

CHAPTER 14
Sources of Energy

Improvements in the technology for using conventional sources of energy:

(1) Bio-Mass:

- Wood and cow-dung comes under this category. These fuels are made out of plant and animal products hence called Bio-mass.
- When these are burnt directly, they release lots of smoke and dust.
- To avoid this, some improvement has to be made.
- In case of wood, it is to be burnt in limited supply of oxygen. Then water and volatile materials present in it are removed and charcoal is left behind.

Charcoal burns without flames and smokeless and also gives more energy compared to direct wood burning.

- Similarly, in case of cow dung residues of harvested crops, vegetable waster and sewage are decomposed in absence of oxygen to give Gobar-gas.

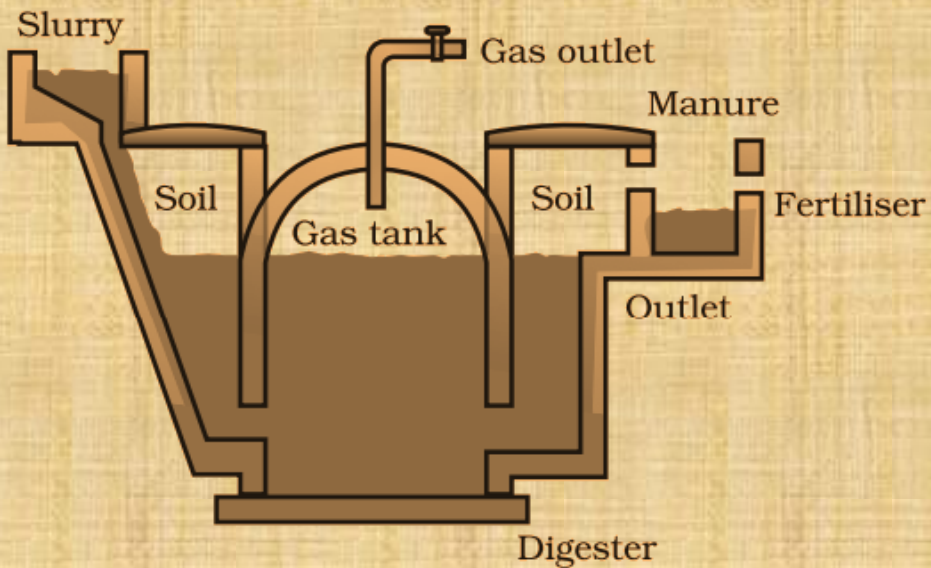


Fig. Schematic diagram of a bio-gas plant

- Biogas is an excellent fuel as it contains 75% methane.
- Other gases present in it are CO_2 , H_2 , H_2S .
- The slurry left behind is used as excellent manure as it is rich in nitrogen and phosphorous.
- This method is useful in either ways of producing energy and manure.
- This can be thought of renewable source to certain extent.

(2) Wind energy:

- Wind energy is used to produces electricity.
- A large fan that is erected to some height on a rigid support.
- Electricity produced by a single windmill is small and cannot be used for commercial purposes.
- To get more energy wind mill farm is required.
- Its renewable source of energy.
- Wind speed should be higher than 15km/hr.