

Speaking From Personal Experience, Rural Indians Favour Using Biogas for Cooking

Akbar Nazim*

Department of Biotechnology & Biomolecular Sciences, National University of Singapore, Lower Kent Ridge, Singapore

Introduction

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 [1].

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 [2]. 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 programme for three objectives and to join hands under a co-ordination body, umbrella organizations, Cabinet Secretariat of government of India [3].

All economies have recognized the potential of biogas. From 2000 to 2013, the production of biogas increased by more than fourfold, from 0.28 EJ to 1.28 EJ, with Asia experiencing the greatest growth. The top three biogas producers worldwide are China, Germany, and the United States, with India coming in ninth. In South Africa, a 4.4 MW project was started to create electricity from cattle waste. In 2015, Tropical Power Kenya Limited installed a 2.8 MW grid-connected biogas plant. By 2018, the company aims to build plants across Africa that will produce more than 130 MW. Although biogas technology has been widely adopted in Bangladesh and offers advantages such as clean fuel for cooking, issues such as insufficient feedstock and other factors still exist, according to a 2011-2013 biogas audit conducted in Bangladesh.

Description

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

*Address for Correspondence: Akbar Nazim, Department of Biotechnology & Biomolecular Sciences, National University of Singapore, Lower Kent Ridge, Singapore; E-mail: akbarnazim23@gmail.com

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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 [4].

The adoption of renewable energy sources, natural and industrial ecosystem theory, and sustainable consumption and production are the three literary streams that are referenced in this section. SCP focuses on methods and tools to alter processes in the value chain of production and the life cycle of consumption of goods and services to lessen their negative effects on the environment. The literature on natural ecosystems and industrial ecosystem sustainability sheds light on factors that are essential for stability in such systems. Similar to this, research on the adoption of renewable energy technologies reveals obstacles. Together, the knowledge gained from these research areas contributes to a better understanding of how to develop a biogas industrial ecosystem that promotes adoption and is both socioeconomically and environmentally sustainable [5].

Conclusion

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 programme a large number of biogas units of different capacities were constructed and installed within last 30 years. Government had launched several dissemination programmes for biogas and given subsidy to farmers, social organization and private company.

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Conflict of Interest

There are no conflicts of interest by author.

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