

Local circular systems must replace the central linear ones

Circular bioeconomy should ensure the benefits of all materials based on photosynthesis. At present, the vital chemical elements needed during photosynthesis are handled with unsustainable methods and much of the bioenergy is lost. It is a great challenge for all technical geniuses to design and build smart local systems that serve biological methods to minimize all losses that today pollute air, water, soil, and vegetation.

A few years ago, in Sweden, the annual growth of bioenergy from the forest was estimated at 250 TWh and from agriculture at 80 TWh. In addition to these areas, photosynthesis is taking place in all green areas, private gardens, greenhouses, in water on land and in the oceans that lie within Sweden's borders. How much bioenergy is there to use per year and how efficient is the use? How is it in other countries?

It is time to promote HEALTHY SOILS that are BASIS FOR HUMAN EXISTENCE and for CIRCULAR BIOECONOMY.

In order to achieve healthy soils in SUSTAINABLE AGRICULTURE, the transition to sustainable methods in the management of municipal waste and wastewater must be accelerated. Sustainable production of biofertilizers in local high-tech biogas plants will gradually replace the use of energy-intensive imported synthetic agricultural chemicals that still destroy cultivated land.

When can economists present a complete picture showing how each country handles "Circular Bioeconomy" to achieve sustainable management of the 16 elements necessary for photosynthesis (C, O, H, N, P, K, Ca, Mg, S, Fe, Mn, Zn, Cu, Cl, B, Mo) and which are bound with bioenergy in plant biomass?

Answers to the following questions should be the basis for creating a knowledge-based sustainable society:

- How much of the sun's radiant energy is converted during photosynthesis to bioenergy and stored in the plants' biomass for one year?
- How have the bioenergy and the 16 essential elements stored in the plants' carbohydrates, proteins and fats been used?
- How has bioenergy and the 16 chemical elements in residues and in waste been handled to ensure healthy soils?

If it is possible to pack each cucumber or other vegetable in a foil to prevent losses, it should be possible to pack food waste and toilet waste in a suitable material to prevent both losses and unhygienic handling as well as air and water pollution.

Then it becomes unnecessary to use energy to remedy pollution - for example when purifying wastewater (<http://www.syvab.se/himmerfjardsverket/processkarta>). It will also be unnecessary to use energy to produce artificial chemicals that are harmful to the environment. These are used in sewage treatment plants, for cleaning toilets and as a replacement for biofertilisers when mineral fertilizers and pesticides are used that slowly degrade the soil.

Therefore, linear, central, expensive, and polluting waste and wastewater systems that have a negative impact on the environment, health, the climate, and our common economy must be transformed into circular ones that are adapted to the sustainable development of the whole society.

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“Sustainable Biological Recycling System” called SBRS concept include:

1. **Local and smart high-tech biogas plants** where all waste from plants and animals is upgraded to biogas and biofertilisers.
2. **Local biological treatment plants for greywater** containing no residues of toxic chemicals no food waste and human waste and thus no residues of medicines.
3. Hygienic, easy-to-handle **devices for collecting food and toilet waste**.
4. **Digitized logistics**.

QUESTION:

Who wants to participate in design and further development of **LOCAL HIGH-TECH BIOGAS FACILITIES** that are suitable for villages, districts, agricultural companies, etc. in all countries?

In these will be produced locally

1. **biogas for trigeneration** to microgrids and thereby facilitate electricity and heat/cold supply in all parts of the country even in sparsely populated areas
2. **biofertilisers adapted for cultivation** that contribute to healthy soils by carbon sequestration, increased biodiversity of soil organisms, increased ability to retain water and nutrients. Soil fertility / production capacity increases.

With locally produced biofertilisers, the soil's fertility / production capacity increases and thus high yields are ensured. By minimizing the use of imported agrochemicals, which are produced using energy-intensive methods, degraded soils will recover, and everyone can produce crops for healthy, nutritious food.

Partners are sought to complement an innovation group.

The following people form the basis for the innovation project: A farmer who wants to build a demonstration plant, according to the SBRS concept, on his farm together with a visionary who has both practical experience and from researchers, an innovator who has made some innovations in various fields, an economist, an IT expert and a company who want to make drawings and documentation when the system works.

Individuals, companies, or organizations that are requested for collaboration are knowledgeable within

- technology - manufacturing, automation, digitization, logistics, etc.
- analysis of various kinds
- a decision-makers from municipalities as “end users”.

Admittedly, **it is residents who are end users** who will benefit from the transition from unsustainable central linear systems to sustainable local and circular ones. For residents to have the opportunity to do the right thing, the municipalities' politicians must push for change.

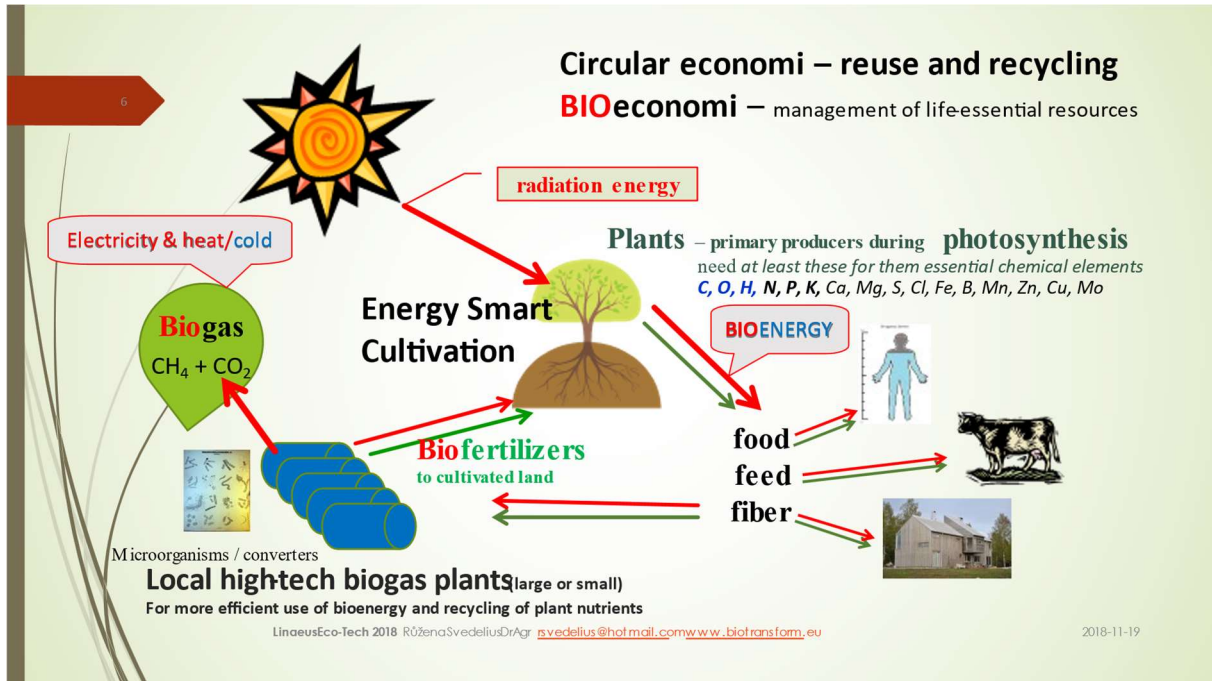
How do we find municipalities that will show interest in the results of the project?

More information is available at <http://biotransform.eu/important/> in the file [Safe food, clean air and clean water – RS 2021-03](#).

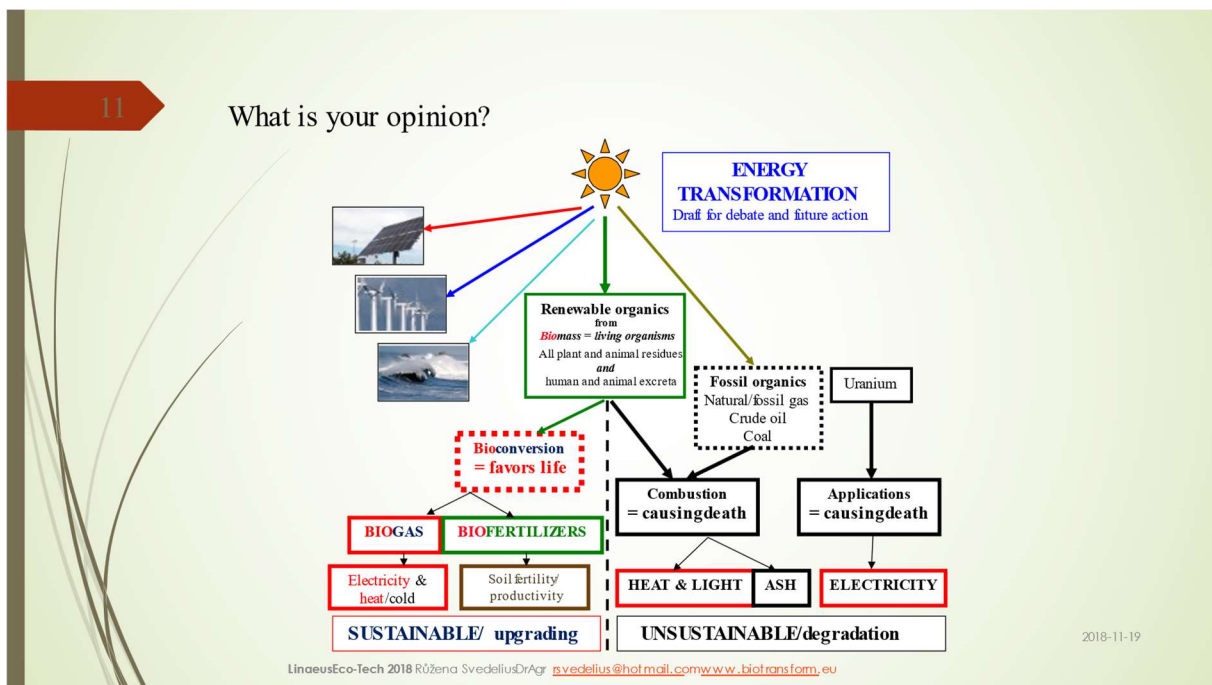
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Two sides that can be found at <http://biotransform.eu/important/>:

2018-11-19 Presentation on conference **Linnaeus Eco-Tech 2018** in Kalmar, Sweden
[Bioenergy and plant nutrients in waste and sewage-RS updated 20200107](#)



Residues and wastes from FOOD, FEED and FIBER will be upgraded in local, high-tech biogas plants to biogas and to biofertilisers that are adapted for cultivation.



Bioconversion in closed systems using modern technology will prevent pollution of the environment and thus reduce health problems and mitigate the negative climate impacts.