Protect the water with local production of electricity, heat, cooling, and biofertilizer

Electricity, heat, cooling, and bio-fertilizer with decentralized biological transformation of renewable organic material in the waste

Now that both fertilizer and electricity are either in short supply or very expensive, there is a need in local smart systems to take advantage of plant nutrients and bioenergy - which is found in renewable organic material in waste and sewage - with ecological, economically, and socially sustainable methods.

Many municipalities plan to raise water charges to make costly upgrades to sewer systems. Expensive equipment and energy- and chemical-intensive methods will be introduced in wastewater treatment plants. This will increase air and water pollution and employees will continue to live in an unhealthy working environment. Sewage sludge problems will persist. Even less of all vital plant nutrients will return to cultivated soil.

Introducing the SBRS concept, we formulated the following regarding sewage sludge:

The future without sewage sludge is possible.

Imagine city districts or villages where the municipality has built up
a) a local high-tech biogas plant
b) a facility for the biological treatment of grey water
where employees in both cases are in a hygienic work environment.

Food and toilet waste are hygienically transported, without loss of bioenergy and plant nutrients, to the biogas plant without polluting the air and water because all residents use
1) water-free, hygienic, and easy-to-use toilet (for example CC-BAS) where, after each toilet visit, urine, faeces, and toilet paper are encapsulated in starch foil
2) similar device for handling food waste.

During pre-treatment in a biogas plant, finely ground food and toilet waste is mixed with finely ground plant waste from green areas, gardens, cemeteries, residual products from forestry, agriculture, and horticulture - for example, straw and wood pellets instead of burning them.

The mixture is called substrate i.e., food for microorganisms which produce biogas and biofertilizer. To maximize yield, the substrate must be balanced regarding the content of nitrogen and organic carbon and several elements. The water content should be around 70%.

Greywater, which consists of wastewater from baths, dishes, and laundry, is biologically purified locally and used for irrigation, fountains, water play, etc.

With the SBRS concept, the water is protected from both food and toilet waste, which ultimately reduces eutrophication of the water system. At the same time, there is no risk of drug residues reaching waterways and other water systems. This eliminates the risk that plants and animals that live in water and that are used as food for humans are affected by drugs.

Important to consider!
In the biogas plant's bioreactors, the microorganisms' enzymes can inactivate drug residues and chemicals. If some pharmaceutical residues or chemicals remain in biofertilizers, these are likely to be inactivated by soil microorganisms after biofertilizers are added to cultivated

land. Today's knowledge is limited to a small percentage of microorganisms in soils, but the fact remains that the unknown microorganisms have helped man survive many crises. More research is needed on soil microorganisms.

With the help of a few images, the SBRS concept is presented on the file http://biotransform.eu/wp-content/uploads/2022/08/From-Photosynthesis-to-Photosynthesis-SBRS-concept-RS-BS.pdf.

For an innovation project according to the SBRS concept, we are looking for partners to be able to build a complete demonstration facility and during the project hand over results to stakeholders who want to manufacture different parts or the entire system and further conduct research and development.

What benefits can be expected from produced biogas and biofertilizer can be read at the link http://biotransform.eu/wp-content/uploads/2022/07/SBRS-concept-is-looking-for-partners-for-collaboration-20220707-RS-BS.pdf.

Welcome to visit www.biotransform.eu, where additional materials support the need for further development and implementation of the SBRS concept, which stands for "Sustainable Biological Recycling System". The basis of the current SBRS concept is an idea that was born about 3 decades ago, when increased problems with the use of artificial fertilizers began to manifest.

Land destruction continues and with the SBRS concept there is an opportunity to reverse the negative spiral and secure the food supply, increase possibility to use bioenergy for production of electricity, heat, and cooling, and reduce emissions that negatively affect the environment, health, economy, and climate.