Air pollution is a danger to health, the environment and the climate

June 2019

World Environment Day 2019 with the theme "air pollution". We can all understand that air pollution affects negative health, environment and climate.
Hopefully we can agree that

1) The worst air pollution causes thermal processes. It does not matter whether raw material that is incinerated, subjected to thermal gasification or for pyrolysis is fossil or renewable.
   All living things are killed and thus biodiversity is threatened.

2) Quite troublesome are air pollution from biological processes in management of waste and sewage systems when microorganisms convert renewable organic matter i.e. everything that comes from now living plants, animals and microorganisms. It emits carbon dioxide, water vapor, heat and forms bioaerosols and many different gaseous compounds during
   a. uncontrolled transformation processes in nature or in the current waste and sewage treatment
   b. poorly controlled biological transformation processes such as composting where about 70% by weight become polluting losses or in methane fermentation when current biogas plants are poorly adapted to the needs of the microorganisms.

Most living organisms rely on **photosynthesis where the solar radiation energy is converted into bioenergy** using at least 16 for the most higher plants essential chemical elements: hydrogen (H), carbon (C), oxygen (O), potassium (K), calcium (Ca), magnesium (Mg), sulphur (S), chlorine (Cl), iron (Fe), boron (B), manganese (Mn), zinc (Zn), copper (Cu), molybdenum (Mo) and stimulating elements which are considered cobalt (Co), chromium (Cr), nickel (Ni), vanadium (V), tin (Sn), lithium (Li), fluorine (F), selenium (Se), silicon (Si), etc. according to different sources.

Bioenergy and elements are then used as food, feed and wood and all residual products and waste can be cascade-used in various processes. What is left over can transform microorganisms using well-adapted technology into biogas and bio fertilizer.

Biogas can be converted into electricity and heat / cooling or used as raw material instead of natural gas.

Biofertilizers contain some bioenergy, all the chemical elements necessary for plants, living microorganisms and contributes to **carbon storage**. All these factors are important for **soil fertility** and good harvests. Thus, **more of the solar radiation energy can be converted** into bioenergy.

Promoting processes “from soil to soil” is the basis for circular bioeconomy and can directly and indirectly affect 10 out of 17 global goals by 2030.

Question:
When will bioenergy and chemical elements that are the basis of human life be handled with knowledge-based methods and technology adapted to biological processes?

We are looking for partners for a project "From Soil to Soil". Information is available at www.biotransform.eu.

BAS-BIO HB, Aspavägen 41, 26165 Häkrslöv, Sweden
Birger Sölverud birger@bas-konsult.se, Ruzena Svedelius DrAgr rsvedelius@hotmail.com