

Essential chemical elements & bioenergy

There are still no organizations that shed light on and create policies for how the 16 essential chemical elements (H, C, O, N, P, K, Ca, Mg, S, Cl, Fe, B, Mn, Zn, Cu, and Mo) - which the plants must have access to in order to grow and develop - must be sustainably reused from settlements back to cultivated land.

Human bodies, animal bodies, microorganisms and most other living things all contain these essential chemical elements. Photosynthesis is the basis for CIRCULAR BIOECONOMY when the sun's radiant energy becomes bioenergy that binds together the vital elements.

Due to lack of knowledge, negligence, convenience of making radical changes despite the evidence from research, we have today's problems in the environment, health, climate, and economy.

Questions:

- 1) Who can present facts regarding the amount of bioenergy that is captured in the plants' biomass in the world cultivation system?
- 2) How much bioenergy in the food is consumed?
- 3) How big are the losses of bioenergy in by-products and waste?
- 4) Which organization is interested in paying more attention to the more efficient use of BIOENERGY and the reuse of the ESSENTIAL CHEMICAL ELEMENTS at the same time as they are interdependent?

An example of sustainable use of renewable organic material from settlements.

Substrates consisting of food and toilet waste (without dilution with water), organic material in household waste, plant waste from green areas, by-products from agriculture, forests and from the food industry must be treated in local high-tech biogas plants.

Of 1 ton of well-pre-treated substrate with a water content of around 70%, biogas can be produced with an energy value of at least 1,050 kWh and valuable biofertilizer remains after high-precision methane fermentation.

The energy of the biogas must be converted into electricity (30%) and heat (65%). An electric car can drive 260 km and the heat can be used for heating or can be converted to cooling if needed. Note that if the biogas energy is used as fuel in a car with an internal combustion engine, the mileage will be 270 km, but all heat has been lost during the journey.

Biofertilizers contain all the essential chemical elements and microorganisms that help the roots of plants to absorb plant nutrients. The fertility of the soil is positively affected and thus more of the sun's radiant energy can be bound in the biomass of new plants.

A concept SBRS (Sustainable Biological Recycling System) contains proposals on how renewable organic material in both urban and rural areas can be upgraded to valuable products in order to minimize polluting emissions. The SBRS concept positively affects all SDGs.

More information on proposals that lead to a knowledge-based sustainable society can be found at www.biotransform.eu.