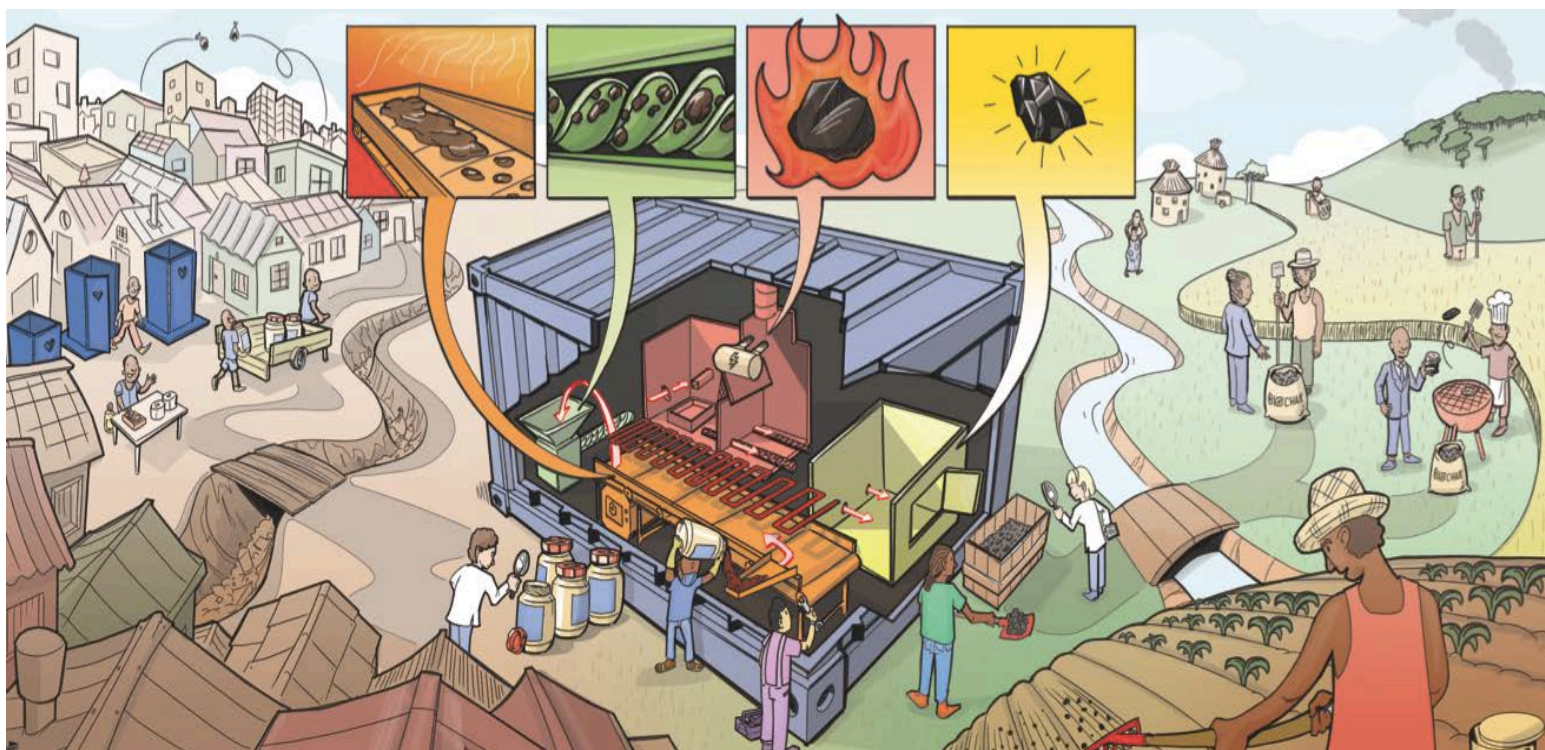


# Community scale fecal sludge and septage processor in an Urban Indian Environment



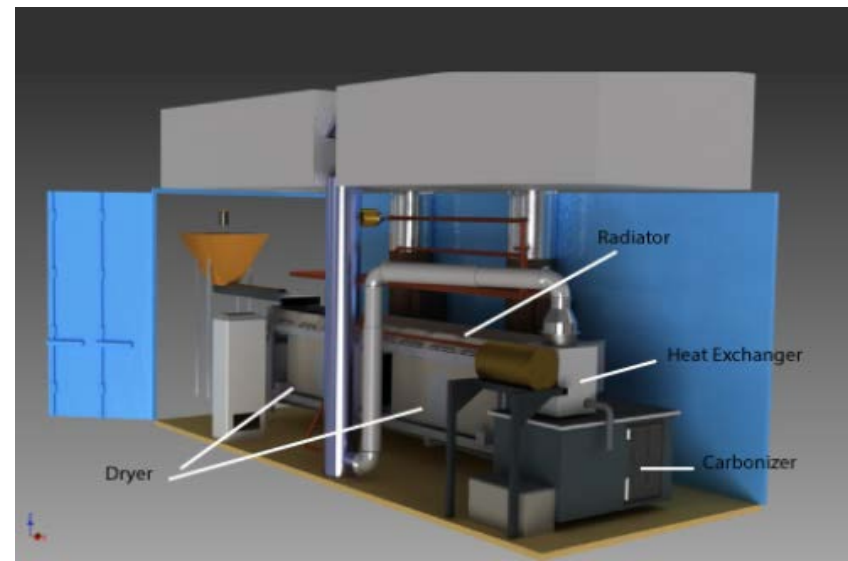
20<sup>th</sup> October 2016

# About Tide Technocrats

- Started in the 1990s, TT has been traditional a technology company
- Areas of work
  - Solid Waste Management
  - Sanitation
  - Renewable Energy
- Team of about 20 engineers and social scientists

# Components of the chemical energy processor

- Four interdependent components
  - Dewatering unit (integrated with pathogen kill)
    - Reject water reuse
  - sludge drier
  - charring of the dried sludge controls for automated operations with sensors and remote data monitoring
  - an exhaust treatment system
    - Catalytic converter
    - Odour control management
- Integrated into a containerised solution



# Working

- Septage, at ~ 95% moisture is dewatered to ~ 75% moisture
- The belt drier receives ~ 75 % moisture sludge and dries to 30 % moisture
- The dried sludge is fed into the charring unit and converted to biochar
- The flue is treated through a catalyst and a heat recovery unit and discharged
- The hot water/air generated is used for drying in the belt drier.
- The drying air is treated through a carbon filter prior to discharge
- Reject water, devoid of pathogens, used for agri-culture / nursery

# Video

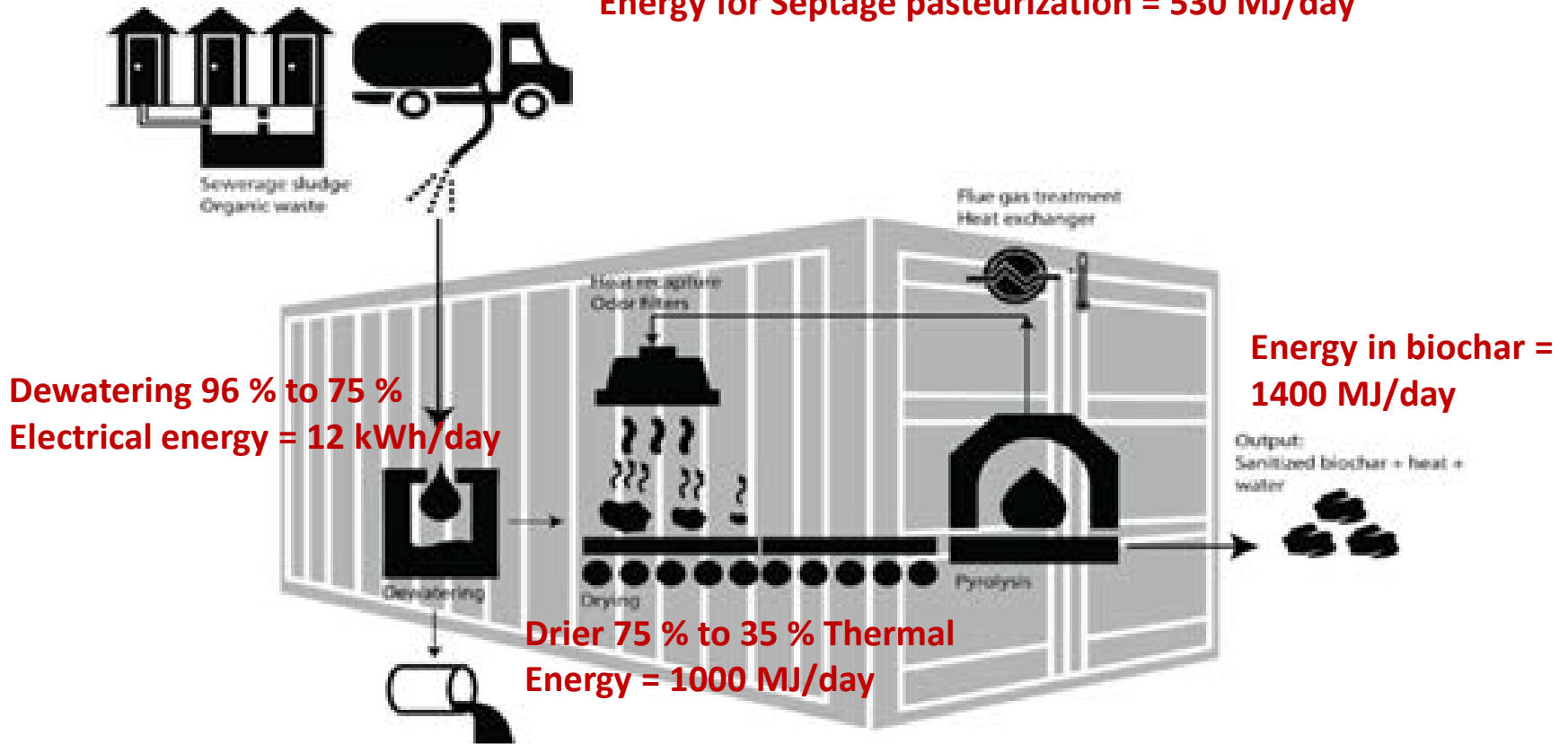
# Proposed Project Locations

- Wai, Maharashtra
- Nelamangala, Karnataka
- TBI, Tamil Nadu

# Energy balance

Septage per day = 9000 kg/day, at 4% solids  
 Solid is 360 kg / day at 10000 kJ/kg  
 Total Energy available is 3600 MJ/day

Energy for Septage pasteurization = 530 MJ/day



Total Electrical Energy = 80 kWh/day or 288 kJ in a CHP with heat recovery for thermal requirements

**There is enough thermal energy in the solids to meet all heat requirements**

# Progress so far

- The unit has been extensively tested at sludge input of 60 kg at 75% moisture drying to 23 kg at 30 % moisture in the drying unit and an output of 4kgs of biochar per hour.
- Two models identified

Septage 4% Solids	Fecal Sludge 75% Moisture	UDDT/Dried 35% Moisture	Dry Biomass 0% Moisture
1,200 gal/day 4,500 L/day	2,700 lbs/day 1,200 kg/day	600 lbs/day 275 kg/day	400 lbs/day 180 kg/day
2,400 gal/day 9,000 L/day	5,300 lbs/day 2,400 kg/day	1,200 lbs/day 550 kg/day	800 lbs/day 360 kg/day





# Thank you

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