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CHAPTER VII

SUMMARY AND CONCLUSION

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CHAPTER VIISUMMARY AND CONCLUSION

This being the last chapter of the dissertation, I intend to summarise the conclusions and findings that, have emerged from the empirical study of the biogas plants in Murgud town as a case study selected for the present research work.

After having examined the nature of energy problem and the policy problems of energy with special reference to underdeveloped countries and particularly to India in Chapter I and II, a brief survey of the quantitative survey of gober gas plants in India and state levels and also at District levels has been given in the Third Chapter. The quantitative growth of biogas plant seems to be satisfactory though uneven at State levels and at district levels too. The quantitative growth of biogas plants points to the need for economising on traditional sources of fuel used for satisfying domestic consumption of the rural economy. With the growth of population and consequent increase in the demand for sources of energy, the substitution of biogas plants as scientific and modern device for effecting the economy on the use of traditional sources of cow-dung cakes, firewood from forest, charcoal and kerosene. Moreover, in view of the crude oil and petroleum products price hicks the new devices like biogas plants in the rural area is much needed.

In Chapter IV, an attempt is made to describe the socio-economic conditions of the rural households having biogas plants at Murgud town. At Murgud town, the households with biogas plant survey, belong to the class of cultivators whose main occupation is farming and animal husbandry. Among the rural Marathe households, following agricultural occupation form a majority among those who have biogas plants. Still the class of medium, small, marginal, sub-marginal and landless agricultural labourers who constitute a large majority of the rural community do not possess the biogas plants. And hence they depend upon traditional sources of fuel used for household cooking purpose. Despite the quantitative growth of biogas plants looked at from Macro level a large majority of the rural households remain out of the use of biogas plants, for want of adequate number of animals (both milch and draught) and also inadequate sources of fodder to feed the animal population. The biogas plant holders mainly belong to the class of big farmers having large size holdings and also large number of animal population. The distribution by the size class of holding consist of the farmers are ranging between no land and lands measuring 12 acres. Eventhough the farmers who have biogas plant do not satisfy the condition of required amount of material i.e. cow-dung on the regular daily basis have installed

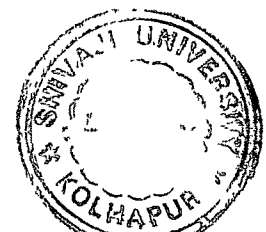
the plants under the lure of capital subsidy granted liberally by the State governments through agencies by Zilla Parishad and K.V.I.C. In case of these farmers an unpleasant fact that emerged out of present study is that the plants could not have been utilised to the designed capacity of biogas plants and even that to extent of satisfying fully their domestic fuel consumption requirements.

It has been observed in Chapter V, that, though the size of the plants have been designed to suit the different levels of available raw material supplies i.e. cow dung, even the minimum size of biogas plant could not be kept in operation owing to lack of required quantity of cow dung daily. The limit on full utilisation of plant capacity stems from basically inadequate size of land holdings and grazing lands and pastures owned by the farming community. To overcome this problem the community biogas plant is no doubt a step towards solving the problem of inadequate supplies of cow dung at micro level, but under the existing circumstances at the rural level may not be a practicable proposition.

In the Chapter VI, an attempt is made to estimate the benefits resulting out of the use of biogas plants. The estimates are both in value and in physical terms. The benefits in physical terms are additions to crop yields of biogas plant users after

economising on cow dung as a direct fuel for cooking purposes. The agricultural crop yields have shown an increase as a consequent upon and additional application of organic manures. Similarly the benefits in value terms are measured at current prices, of additional crop yields during the post installation period. The benefits resulting from the use of biogas plants are no doubt relatively far greater than the cost involved in operating those plants. There are certain families who have reaped the benefits in both value and physical terms. But, they are quite a few number. The conclusion arrived at after an empirical investigation can be applicable at micro level too. The cost involved in operation of biogas plants is quite limited. The main findings arrived at in the empirical investigation carried-out by me are as follows :

- 1) Though the biogas plants are a perfect substitute for traditional devices of fuel consumption in the rural household sector, the feasibility of them is rather obstructed on account of structural rigidities in the rural sector. In other words, the plants could not be worked to the designed capacities on account of the inadequate number of animal population owned by individual families. Despite the structural limits a number of families installed the biogas plants under the lure of heavy



capital subsidy granted by State governments and other agencies like K.V.I.C. and Zilla Parishadas. In the Empirical inquiry, out of 66 plants, 10 were completely closed, 56 were in partial operation and out of these some on the verge of a closure.

- 2) Despite all these limits from the micro point of view the substitution of gober gas plant for traditional sources from the macro view point or rural development point of view is a must.

#### SUGGESTIONS

- 1) Collective or community plants can be alternatives to individual plants. But, under the circumstances the operation of community plant seems to be a remote possibility.
- 2) To overcome the problem of inadequate number of animal population, animal husbandary has got to be promoted and encouraged. There seem to be better prospects for animal husbandary as an allied agricultural activity as the dairy development is in progress in India.
- 3) And lastly the structural limits seem to be quite difficult to be overcome as they require institutional reforms such as land tenure system to economise on traditional sources of fuel consumption, the supply of natural gas could be supplemented to use biogas plants.

The above mentioned suggestions and findings are based on the Empirical study carried out at Murgud town and on the administration of questionnaire to the rural households with biogas plants.

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