

Principal investigator: Bency Johnson

Summary

COMERCIAL VIABILITY OF BIO-GAS PLANTS IN TRIVANDRUM DISTRICT

INTRODUCTION

An average 6000 tons of Solid Waste is being generated in all across Kerala. Waste Management is an essential service to be provided by the municipal and local government authorities. Failure to provide it efficiently could be disastrous. As per a Supreme Court of India had directive, all the local governments in India above population strength of over ten lakh need to set up proper facilities for processing waste generated within their limits. And Supreme Court wanted waste management facilities to be in place in such municipalities by December 31, 2003. But a majority of the municipalities in India could not successfully

Statement of the problem

Biogas and biomass are considered as a renewable energy source worldwide. As an energy source both biogas and biomass promises a bright future for India in terms of reduction in pollution and reduced cost. Biogas can be compressed in the same way natural gas is compressed to CNG and used to power motor vehicles. Biogas is considered to be a renewable source because its production and use cycle is continuous, and it generates no net carbon dioxide.

In Kerala where solid waste management is fast becoming a herculean task is not keen on tapping the potential of biogas plants and most of the people in Kerala view the proposal as an unnecessary expenditure. What people of Kerala

fail to understand is biogas plants are a source of income with one time investment. It is widely accepted that fossil fuels are limited, that its price will go on increasing in the future so it doesn't offer a long term solution and that alternative sources are to be identified.

To cater ever increasing demand of power and scientific waste disposal it is very important to view biogas plants as an investment which can be both economically viable and sustainable solution to waste disposal menace, biogas plants facilitate treatment of waste in its source itself. The biogas plants can create a culture among the succeeding generations in Kerala to accept treatment of waste as a responsibility towards the society.

In Thiruvananthapuram district being the capital city of the state of Kerala a large number of households understood the relevance of biogas plant and they constitute a remarkable group of biogas plant users. An attempt has been made to understand the commercial viability of biogas plants on the ground that they are not fully aware of the potential as an investment.

Objectives of the study

- 1) To know the **reach of biogas plant** as a renewable energy source
- 2) To identify the **commercial viability and challenges faced by biogas plants** in becoming a successful venture in Kerala.
- 3) To suggest measures if any to **improve commercial viability of Biogas plants** in Kerala.
- 4) To understand the **Green impact of Biogas plants** may have on waste management.

Findings

The major findings of the study on the basis of the analysis of data are summarized below:

- Domestic consumption is the major reason for the incorporation of biogas plant and waste management act as a stimulating factor in the urban areas of the state.
- The agencies appointed by the government and NGOs are successful in disseminating the concept of green impact through biogas plants in Kerala.
- Government support and own savings are the most important sources of capital in both rural and urban areas of the state.
- The biogas users lack technical know-how and proper training.
- Biogas is not considered as an energy source to be utilized for the generation of electricity in the household.
- Most of the household in the urban areas own single plant whereas in the rural areas prefer to own more than one plant.
- The biogas users in the state shown deterrence in accepting biogas plant to be attached with toilets in their household.
- NBMMP program by MNRE and ANERT scheme showing good result in increasing the number of new biogas users.
- The government support in the form of subsidy and cost sharing has increased commercial viability.
- The success of investment in biogas is more as compared with the past scenario and it depends on the geographical conditions, availability of technical services, adequate waste, payback period etc.
- Market research on commercial viability of biogas plant is insufficient in the scenario of Kerala.

- The subsidy provided by the government is not adequate in the urban conditions prevailing in the state.
- Loan for constructing biogas plant is not available at a moderate rate of interest in the rural areas of the state.
- Most of the people in urban and rural areas are aware about the waste processing capabilities of biogas plants.
- Reduction in indoor pollution creates more acceptability to biogas in households in the state.
- The market opportunities for by-products are not yet fully discovered and tapped by the biogas users in Kerala.
- Availability of other fuels like LPG, kerosene at a cheaper rate adversely affects the commercial viability of biogas in Kerala.
- Electricity generation, waste management is the two most important factors that help the growth of biogas plants in future as a renewable source of energy in Kerala.
- The amount of biogas produced, waste disposed are not accounted on a day to day basis.

Suggestions

- ❖ Slurry available from the plant can be used in setting up kitchen garden and there by achieve self reliance in the production of vegetables in the households.
- ❖ Conduct awareness programs with the help of local self governments and residents associations.
- ❖ Conduct campaign “one house-one biogas plant” to disseminate the potential in providing clean energy.
- ❖ Develop biogas plants by adopting the public-private partnership.

- ❖ Increase the waste management capacity by inducting innovative technologies proven in developed countries.
- ❖ Promote community plants in those areas where family plants are difficult to incorporate successfully
- ❖ Make it mandatory to construct biogas plants when sanction is provided for building flats in the state.
- ❖ Promote the dealers of biogas plant and create healthy competition to make them affordable to the common people.
- ❖ Government should make a master plan to buy electricity from biogas plants in the state at a moderate price.
- ❖ Provide technical services at an affordable rate through ANERT.
- ❖ Local self government could collect and distribute bio degradable waste from public to biogas plant users.

Conclusion

Due to industrial revolution and globalization the production has increased immediately and the quantity of waste has increased. In India the management of waste is very cunning and difficult. We had the facility of biogas plants from the late 1970s but they were not promoted by the government as a way of life. Nowadays this has changed from the conservative approach to modern approach that can corroborate the growth of biogas plants as an investment for a better future. There are many reasons such as reduction of indoor pollution, gas for household use, effective waste management, to get bio fertilizers etc. it is not only for the purpose of waste management but as an aid for the so called energy crisis faced by our state aswell as country. If we can make biogas generation a part of daily life then it will be force that can increase our growth in economical as well as ecological environments. If weanalyze the investment and commercial prospectus

of biogas plants it is vast we may sell the excess gas and slurry in the open market and may reduce the use of fossil fuels to reduce the cost of living and to make electricity at a lower cost. For rural India the facility of making electricity may help them to increase their productivity and will make them self reliant in energy for their domestic needs.

Kerala even being a state which is fully literate we are not self reliant on food or energy so we have to see the implementation of biogas plants as one which will aid and make sustainable development. We have not derived or achieved the full capacity of domestic as well as institutional biogas plants. We have only around 30% of our total capacity so there should be a development in the implementation of plants throughout the state. "Minimum investment and maximum return" it should be our motto and then we may achieve the sustainable development within 2032 and it should be carried on by the government itself. The major problem which restricts the waste management is the lack of awareness to the public and the unaffordable cost for after sales services and exploitation by private agencies. These problems should be addressed before making a decision to encourage biogas plants. Commercial viability was always been a deterrent factor in the growth of biogas plants in Kerala but the intervention of state and central agencies solved the problem up to an extent. Kerala is on the path of change and the number of people construct biogas plant has increased within few years. Biogas plants may usher the possibility of biogas becoming a major fuel of the state in the near future. As it is a new development the commercial viability cannot be understood easily so it should be provided the time to ponder itself and to attain importance in the society. The world is moving away from conventional energy sources to the unexploited green energy sources so it is the future that makes use of biogas and byproducts for many activities instead of traditional fuels.

Kerala has immense potential to be tapped and it is possible only through disseminating the innovative utilities of biogas to the people and commercial viability forms an important factor that can help guide to achieve the goal of the state in the future.