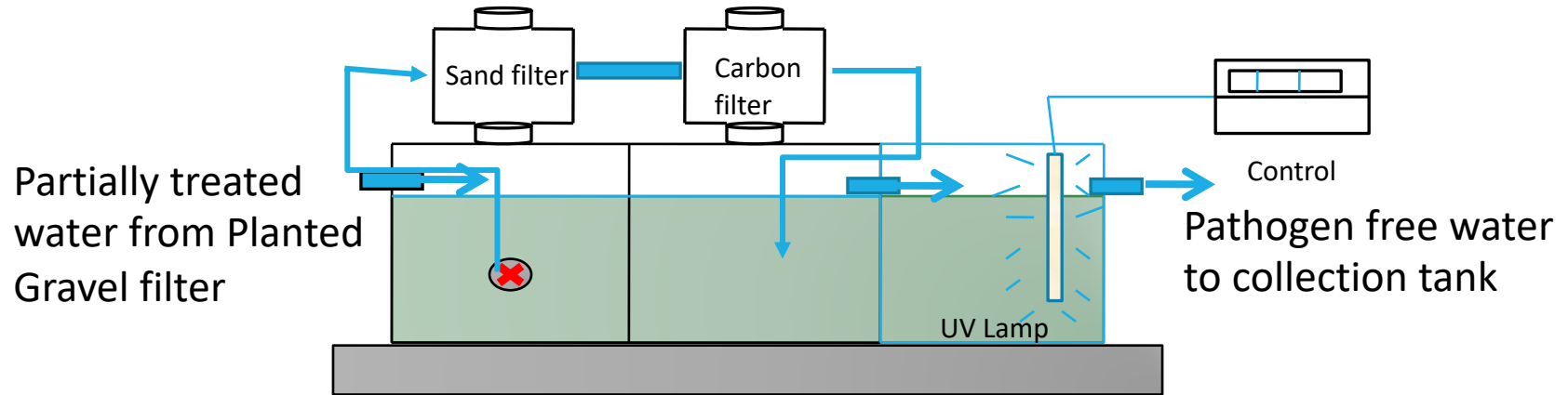




Percolate treatment - Tertiary



Percolate post treatment





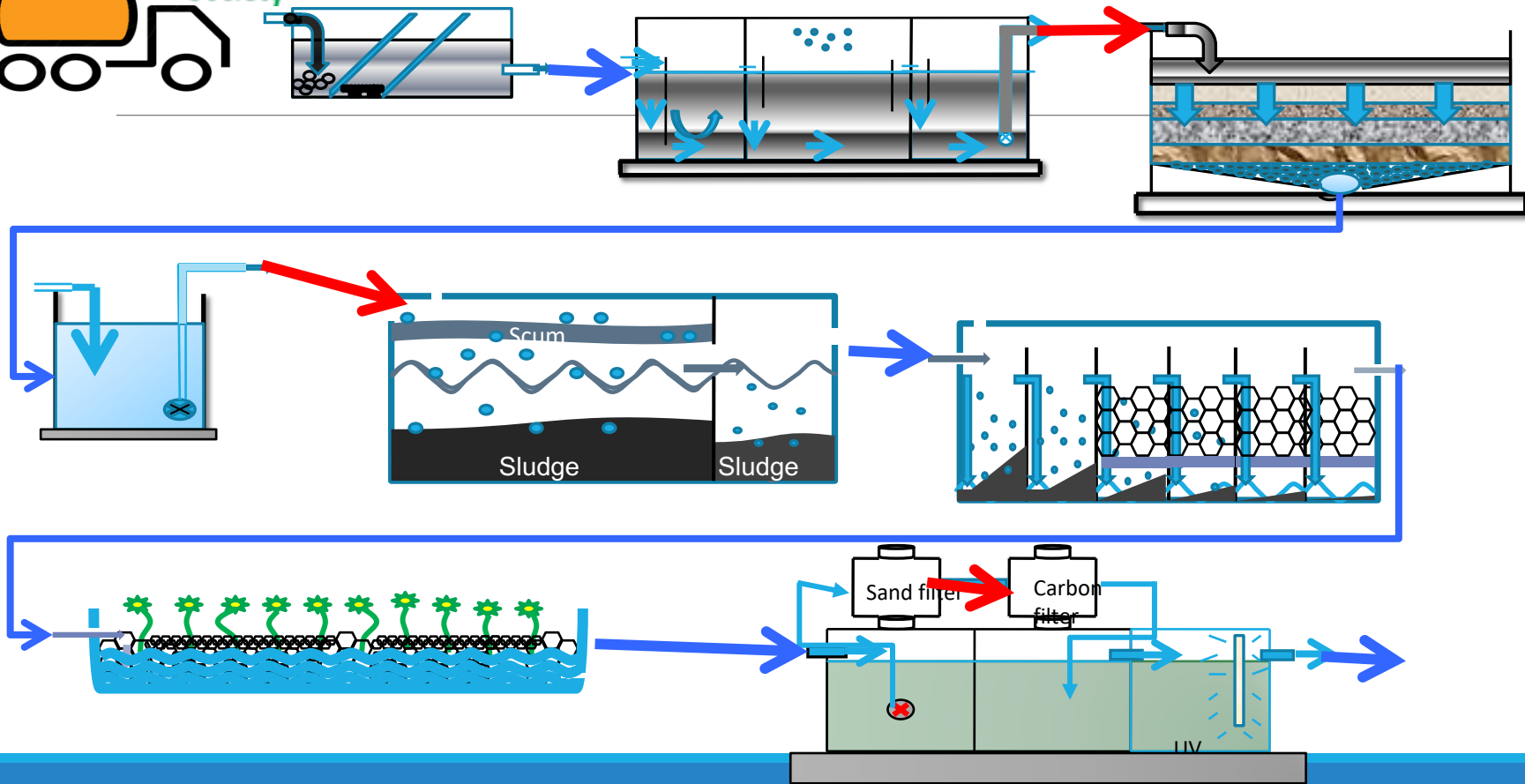
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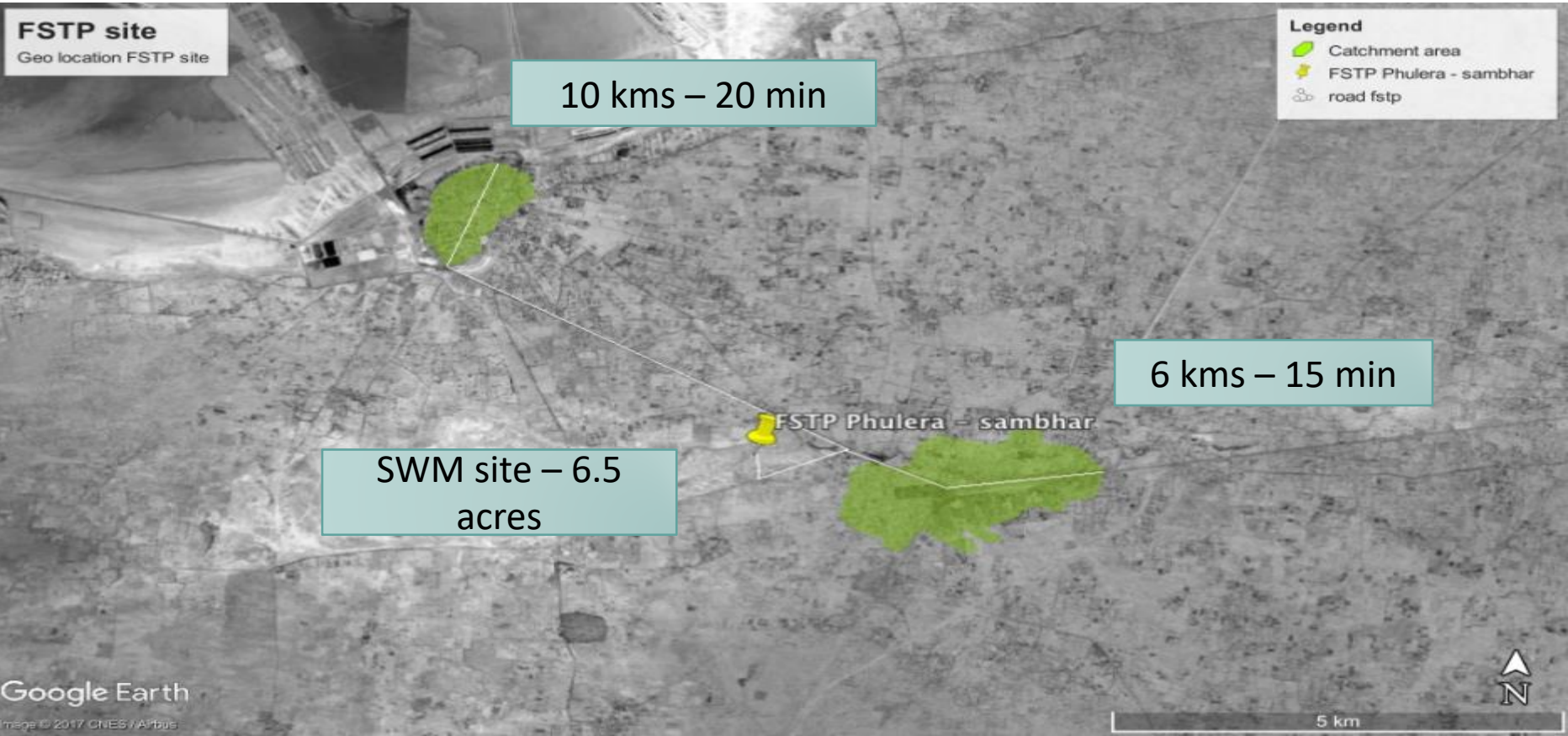
Treatment Technology



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Site - Details







End product Standards

Parameters	Input	CPCB Standards for discharge into water body	Output
COD	30000 mg/L	< 50 mg/L	40 – 50 mg/L
BOD	20000 mg/L	< 10 mg/L	5-8 mg/L
TSS	6000 mg/L	<20 mg/L	12 – 16 mg/L
E-Coli	- N.A.-	< 100 MPN per 100 mL	< 100

Parameters	Characteristics
pH at 5 % suspension	5- 7
Moisture %	10 - 30 %
Organic carbon %	10 – 25 %
Organic Nitrogen	2- 5 %
Phosphorous	0.2 – 1%
Bulk Density (Specific gravity)	0.65 – 0.9

Project Summary

Treatment capacity	20 KLD
Number of trucks per day	6 – 8 trucks
Treated water per day	12 – 16 KLD
Bio solids per day	2 tons
CAPEX	Rs. 1.89 crore
Per Capita Capex	Rs 400
OPEX per annum	Rs. 8.5 lakhs
Per Capita Opex per annum	Rs 20 Per Annum
Number of operators	1
Area required	1. 3 acres



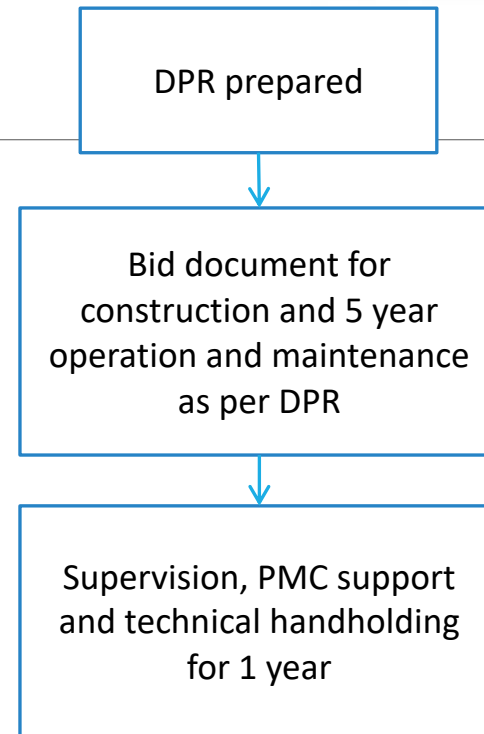
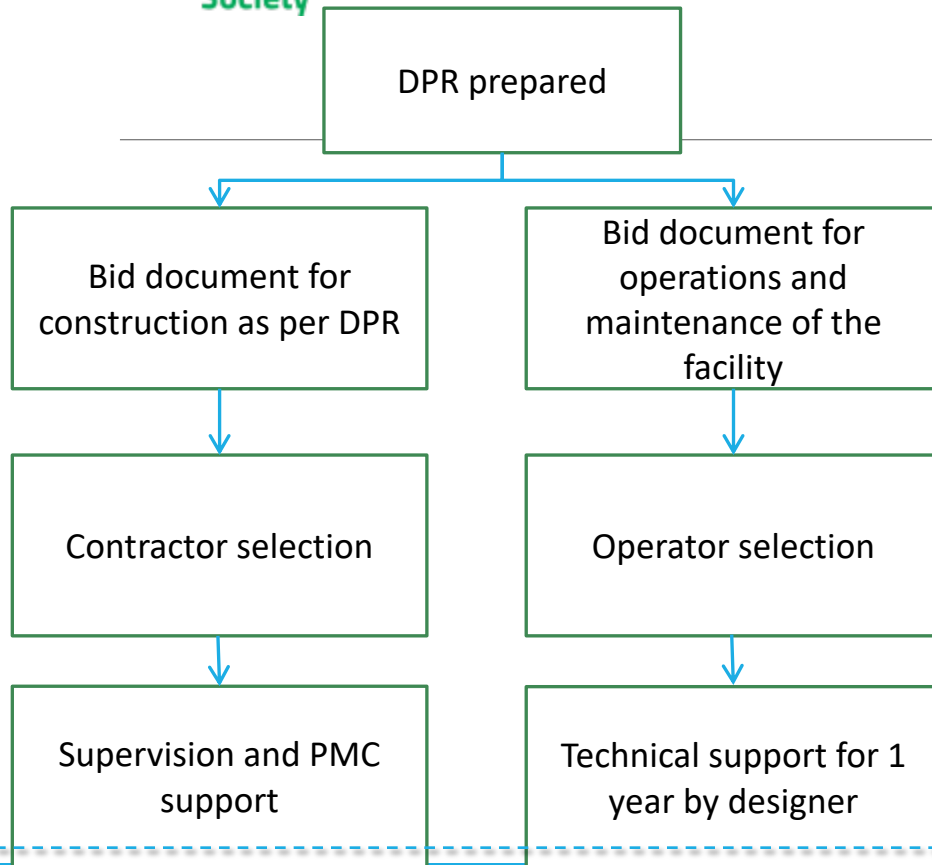
Proposed Operational Plan

Particulars	Amount
Annual expenditure FSTP and Co- composting	Rs. 15,92,000
Sale of Compost – Annual income @ Rs.1 per kg	Rs. 12,00,000
¹ Deficit	Rs. 3,92,000

1. Property Tax to fund Deficit
2. Desludging fee from FSTP O & M



Way forward



Build and O&M contract

Separate build and O&M contract

Project Management Unit

DEPARTMENT OF LOCAL SELF GOVERNANCE
GOVERNMENT OF RAJASTHAN



सत्यमेव जयते

Government of Rajasthan



Sampoorna swachhata



Program goal

Faecal sludge
management for 100
towns in Rajasthan

100 towns to have
treatment plants to
manage their FS

100 towns to have a
plan for treating and
managing their grey
water

Capacity building of
government staff and
technical personnel in
scaling up FSM to other
cities

Engineering design

- Prepare data collection templates and analysis
- Design of collection, transportation and treatment of FS systems - DPR

Procurement

- Estimation and rate analysis as per GOVT norms
- Preparation of tender bid documents for services and civil works

Planning and business management

- Programme planning
- Business models for FSM
- O&M plan

Coordination

- Follow up with ULB on data collection and other requirements
- Represent PMU during data collection by consultants

Number	Activities	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
A1	Establishing and mainstreaming the program and PMU						
A2	Procurement support of consultants - structural, soil, lab, etc						
A3	Data collection and analysis						
	Support the ULB in data collection						
A4	Preparation of DPRs						
	Bid document for construction						
A5	Statutory clearances						
	Bid selection and start of construction – implementation support						

Phase 1: Towns Targeted

Kishangarh Renwal	Vijainagar (Ajmer)	Shri Karanpur	Ramganj Mandi
Ramgarh Shekhawati	Sarwar	Anupgarh	Chhabra
Khandela	Kekri	Rajaldesar	Aklera
Losal	Asind	Kapasan	Bhawani Mandi
Pilani	Gulabpura	Piparcity	Lakheri
Vidyavihar	Shahpura	Nohar	Gajsinghpur
Mukandgarh			

Any questions?

