A19 - Digestors and grease removers

20 March 2012

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NB : This fact sheet supplements fact sheet A17 "Various ecological effluent treatment solutions" and replaces fact sheet A4 "Degreasing tanks".

1) What is involved?

The implementing of certain sanitation structures, especially if public or semi-public, **requires the pretreatment of effluents to rid them of some of their solid impurities, oils or fats**, originating primarily from cooking, dish water or semi-industrial treatments.

2) When and why should these processes be used?

The presence of solid particles, oil or grease in effluents prevents them from being treated under good ecological conditions.

Mini sanitation networks, lagoon treatment or sand filtering treatment systems thus **need** to be provided upstream of such systems to protect them and ensure better effectiveness.

It is also **recommended** to install a small degreasing tank upstream of a sump or septic tank.

3) What does these processes involve? How do thes work?

Settlers/digesters and degreasing tanks are additional processes which are similar to those used in wastewater pretreatment, and which are also sometimes included in the same system.

Settlers/digesters

These are large containers in which wastewater stays for long enough to allow the solid impurities they contain to sink to the bottom.

In some types of settlers, such as the "Imhoff Reactor", wastewater is fed from the top into a funnel-shaped settling chamber, and exits into a digestion chamber just below where the water sludge settles as a sediment.

Degreasing tanks

Such tanks vary in size and generally consist of three separate compartments separated by perforated bottom partitions designed to successively perform the following **three operations :**

- stabilisation and pre-settling of effluents, in a first small compartment into which they are fed through a T-shaped pipe.
- separation of oil and fat from effluents which rise to, and float on, the surface of a second larger compartment,
- outfeed through a final small compartment and a T-shaped pipe of the degreased water free of particles, which fall to the bottom of the tank compartments by gravity.

Precautions to be taken for degreasing tanks :

The standing time in the degreasing compartment **must be long enough (at least 20 to 30 minutes)** to obtain good separation of oils and fats, which means that this compartment should be large enough particularly with regard to the volume of effluents to be treated.

4) Advantages and drawbacks

a) Advantages

- Simplicity of processes
- Negligible operating cost.
- Long life of 15 to 20 years.
- Small size.

b) Drawbacks

- Effluents are only partially treated and thus require connection to another treatment means (sand filter, septic tank, lagoon etc.).
- Cost relatively low but still significant.
- Need to be built by a skilled craftsman, but who can be local.

5) Cost

- Investment cost : **€45 to 90** according to type and size.
- Operating cost : negligible.

6) Where to obtain further information - Bibliography

Very few documents available in French.

In English, see pages 22 to 24 of the book published by EAWAG (Switzerland) **"Greywater management in low and middle-income countries"** by A. Morel and S. Diener.

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