

Biogas Production Technology in India

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Description

This paper presents the state-of-the-art, challenges, and issues related to biogas production technology on small and large scale in India. The biogas development in India occurred in several stages mainly from year 1950-2020. First Stage focused on research and development for practical digester in India as the design and construction of bio digester for production of biogas is one of crucial factor. During this period 15 types of Indian digesters were designed and found virtually feasible, efficient and further development was perpetuated. In the second stage launched and initiated several National Biogas Programs with immense incentives across the rural India. In third stage installation of household size biogas for cooking fuel and lighting in rural from 1984-2004 largely subsidized and further scaled up to urban and peri urban areas till 2019.

India is second most populated country having 1.37 billion populations in 2020 which contributes to 17.7% of global population. Presently 35% of total population in India lives in urban area having density. In rural India biomass is considered as a most important fuel which includes firewood agro-waste of energy consumption is covered by biomass. About requirement of national energy demand is alone fulfilled by biomass as source. However the systems and technologies for biogas production need more enhancement and progression. A program should be initiated for Biogas-Fertilizer-Waste treatment Plant and development of matured integrated technology. The Ministry of New and Renewable Energy, Ministry of Agriculture, Ministry of Food Processing Industry, Ministry of Environment Forests and Climate Change, Ministry of Rural Development, Ministry of Urban Affairs and Housing and Local Bodies have to launch programmer for three objectives and to join hands under a co-ordination body, umbrella organizations, Cabinet Secretariat of government of India.

Biogas technology helps improves life in urban and rural areas with hygienic conditions. Biogas technology is effective and

convenient way for scientific disposal of organic wastes. Good quality enriched manure produced also help improve the soil fertility. It also lowers fuel import bill. All consequences of biogas formed from anaerobic digestion of wastes are positive and benefit to human beings, society and environment. There is no negative impact of biogas in any ways. Under dissemination programmer a large number of biogas units of different capacities were constructed and installed within last 30 years. Government had launched several dissemination programmers for biogas and given subsidy to farmers, social organization and private company.

Conclusion

In urban and rural households of Maharashtra state ARTI biogas are being used for kitchen waste processing and about two thousand units are currently working. The ARTI has also set up some plants in other states of India and foreign countries. This Biogas generation technology is fast and aims to improve biogas efficiency and decrease cost, it require less labor, replace fossil fuel, reduce waste, generate energy, reduce BOD and COD. These digesters are made up of high-density polythene water tank, this consists of one digester and other is use as gas holder. Based on our conclusions, numerous policy recommendations are drawn to enhance the biogas technology utilization. Now in India mature biogas technology is available based on usage of different substrates. Also, commercial biogas plants for different substrates and usage such as domestic, industrial and CNG biogas plants are available in Indian market. Experience suggests considerable government involvement will be good option for the support networks.

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