



Source of electricity:

- Internal production from the micro fuel cell and the heat released during combustion of products
- Solar PVC
- Wind
- Hand / bicycle crank
- Electricity grid

Source of heat:

- Internal production from the combustion of the products (dried sludge, biochar, syngas, H2, biogas)
- Solar concentration
- Combustion of wood charcoal
- Electricity

Disposal (incineration, landfill, cleaning by black soldier flies, etc..) after classification

! Innovative pit latrine emptying with auger !

! Use of iron oxide nanoparticles to increase biogas yield !

Bed / cartridge filtration, auger separation, passive diversion interface, settling tank, dewatering, hydrocyclone
! Use of super hydrophobic material for liquid / solid separation !

! Use of high absorbent nanoparticles for improvement of heat sterilization !
! Disinfection through intensive mixing by the vortex bioreactor !

! Synthesis of biodiesel from fatty acids !

! Gasification by plasma technology !

Possible disinfection by heat, UV, hypochlorite, electrochemical

Possible disinfection by heat, UV, hypochlorite, electrochemical

Possible viscous heating for disinfection

Using oxygen or nitrate as oxidant

Flocculation / precipitation

Distillate (possible further clarification in bed filtration)

Concentrate (possible further concentration by forward osmosis)

Possible storage, stabilization (nitrification)

Biogas

Syngas, heat

Biogas

Thermal convective or radiative

Drying

Conditioning (extrusion...)

Anaerobic digestion, fermentation, composting (using earthworms, beetles, snails, black soldiers...)

Biological treatment

Addition of sawdust, ash, biodegradable polymer...

Storage with cover material

Pyrolysis / Gasification / Combustion

Biochar, Ash

Fertilizer
Soil container
Fuel

Stabilized sludge

Fertilizer
Soil container
Fuel

Water

Reuse

Brine, precipitates

Fertilizer