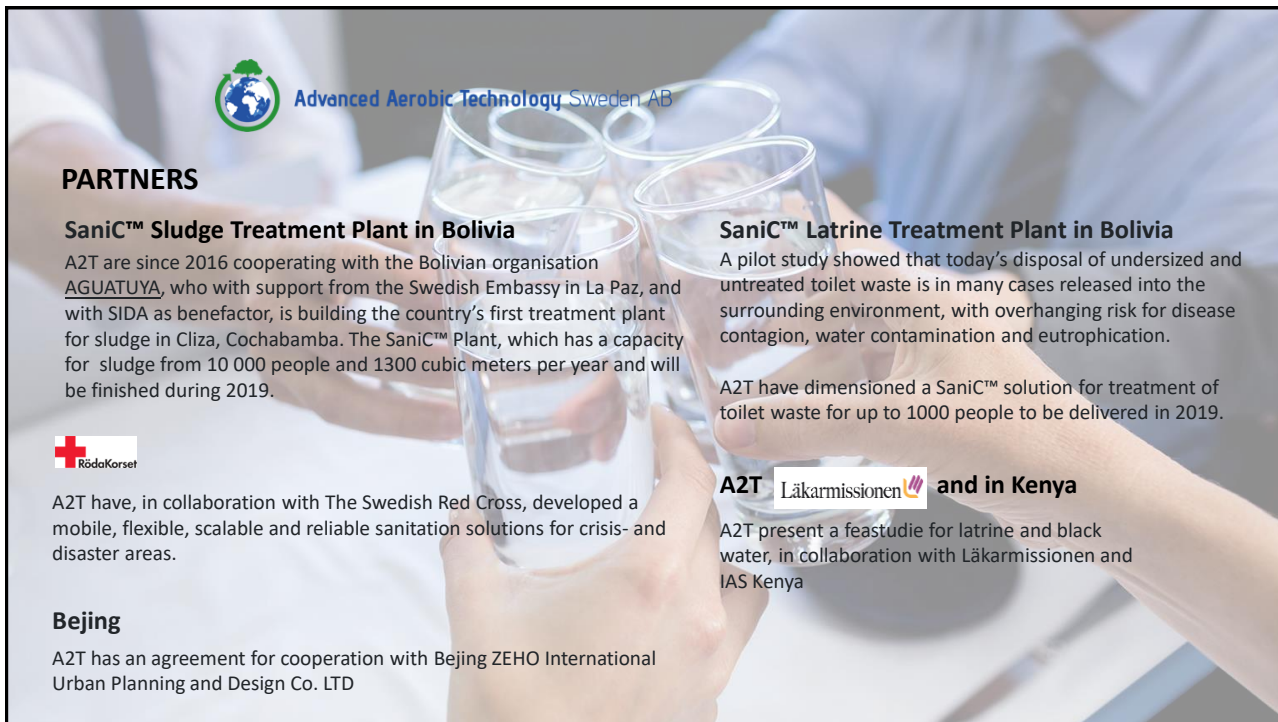



1



2






Advanced Aerobic Technology Sweden AB

PARTNERS

SaniC™ Sludge Treatment Plant in Bolivia

A2T are since 2016 cooperating with the Bolivian organisation AGUATUYA, who with support from the Swedish Embassy in La Paz, and with SIDA as benefactor, is building the country's first treatment plant for sludge in Cliza, Cochabamba. The SaniC™ Plant, which has a capacity for sludge from 10 000 people and 1300 cubic meters per year and will be finished during 2019.



A2T have, in collaboration with The Swedish Red Cross, developed a mobile, flexible, scalable and reliable sanitation solutions for crisis- and disaster areas.

Beijing

A2T has an agreement for cooperation with Beijing ZEHO International Urban Planning and Design Co. LTD

SaniC™ Latrine Treatment Plant in Bolivia

A pilot study showed that today's disposal of undersized and untreated toilet waste is in many cases released into the surrounding environment, with overhanging risk for disease contagion, water contamination and eutrophication.

A2T have dimensioned a SaniC™ solution for treatment of toilet waste for up to 1000 people to be delivered in 2019.

A2T Läkarmissionen and in Kenya

A2T present a feastudie for latrine and black water, in collaboration with Läkarmissionen and IAS Kenya

3





Advanced Aerobic Technology Sweden AB

**Certified A2T Agents
all over the globe**

- ✓ Kenya
- ✓ Tanzania
- ✓ Mozambique
- ✓ Kina
- ✓ Bolivia
- ✓ Sydafrika
- ✓ Jordan
- ✓ Ghana



Tengo
Kenya



Kristian
Ghana



Daniella
Bolivia



Kristen
Sydafrika
Mozambique

4



5

Advanced Aerobic Technology Sweden AB

BAD SANITATION

- Water contamination
- Propagation of illnesses by a poor sanitation service
- Loss of valuable nutrients for the agricultural production
- Eutrophication: enrichment in nutrients of an aquatic ecosystem.

SANITIZED VALUE

- ✓ Collection of black water (urine and faeces together)
- ✓ Saving the use of clean water for these services
- ✓ Reduction of the impact of pollution to the environment
- ✓ Closure of the nutrient cycle
- ✓ Production of a valuable biofertilizer

6



Advanced Aerobic Technology Sweden AB

BAD SANITION

- Contamination of water and land
- Health problem
- Loss of values



SANITIZED BIOFERTLIZER

2000 PERSONS GIVE AN ANNUAL BIOFERTILIZER VALUE OF 19 270 USD

Produced Kg / year				2000 persons give biofertilizer to a production of 125 000 kg cereals each year !	Equivalent value USD / year			Value NPK USD / year
Persons	Nitrogen N	Phosphorus P	Potassium K		N	P	K	19 271
2 000	7 980	1 200	2 400		13 007	3 480	2 784	

7



Advanced Aerobic Technology Sweden AB

BAD SANITION

- Contamination of water and land
- Health problem
- Loss of values



SAVING FRESH WATER

Toilet flush volume <i>Liters</i>	Number of houses	Number of family members	Total number of individs	Flush volume / person and 24 h <i>Liters</i>	Flush volume / 2000 persons and 24 h <i>Liters</i>	Used fresh water / year <i>Liters</i>
Dry toilets	500	4	2000	1,5 (produced volume)	1 095 produced volume)	0
0,5 vacuumtoilet	500	4	2000	4	8 000	1 825 000
1	500	4	2000	6,5	13 000	3 650 000
3	500	4	2000	16,5	33 000	10 950 000

Every person produce in average every 24 h

- 1,4 l urine
- 0,1 l faecal

8

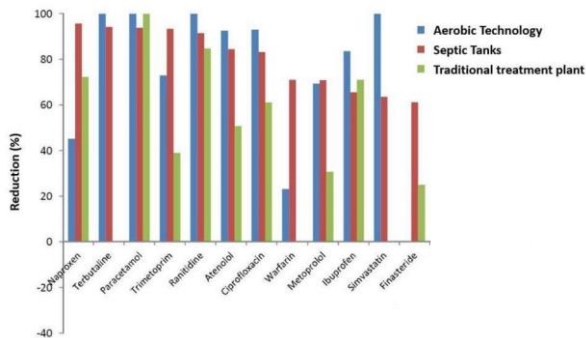


Advanced Aerobic Technology Sweden AB

BAD SANITATION

- Contamination of water and land
- Health problem
- Loss of values

REDUCING PHARMACEUTICALS



SaniC™ aerobic treatment process reduce pharmaceuticals more efficient than septic tanks or traditional treatment process

9



Advanced Aerobic Technology Sweden AB

BAD SANITATION

- Contamination of water and land
- Health problem
- Loss of values

REDUCING INVESTMENTCOST



- ✓ 80 – 90% less pumping of waste water
- ✓ 80 – 90% less pumping of fresh water
- ✓ 80 – 90% less sewage for disposal and treatment



SaniC™ aerobic treatment plant reduce investment costs comparing to traditional construction of waste water pipes and treatment plant

10



Advanced Aerobic Technology Sweden AB



SaniC™ is a complete scalable sanitation treatment system that eliminate harmful microorganisms. SaniC™ can be stationary as well as mobile and modular. SaniC™ can be constructed for latrine, black water and sludge or a mix of those. SaniC™ is scalable, from less than hundreds to thousands and more of people and adaptable to local conditions. The outcome is fully sanitized and valuable nutrient biofertilizer.



11



Advanced Aerobic Technology Sweden AB



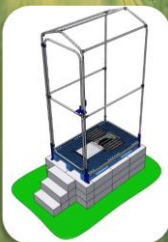
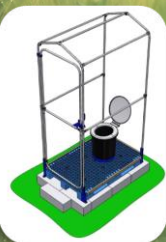
SaniTrin™ is an easy but solid solution that offers a flexible latrine in areas where water is of shortage. The construction makes it possible to have both a solution where the user can stand or sit down. The lightweight material makes it easy to ship, put together and disassemble. One unit of SaniTrin™ weight 45 kg

Adding TriniBact™, a mix of specialised bacteria reduce odor

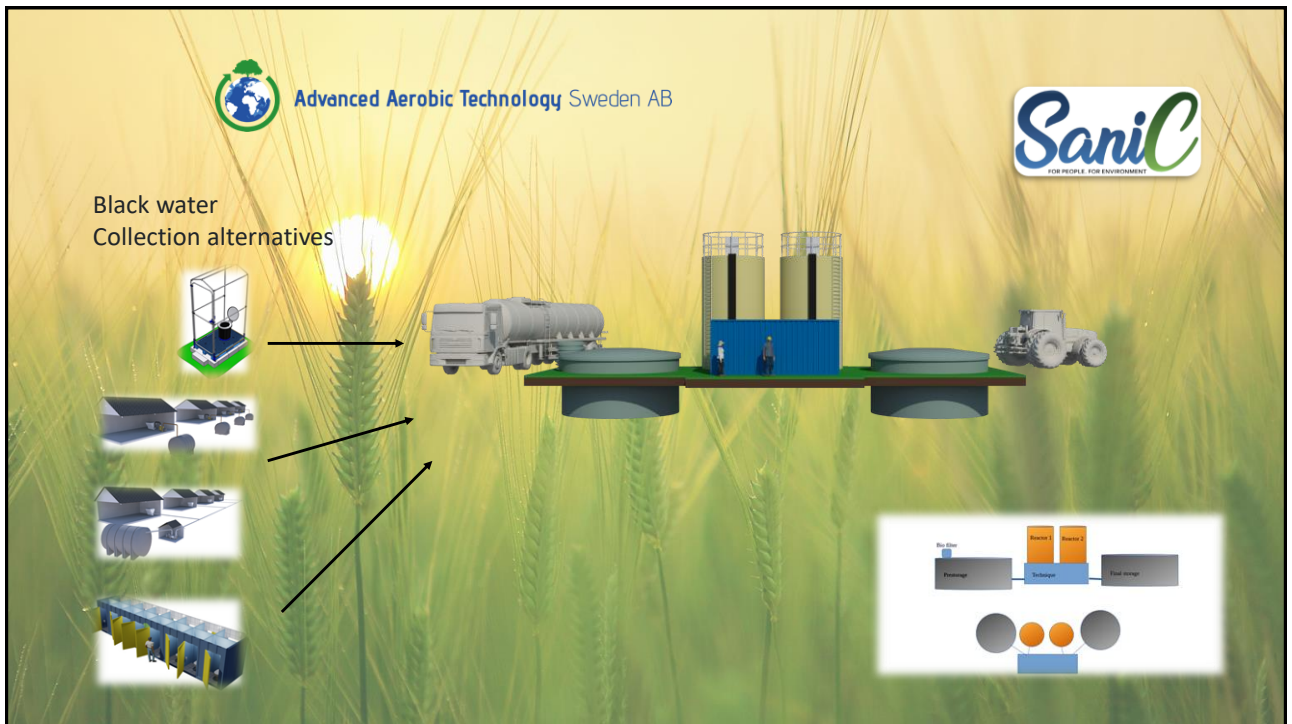
Sanitation treatment from SaniTrin™ can be accomplished directly in the bucket by:

1. Adding 70 g urea and closes the bucket with a lid.
 2. Leave the bucket 4-6 weeks depending on local conditions.
- or

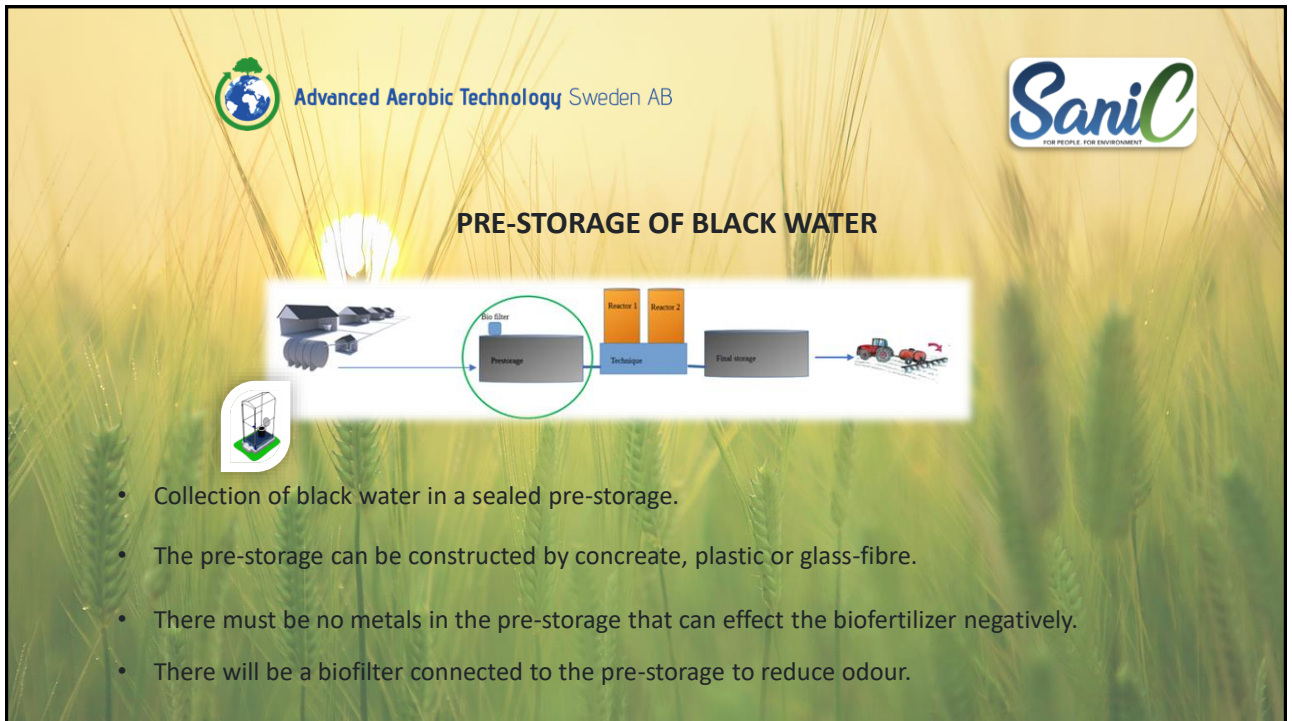
Transport bucket to SaniC™ treatment plant




12




13



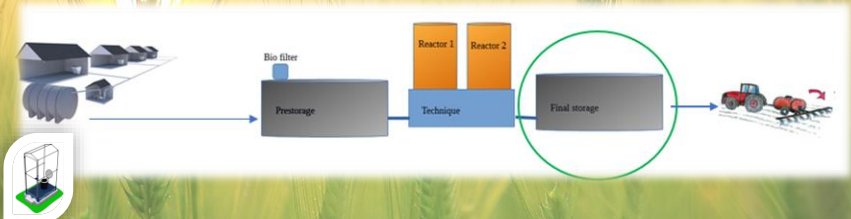
14



Advanced Aerobic Technology Sweden AB



FINAL-STORAGE OF BLACK WATER



- Collection of biofertilizer from black water in a sealed final- storage.
- The pre-storage can be constructed by concrete, plastic or glass-fibre.
- There must be no metals in the pre-storage as that can effect the biofertilizer negative.

15




Advanced Aerobic Technology Sweden AB

TREATMENT OF BLACK WATER



- The black water or sludge are treated in an aerobic process.
- Air bubbles are injected in material by a special aerator
- The limit temperature for sanitisation in the reactors is 55 degrees for 10 h
- No chemicals or heat is needed for the treatment process
- The process eliminates pathogens such as salmonella , e-coli and enterococcus and reduces a large amount medical residues.
- Treatment time is between 7-14 days depending on local conditions
- The outcome is a valuable and nutrient biofertilizer.
- Between 1-10 % dry material is needed. If DM is less than 1%, urea can be added to finish the process. Urea makes the product more rich in nitrogen.

See a movie



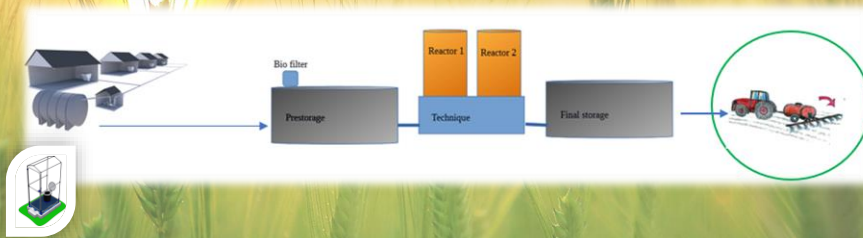
16



Advanced Aerobic Technology Sweden AB



SPREADING OF BIOFERTILIZER FROM TREATED BLACK WATER



- The biofertilizer can be spread without any risk for contamination of pathogens, by ordinary farmer equipment.

17



Advanced Aerobic Technology Sweden AB

Exempel of sludge treatment plant in Cliza, Bolivia 2019

- ❑ Treatment of sludge from anaerobic pre-treated waste water plant
- ❑ SaniC™ treatment plant treat sludge from 10 000 persons
- ❑ Technical container and reactors are produced by A2T in Sweden
- ❑ Storage and facility are built locally in Bolivia

- ✓ Blueprints and dimensions are done by A2T after feasibility study
- ✓ Set up time are 2 weeks

Investment cost 350 000 USD



18



Advanced Aerobic Technology Sweden AB

SÖRBY FARM, A2T TEST BED

- The treatment plant is the heart for A₂T's technology development and our test bed for new ideas and products.
- All in cooperation by Thomas och Magnus Eriksson, the third generations of owners of Sörby Farm, Eskilstuna, Sweden.
- The construction of the plant was designed in cooperation between JTI (Agriculture technical Institute, Sweden), Agriculture University in Norway and De LaVal with Gösta Anderson (one of A₂T's founders) as project manger.
- Since the inauguration 1998 black water from nearby Tegelviks school has been treated.
- In 2007 a station for handling latrine bucket was developed.
- 25 Swedish municipalities deliver latrine buckets



Reciving

- 15 000 latrine buckets / year
- 300 cubic meter blackwater /year

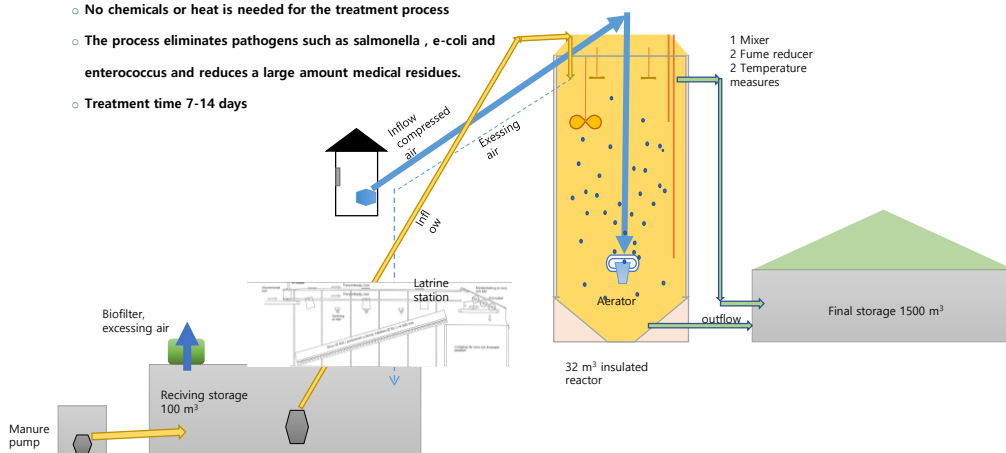
Continuous improvement

- Improved sorting
- Energy savings
- Efficient aeration

19

SÖRBY AEROBIC TREATMENT PLANT PRODUCTION OF SANITIZED BIOFERTILIZER SINCE 1998

- The black water or sludge are treated in an aerobic process.
- Air bubbles are injected in material by a special aerator
- Temperature for sanitisation in the reactor is 55 degrees for 10 h
- No chemicals or heat is needed for the treatment process
- The process eliminates pathogens such as salmonella , e-coli and enterococcus and reduces a large amount medical residues.
- Treatment time 7-14 days



20



21

Advanced Aerobic Technology Sweden AB

FEASIBILITY STUDY

Site visit and planing meetings together with local partners

Written report including:

- ✓ Dimensions
- ✓ Calculations
- ✓ Analysis of material to treat
- ✓ Budgets
- ✓ Time frames
- ✓ More

22



 **Advanced Aerobic Technology** Sweden AB

A2T at your service
What can we do for you?



www.a2t.se
info@a2t.se
anna@a2t.se
tord@a2t.se