

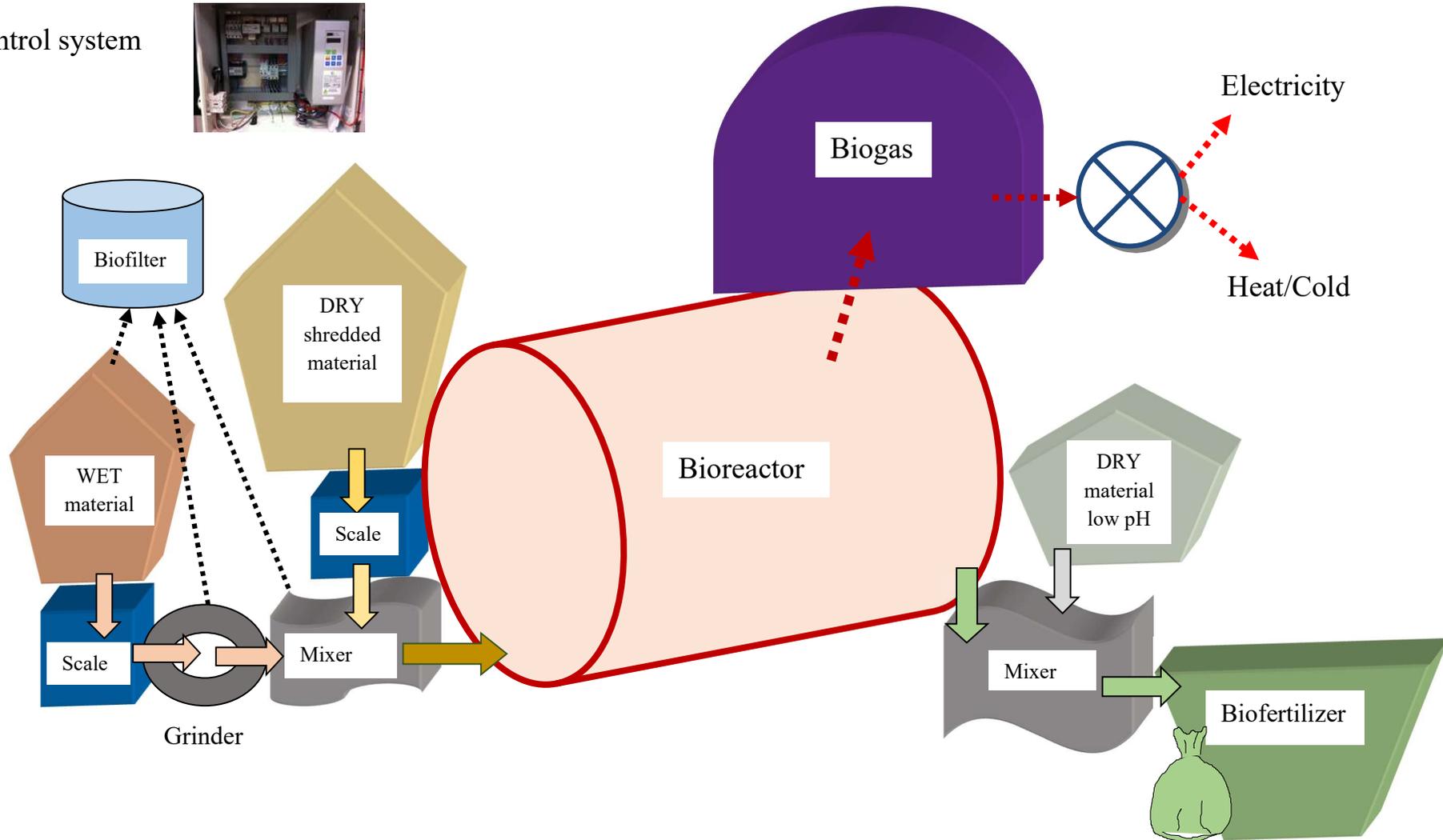
# Biogas plant for OSAD

July 2018 (Updated 2020-01-02)

## Biogas plant for Optimum Solids Anaerobic Digestion (OSAD)

Biogas plant BioTransForm (BTF) that use G&G-system (Gas & Gödsel/fertilizer)

Control system



## Food waste and human waste mixed with other organic wastes are important to produce biogas and biofertilizers

Wet material, i.e. food waste and human waste, is to be transported to biogas plants packed in plastic-like biomaterial (see example of prototype on <http://biotransform.eu/wp-content/uploads/2015/03/Future-toilet-CCbas-BS-RS.pdf>). All incoming material must be ground and mixed to optimize the methanization process. The dry materials should be stored while the wet materials are collected according to a suitable schedule.

In order to eliminate unhealthy odors containing aerosols, these are passed to a biofilter containing appropriate dry organic materials. Biofilter content is replaced as needed and used in the process. --- For anyone interested, I can explain details.

Bioenergy is the most important energy for living organisms because it is the solar radiation energy that is captured during photosynthesis and stored together with plant nutrients in plants - the primary producers. Plants become food, feed and fiber which is the source of both bioenergy and nutrients for all other living organisms, i.e. consumers - primary, secondary, etc., as well as for destruenters.

Everything in residues and waste that comes from the plant and animal kingdom can be converted by microorganisms into energy-rich methane in biogas and the remaining bioenergy is left in biofertilizers containing all essential chemical elements H, C, O, N, P, K, Ca, Mg, S, Cl, Fe, B, Mn, Zn, Cu, Mo and stimulating elements Co, Cr, Ni, V, Sn, Li, F, Se, Si, etc., in partially transformed organic materials and in microorganisms. Biofertilizers are important for soil fertility / productivity. Biofertilizers help to phase out chemical fertilizers and other agrochemicals.

Citizens want to do right. Therefore, simple and hygienic collection of food waste and human waste must be introduced. There are prototypes "Collecting Food Waste BAS" (CFW BAS) and "Collecting Closet BAS" (CC BAS) that prevent emissions, costs and loss of bioenergy and plant nutrients. Modern collection devices enable hygienic working environment for everyone involved - in households, during transport and in biogas plants.

Mobile or stationary local biogas plants that are small or large can only be profitable when technology, including logistics, is focused on minimizing pollutant losses and creating a hygienic work environment. Technology should be adapted to biological processes and for them to collect organic waste and for those who work in biogas plants.



There are still no facts that show how much bioenergy is transferred to methane in biogas and how much is left in biofertilizers. In order to increase sustainable management of organic materials in waste, minimize losses of bioenergy and plant nutrients and support the biodiversity in the soil, a radical change must be made in the current waste and wastewater management systems. Soil degradation and unnecessary pollution of air, water and land must end.

## Sustainable farming and production of healthy food is not possible without sustainable production of biofertilizers.

Figure 1. Food waste and human waste will be sealed hygienically and without polluting losses transported to biogas plants.