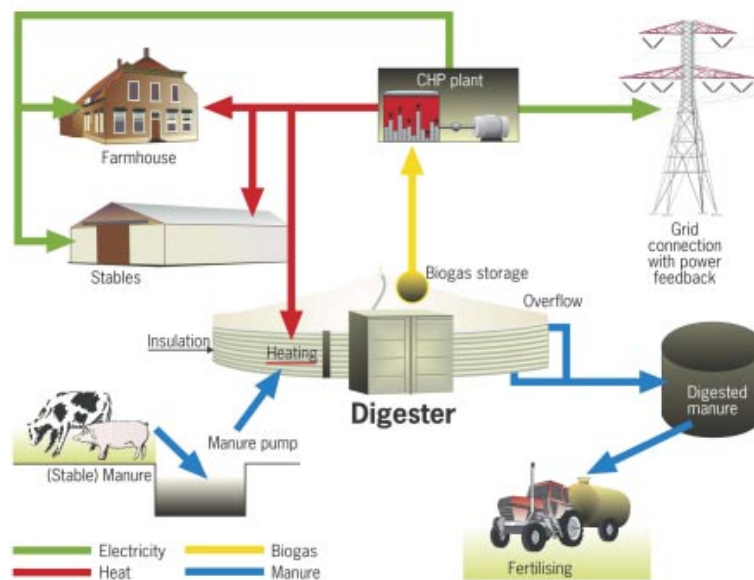


## ANAEROBIC DIGESTION SYSTEM

Anaerobic digestion is a biological process conducted in the absence of oxygen in which micro-organisms degrade the organic fraction of a feedstock, yielding a product gas (biogas) of principally methane and carbon dioxide and with some trace gases such as  $H_2S$ ,  $N_2$ ,  $NH_4$ , etc. The biogas yielded by the process can be used for various applications. An efficient option is to use the biogas in a combined heat and power (CHP) plant, in which heat and electricity are generated simultaneously. Part of the generated heat helps to keep the digestion process running.



### ADVANTAGES OF CO-GENERATION BASED ON ANAEROBIC DIGESTION OF MANURE

- Generation of “green power”
- Improved manure composition and less odour
- Higher availability of nutrients
  - Ideal pre-treatment for further manure processing
    - Reduction in the emission of greenhouse gases
    - Contribution to a sustainable agricultural sector

## **FEEDSTOCK**

Feedstock to anaerobic digestion includes animal manure, crop residues, abattoir-wastes, industrial organic wastes, sewage sludge and source-separated household organic waste. The largest sources of wastes are animal manure and crop residues that are derived from food production.

## **ECONOMICS**

The cost of an animal manure digestion plant depends among others on the physical infrastructure already in place and on installation costs. The benefits from biogas generation depend on the amount of biogas that can be produced (a function of the organic matter content of the feedstock) and the prices that can be fetched for the generated power and heat.

Manure digestion is economically feasible at larger pig farms and very large cow farms. Whether or not manure digestion is financially attractive needs to be assessed for each farm individually. The economics can be improved considerably if organic material is co-digested.

## **ENVIRONMENTAL PROTECTION**

Anaerobic digestion degrades organic matter and makes the resultant residue more stable; this protects the environment from the uncontrolled degradation of the waste. Thus, it reduces the potential for the production of atmospheric methane and leachate. It also reduces the impacts from environmental aspects such as odour, flies and vermin and helps to reduce the plant and animal pathogens that can be spread by wastes.

## **BTG**

BTG Biomass Technology Group BV is specialised in conversion of biomass into useful fuels and energy. Established in 1979, BTG offers a unique combination of services covering the entire spectrum of technical and organisational components of bioenergy project development. These include technology research & development, system engineering & implementation, technical assistance & consulting, feasibility studies & technology assessments, and business development & financing. BTG works world-wide and has a track record of developing and implementing anaerobic digestion plants for animal manure, agro-industrial wastewater treatment and sewage sludge stabilisation in the Netherlands, Belgium, Costa Rica, Croatia, Hungary, Moldova and Ukraine.

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