



Fecal Sludge Treatment Plant (Private Model)

BORDA/ CDD Society,
Kengeri Bangalore



current situation of client

Client

- portable toilet business
- leading company in India in this segment
- 620 toilets in Bangalore
- growing business
- searching for innovative solutions for management of **fresh sludge** from toilets in Bangalore and for all other cities of their operation

- **BORDA** is Bremen based NGO specialized in providing sanitation solutions.
- **CDD Society** is Bangalore based NGO and it is the main partner of BORDA in South Asia.
- The current main focus of BORDA/CDD Society is on providing FSM solutions and O&M of **decentralized sanitation** infrastructure
- The current work of BORDA and CDD Society is **funded by BMGF, EU, BMZ and GIZ.**
- In collaboration with Private Client, both BORDA and CDD Society wish to find **market based solution for FS management.**

problem description

- no linking of 620+ portable toilets to sewerage network of the city
- client is not satisfied with current approach of fresh sludge disposal



Bangalore's specific situation

- safe disposal point is not conveniently located (long distances, traffic)
- regulatory obstacles
- off-site management of staff is challenging
- moral liability



additional problems in other cities

- most cities do not have STPs and provision of FS disposal
- forward integration of business (moving up the sanitation value chain)

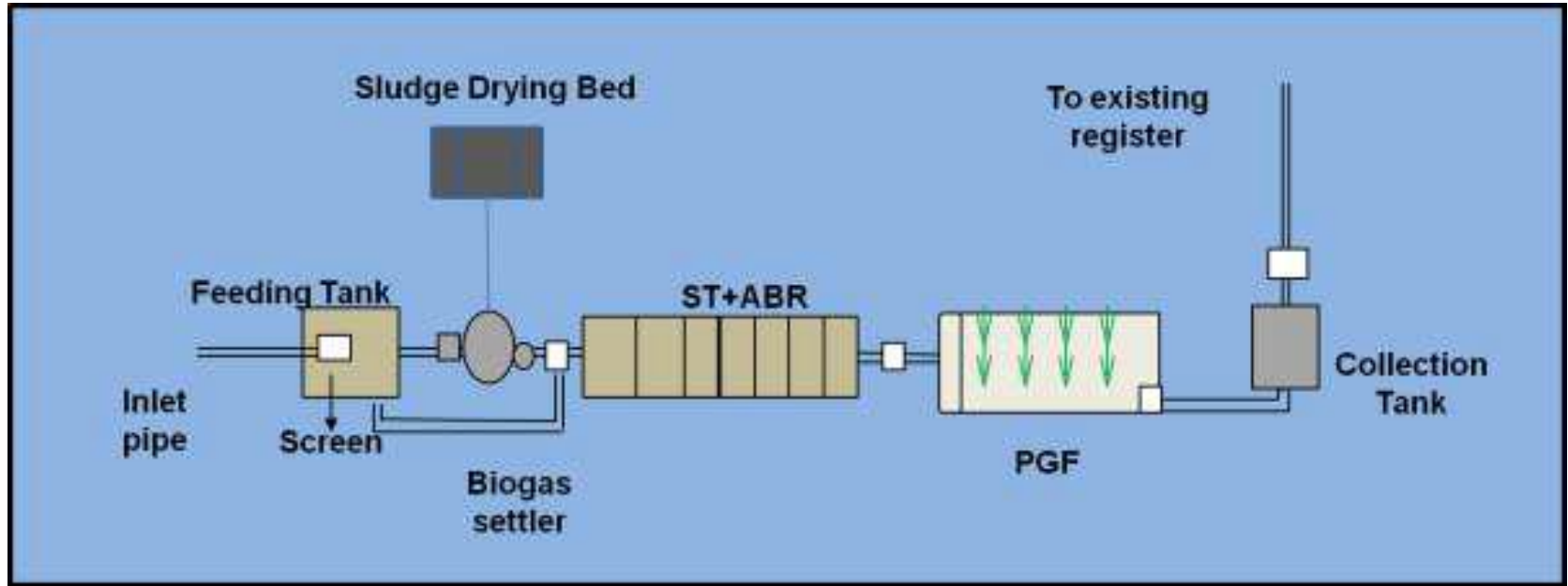
description of the solution

- size 3 KLD
- number of truck a day 1
- area requirement 96 sqm
- nutrient water 2000 Ltrs a day
- sludge generation 60 kg a day
- gas generated in a day 0.225 M3
- energy requirements Rs. 3000 per month

- **zero capital investment** from client except a security deposit
- **monthly lease amount** is Rs. 18,000 for a 10 years lease period
- **asset** will be transferred to the client after 10 years and the **security deposit** will be returned
- **implemented** in 20 days from signing of contract
- **scale up** is possible and offered, **additional income** from water, manure and biogas will be for the client
- client can choose to do **O&M**
- **significant savings** for the client which is more than the monthly lease
- **sustainable** and environmentally friendly solution
- enrich the **brand value** for the client



Proposed Technical Concept

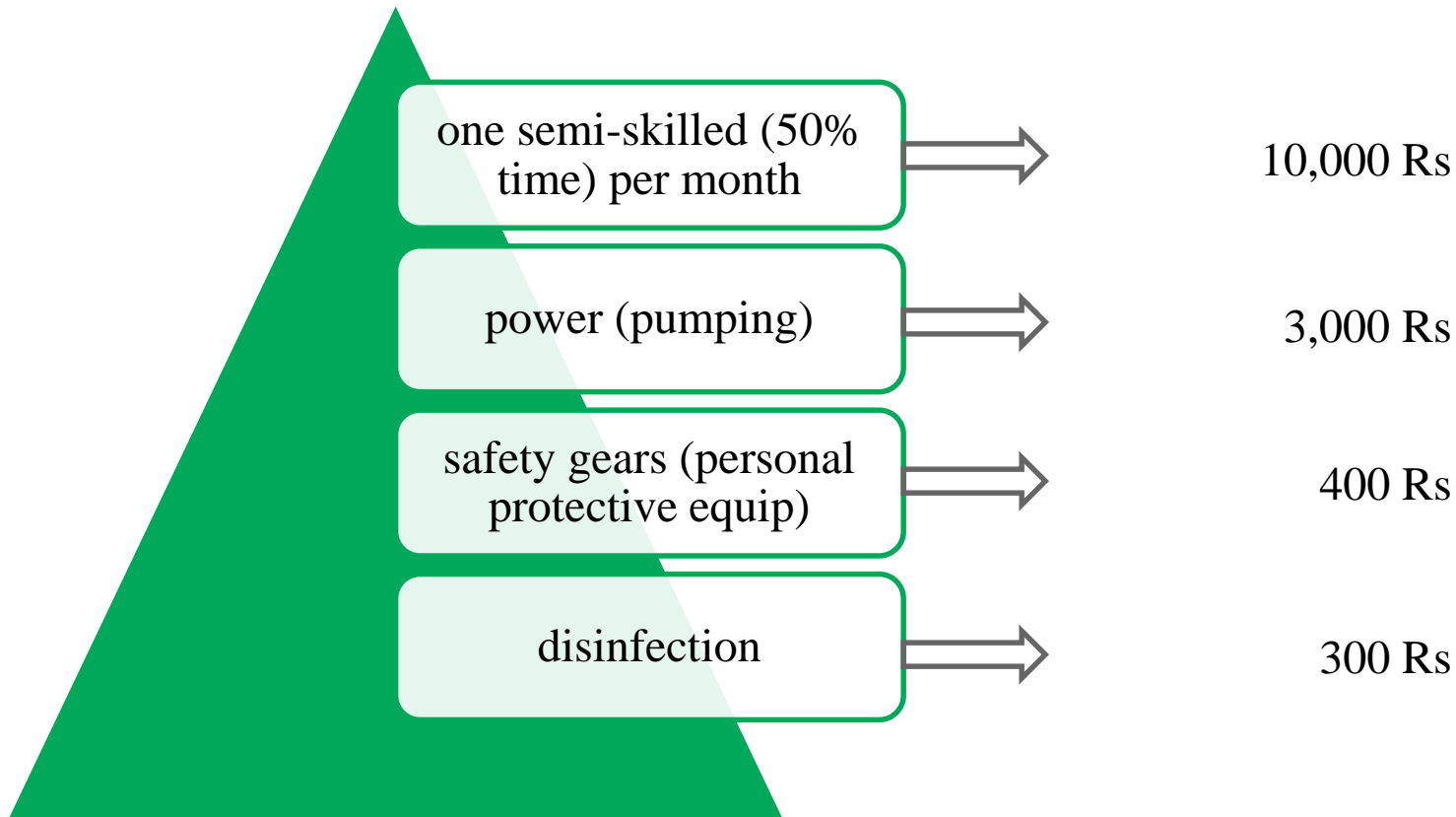


financial savings for the client

cash savings	Rs per day
unloading charge per truck	200
transportation savings per truck 20 km reduction in distance driven daily at a cost per km of Rs 25	500
total cash savings per day	700
total cash savings per month	21000
non cash savings/income	
peace of mind/ convenience	500
water sales	200
compost sales	120
total non cash savings per day	820
total non cash savings per month	24,600
total savings per month	45,600

expenses	costs in Rs
Anaerobic Baffle Reactor (ABR)	453,000
Feeding Tank (FT)	228,310
BioGas Digester (BGD)	204,500
Collection Tank (CT)	177,500
Sludge Drying Bed	67,000
Labour Charges	50,000
Planted Gravel Filter (PGF)	32,000
Disposal	13,500
By Pass	7,000
total	1,232,810

opex per months



total opex

13,700 Rs

Filter material might need to be replaced once in six month, included if availed O&M service from CDD, otherwise to be paid by the client as per actual.

financial and management models for service

1.
lease
only

- Monthly payment of **Rs. 18000**
- One-time training fee of Rs **25,000**
- Client to do O&M
- Zero capital investment

2.
lease +
O&M

- Monthly payment of **Rs. 33000**
- BORDA/CDD Society to O&M
- Zero capital investment

3.
Turnkey

- One time payment of **Rs 1,232,810**
- Client to do O&M

leasing of infrastructure for 10 years with a security deposit of Rs 90,000

transferring of infrastructure and payback of the deposit after 10 years

- lease agreement review and signature
- land demarcation
- provide power supply
- in case the O&M is done by the client
- appointment of operator (formal letter to CDD Society) and application for training for O&M
- training for O&M
- celebration



payment procedure

- **90k security deposit** at contract signing
- **monthly lease** payment starts from the first month (before the 5th of that month)
- **monthly O & M fee** payment from the first month (before the 5th of that month)
 - only if CDD takes the O&M contract
- **power supply** to be provided by the client
- security deposit and any lease payment will be returned in **case of non-performance**



- R&D in the area of FSM and sanitation
- sanitation sector development
- piloting ideas leading to long term gains for the client and the society
- forming partnerships with leading companies in the sector



BORDA



Consortium for
DEWATS
Dissemination
Society



BORDA

Bremen Overseas Research
and Development Association

www.borda-net.org

...thank you!