

## The SBRS concept is presented by BAS-konsult AB according to the NABC model.

### NEED:

*What important need does BAS-konsult AB want to solve?*

By further developing and testing the SBRS concept, BAS-konsult AB will contribute to solving the great need to reduce costs for citizens who today must use old polluting and wasteful methods and at the same time pay unnecessarily for high consumption of energy, water and chemicals in waste and sewage systems, and some citizens must work in an unhealthy work environment.

*For whom specifically?* For all people where municipal politicians are responsible for managing waste and sewage.

*Give examples of companies or individuals.* Municipal politicians abdicate responsibility by creating municipal corporations that hire waste and waste companies and those force residents to use old systems that create pollution, losses, and unnecessarily expensive fees.

*Talk to those people!* BAS-konsult AB sent questions to the municipal council in all 291 municipalities in Sweden and the answers indicate a great indifference to citizens' health, the environment, and costs due to a lack of competence and convenience.

*How many such companies/users are there?* There are fewer municipal companies than municipalities because several municipalities have joint municipal companies that manage waste and wastewater.

*Where are they?* Throughout the country.

*How often and when do you have this problem?* Everywhere and always.

*How big is the problem for the user/customer, for example in unwanted costs?*

- 1) Methods used in waste and sewage systems make it impossible for citizens to ecologically, economically, and socially sustainably manage food and toilet waste, plant waste and everything in the waste that comes from plants, animals and microorganisms and is called "renewable organic material". Unnecessary costs arise when knowledge-based new methods are overlooked.
- 2) Pollution of air, water, soil, vegetation, and buildings occurs as a result of unsustainable systems that negatively affect health, environment, economy and climate.
- 3) Losses of nitrogen and other chemical elements necessary for cultivation, citizens have to pay directly with a fee for sending nitrogen into the air and then indirectly in more expensive food because the growers have to buy from abroad mineral fertilizer made with energy-intensive methods from the nitrogen in the air.
- 4) Losses of bioenergy which is the sun's radiant energy captured and stored in the plants during photosynthesis with the help of at least 16 chemical elements: H, C, O, N, P, K, Ca, Mg, S, Cl, Fe, B, Mn, Zn, Cu and Mo. Losses occur (a) in sewage systems when energy-intensive methods are used to reduce emissions of organic substances in treated wastewater and (b) when burning renewable organic material, bioenergy becomes electricity and heat, but the process causes large and costly pollution of air, water, soil, and vegetation. This is costly and negative for biodiversity, health, the environment, and the climate.

*What happens, concretely, if they don't solve it?* Citizens must continue to pay for continued emissions that lead to large losses of nitrogen and all other chemical elements needed for cultivation, and bioenergy is misused. At the same time, the pollution of air, water, soil, vegetation, and buildings will continue. These negative effects on health, the environment, the economy, and the climate that current laws allow ultimately threaten human existence.

### ACCESS:

*What is the solution, roughly speaking?*

The aim is to demonstrate the practical application of the SBRS concept consisting of

1. Innovation for the hygienic collection of food and toilet waste without the use of water
2. Innovative digitized logistics for fast transport with minimal emissions
3. Improved methods for:
  - 3a. pre-treatment consisting of mixing plant material from green areas and residual products from cultivation (including straw and wood pellets) in food and toilet waste,

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3b. treatment of the mixture/substrate approx. 70% water content in the local high-tech biogas plant instead of commonly used water systems with approx. 94% water content in bioreactors, which is unnecessarily expensive considering water consumption, water transport and construction of large bioreactors. The aim is to optimize the content of the mixture/substrate for the microorganisms that do the "work" and thereby maximize the production of biogas and biofertilizer in significantly smaller and cheaper bioreactors.

4. Trigeneneration for efficient use of biogas.

5. Adaptation of biofertilizer to the needs of cultivation.

6. Gray water must be treated locally by a biological method that has long been known and used in greenhouses and crayfish farms.

Municipalities should gradually change the collection and management of food and toilet waste and other renewable organic material in the waste. It could start with schools, nurseries, kindergartens, and all public buildings. The SBRS concept must be applied when building new areas and when rebuilding according to the EU green buildings pact.

*What do you think can solve the problem?* With the help of many knowledgeable enthusiasts and with resources from those who make decisions with an open mind...

*How do you deal with technology?* Reengineering will be used - most of the components are there, but they have to be used in a new way. Brand new components will require challenges for inventors and designers.

*How much does it cost to produce?* Manufacturing equipment for the entire demonstration plant can cost approx. 10 million + labor costs + analyses. A practical example could be Malmö with 340,000 inhabitants. Responsible politicians can gradually build 110 units according to the SBRS concept instead of the sewer tunnel for 2.1 billion kroner, which is an "end-of-pipe" solution from the 1960s. Each unit for 3,000 connected residents can cost approx. 19 million and in the long term reduce costs for energy, water, waste, sewage, food, pollution, and healthcare.

*How does it reach the customer or user?* Sweden's Municipalities and Regions is the organization that will convey knowledge to the municipalities.

*How is it produced?* Equipment for the SBRS concept is to be developed by domestic companies to adapt to local needs in city districts, in villages as well as in different companies. Many domestic jobs are added instead of seeking foreign companies to, for example, build the planned sewage tunnel in Malmö.

### **BENEFITS:**

*What exactly is the customer benefit?* 1) Lower rates for electricity, heating, water, waste, and sewage for citizens. 2) Significantly less health problems and lower costs for individuals and society when air, water, soil, vegetation, and buildings are not polluted, and food is produced without imported artificial chemicals.

*What is the benefit to the user?* Neither users nor other people are exposed to air polluting bioaerosols which are the cause of many health problems.

*What is the benefit for those who pay in cash?* There will be no long-term expenses for the municipalities and their residents.

*Think through all types of costs. If, for example, it has to be built or reorganized, that also costs money.*

*What does the customer ultimately gain from this (per year, per month or other)?* BAS-konsult AB leave to the municipal and community economists to present cost-benefit analysis.

### **CONTEST:**

*What other solutions are there to the same problem?* There are no other overall solutions according to the "do not mix different types of waste" model.

*Google, interview people in the industry, look in stores, etc.* Irrelevant.

*Also, don't forget the biggest competitor – it's easier to continue as before than to change anything at all.*

Therefore, laws must be introduced prohibiting the use of (a) water as a transport medium for food waste and animal and human excreta and (b) thermal and chemical methods for treating renewable organic material in the waste. Only biological transformation may be allowed.