

CHAPTER FIVE

Conclusion and Recommendations

5.1 The Conclusion

With the increasing demand of energy biogas demand has also increased. Many biogas plants have been set up in the rural and urban area. Biogas will soon replace fossil fuels as a source of energy. With this global warming and greenhouse effect will also reduce in the coming years. As we head into the 21st century, awareness and education will most assuredly continue to be the most important ways to spread use of biogas. The developed countries are coming up with new technologies to make better biogas plant to meet the increasing demand. This project will help the people to contribute towards the biogas plant and understand it as a better source of energy. So a full design of anaerobic digester to produce biogas from organic waste with calculations and material estimation for erection with parameters listed below:

- Gas production rate (G) = 38.4 m³/day.
- Active slurry volume(Vs) = 96 m³.
- Height of the cylindrical portion of the digester up to the top edge of the inlet/outlet opening (lintel level), for flat bottom digester (H) = 3.13 m.
- Diameter of the digester (D) = 6.26 m.
- Slurry displacement inside digester (d) = 0.50 m.
- Slurry displacement in the inlet and outlet chambers (h) = 0.35 m.
- Breadth of the inlet and outlet chambers (b) = 3.82 m.

- Length of the inlet and outlet chambers (l) = 5.74m.
- The dome height (d_h) = 1.07 m.
- Radius of the dome(r) = 5.11 m.

5.2 The Recommendations:

After the research is done the following recommendations are drawn:

- i The economic feasibility of the project and the cost of its construction must be calculated.
- ii Possibility of using kitchen waste should be widely studied. In every home household waste mainly kitchen waste, which can be used to produce biogas, which can replace our natural gas. Instead of throwing the garbage, every home can collect them, produce their very own biogas and use it for their cooking and heating purposes. This may reduce the transportation and other costs associated with the garbage collection and removal. Even after the biogas production is completed, the slurry, which cannot produce more biogas, can be converted to natural fertilizers.
- iii The methods of purification of biogas and the equipment used for this should be studied, as well as the means of compressing and storing the biogas.
- iv Biogas digester technology has successfully been used on a municipal, agricultural, and domestic scale throughout the world.
- v Small scale biogas generation use is only viable in developing third world countries, where fuel sources are scarce and waste management systems are needed to prevent harm to human and environmental health.
- vi Large scale biogas generation through anaerobic digestion is a valuable economic, producing enough biogas to lower energy costs and providing a valuable source of fertilizer for agriculture.