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Identify the constraints associated with operation of biogas plant (Gobar gas plant) and suggestion for enhance performance of biogas plant under National Biogas and Manure Management Programme (NBMMP)

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Abstract

Biogas is an important source of energy for the use in the form of cooking fuel which is using in cooking food at place of LPG. In the rural area LPG cylinder are not easily available that's why government started the NBMMP programme to promote biogas. In the rural area, cattle dung (Gobar) is used as a raw material in biogas plant therefore biogas also called gobargas in rural areas. But in the operation of biogas plant there some difficulties and constraints occurs such as high investment, handling and management, lack of technical knowledge, lack of water and cattle dung, accumulation of biogas in gas pipeline, decrease biogas production in winter due to low temperature, biogas use place is away from biogas plant etc. And some suggestion are also suggested by beneficiaries farmers such as subsidy should be increase by government to financial support of farmers, technical support should also be given by government agencies, modernization is required to overcome the drawbacks of operation and management difficulties, dairy development programme should be started to make sure availability of cattle dung.

Keywords: Biogas, farmers' benefit, environment safety and NBMMP

Introduction

Biogas plant (Gobar gas plant) is an important measure for the benefit of farmers and environment in terms of, saving the cattle dung and utilize biogas slurry as manure for enhance crop production otherwise generally cattle dung used by farmers in the form of dung cake in cooking; saving of trees and forest by reduce the use of firewood in cooking purpose replace by biogas; reduce the use of chemical fertilizers with the objectives of soil health improvement by use of biogas slurry in the form of manuring; reduction in green house poisonous gas by the use of smoke free biogas in cooking at place of dung cake and firewood; woman health improve by use smoke free biogas etc. For these benefits Government of India started the National Biogas and Manure Management Programme (NBMMP) in 2005 which was result of merger of the National Project on Biogas Development and manure management initiative. The new NBMMP scheme (MNRE, 2009) ^[1], which aims to encourage people in rural areas to adopt biogas technologies to meet their household cooking and lighting needs, involves Khadi and Village Industries Commission concrete and plastic floating dome plants and cheaper, concrete, fixed-dome Janata and Deenbandhu plants (Singh and Sooch, 2004) ^[2].

Methodology

This study is based on primary data and data collection from beneficiaries farmers. For this study the researcher selected the district Sehore of Madhya Pradesh because of the NBMMP is efficiently functioning in the district and the multistage sampling technique was use for drawing the sample for this study. There was five blocks in the Sehore district at the time of study, namely Sehore, Ichhawar, Astha Nasrullaganj and Budhani. Till the study time period total 5236 number of biogas plant installed in the district and from the five block two blocks were selected namely Sehore and Ichhawar. From Sehore block 4 villages and from Ichhawar block 11 villages were selected. Then 50 beneficiary farmers were selected by Simple Random Sampling (SRS) method.

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The data were collected using by the survey method. In analysis of data, percentage and mean were applied.

Results and Discussion

During the survey for data collection regarding the functioning of biogas plant, researcher found the unsatisfactory among beneficiary farmers in proper operation of biogas plant under the NBMMP programme. This shows that there were some constraints associated which were obstacle in respect of operation and adoption of biogas plant. The constraints analysis was reported based on the opinion survey of biogas beneficiary. The major constraints was perceived by the beneficiaries that is important and has higher value than the average constraints were 'high investment' (1st rank) viewed by 70 percent beneficiaries followed by the 'difficulties in handling and management' (2nd rank) viewed by 64 percent beneficiaries followed by the 'lack of technical knowledge' (3rd rank) viewed by 54 percent beneficiaries followed by 'lack of water availability' (4th rank) viewed by 50 percent beneficiaries followed by 'accumulation of biogas in gas pipeline' (5th rank) viewed by 40 percent beneficiaries followed by 'decrease biogas production in winter due to low temperature' (6th rank) viewed by 30 percent beneficiaries followed by 'biogas use place is away from biogas plant' (7th rank) viewed by 24 percent beneficiaries followed by 'lack of cattle dung' (8th rank) viewed by 20 percent beneficiaries followed by 'corrosion of gas holder in drum model' (9th rank) viewed by 10 percent beneficiaries.

There were some suggestions also opinioned by the respondents, to resolve the above mentioned problems or constraints associated with the biogas plant and improving the efficiency of biogas plant under the NBMMP programme. These suggestions are feedback for programme development agencies because in the rural areas, availability of biogas is extremely below the required level. The first rank important suggestion was 'the subsidy should be increased by government for solve the problem of lack of fund due to high investment, this suggested by 80 percent beneficiaries. The second rank important suggestion was 'more technical support should be provided by authorized agencies and this suggested by 70 percent beneficiaries. The third rank important suggestion suggested by 64 percent beneficiaries as 'public demonstration plants should be available at every panchayat level. The fourth rank important suggestion suggested by the 60 percent beneficiaries as 'water harvesting system should be developed for sufficient water availability. The fifth rank important suggestion suggested by the 54 percent beneficiaries farmers as 'awareness programme should be started by the government for acknowledge and adoption of biogas plant. The six rank suggestion was 'modernization is required to overcome the drawbacks of operation and management difficulties' this suggested by the 50 percent beneficiaries farmers and last suggestion suggested by the 40 percent beneficiaries farmers as 'dairy development programme should be initiated to provide sufficient availability of cattle dung for biogas plants.

Conclusion

For improving the farmers' economic condition and uplift of their living standard biogas plant plays an important role in terms of direct saving of fuel wood cost and save time in cooking and another side indirect benefit soil health improvement after the use of slurry in manuring, woman health improvement by the use of smoke free biogas in cooking. In this study, there are some constraints identified

associated with operation of biogas plant and some suggestion also suggested by the farmers to solve the problem occurred in proper operation of biogas plant.

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