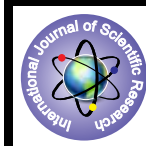


A solid solution for waste menace -With Special Reference to Malappuram District of Kerala



Economics

KEYWORDS :

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ABSTRACT

Solid-waste management is a major challenge in urban areas throughout the world. Without an effective and efficient solid-waste management program, the waste generated from various human activities, both industrial and domestic, can result in health hazards and have a negative impact on the environment. Understanding the waste generated, the availability of resources, and the environmental conditions of a particular society are important to developing an appropriate waste-management system. Similarly the major problem is the deficiency of cooking fuel. This paper try to develop a model, it gives a effective solution for solid waste problem and cooking gas deficiency

Introduction

The rapid urbanization and change in life style has increased the waste load and there by pollution loads on the urban environment to unmanageable and alarming proportions. The existing waste dumping sites are full beyond capacity and under unsanitary conditions leading to pollution of water sources, proliferation of vectors of communicable diseases, foul smell and odors, release of toxic metabolites, unaesthetic ambiance and eye sore etc. It is difficult to get new dumping yards and open dumping is prohibited by law. This is particularly true for Kerala, with severe constraints of land availability, dense population, environmental fragility and expectation for management of solid wastes relies on an overly centralized approach. In earlier days, municipal wastes, comprised mainly of biodegradable matter, did not create much problem to the community as the quantity of wastes generated was either recycled/reused directly as manure or was within the assimilative capacity of the local environment.

The bio degradable waste of the urban centers was accepted by the suburban rural areas for composting in the agricultural fields. With increasing content of plastics and non-biodegradable packaging materials, municipal wastes became increasingly unacceptable to cultivators. As a result, the excessive accumulation of solid wastes in the urban environment poses serious threat. Similar scenario is now emerging in rural areas as well due to the urban-rural continuum, typical to Kerala.

Disposal of solid waste is a major problem in the urban areas of the country. About 20-40 percentage of the waste generated remains uncollected on the Streets and neighbor hoods. Wastes are often dumped on open land areas and dumping of wastes causes in sanitary conditions, obnoxious odors and serves as a breeding ground for many diseases. Today facing difficulty in collection, treatment and disposal of ever-increasing quantity of both solid and liquid wastes. No doubt these wastes also affect public health, overall local and environment. It is estimated that in India the generation of solid wastes in urban areas is about 27.4 million tones every year while that of liquid wastes in Class 1 cities about 12,145 million litres per day. Fortunately the technologies are available which can reduce the volume by 60-70 % . They include Liquid waste Anaerobic treatment, Bio methanation, Sludge incineration etc. For solid wastes, Incineration technology, Pyrolysis / gasification technology, Sanitary Land fill technology etc are feasible.. The main attraction of these technologies is the energy generation during process of treatment, which is a good source of revenue, so that they prove to be commercially viable. In India it is estimated that by adoption of these technologies, over 1000 MW of power can be generated from urban and municipal wastes.

The "Waste to Energy" programme is not only pollution free but eco- friendly and yields benefits such as clean environment, better sanitation and hygiene and convenient utilization of wastes, effecting savings in fuel cost etc. Due to lack of aware-

ness, garbage bundled in plastic carry bags are thrown in to road side drains water bodies and in to the open yards, creating unhygienic situation. It causes blockage of flow in to drains and water bodies and serve as a breeding ground for mosquitoes. Reckless use of plastic carry bags is creating undue pressure on the environment. In Kerala most of the urban local bodies are having partial or adequate facilities for collection and conveyance of MSW.

Some of the urban local bodies in Kerala have initiated action for introducing scientific MSW processing / treatment system. The commonly adopted technology is aerobic composting. Other available technologies for the processing of MSW are sanitary land filling, pellatisation, aerobic composting, vermin culture, incineration and gasification.

On the other hand in India majority of the household are using LPG (Liquid petroleum gas) as a cooking fuel. The Government introduced new policy due to scarcity and high price in international market number of cylinders were reduced in to nine per card holder. The prices of cylinder also rise. The price rise has clearly impacted the poor rural households, leaving the poorer among them in a state of helpless desperation. Not only has the price rise rendered many commodities unaffordable on a regular basis (and thereby reduced consumption below levels termed as adequate nutrition), but it has also resulted in the household facing hardships in other spheres of the household. Over the long term worrying trends are likely to consolidate, wherein households are forced to sacrifice necessities such as professional healthcare and children's education just to make space for sufficient food to survive.

Need for the study

The accumulation of waste is a serious problem that threatens the environment of the entire plant and will continue its exponential growth due to increase in population and industrial development. Out of this domestic waste contributes major part of it. On the other hand cooking gas deficiency is one of the major issues facing by the common people of Kerala. The central government has limited the number of cylinders per card as 9 in subsidized rate of Rs. 400. The middle income family cannot afford this rate. This study focused on these two problems and frame a model to give an effective solution for these two problems.

Objectives

1. To analyze the problems related to cooking fuel and solid waste in Malappuram
2. To recommend a model to solve the cooking gas problem and solid waste problem.

Methodology

1. **Research Design:** Survey method was used with a structured type questionnaire as the Data-collecting instrument
2. **Sampling Procedure:** The samples for the study were se-

lected from Malappuram district of Kerala.

- Data Collection:** In total 110 questionnaires were distributed out of which 100 sample was finally selected.

Findings of the study

Solid Waste problem

Table.1
The Quantity of the Solid waste

Quantity	Percentage of Respondents
1to 2	72
2to 3	12
Above 3	16
Total	100

Source: Primary data

Majority (72 percent) of the households in the study area would produce 1to 2 kg of solid waste per day followed by above 3 kg (16 percentage) and 2to 3 kg (12 percentage) respectively. Respondents also opined that there is no proper collection and transportation and recycling of solid waste in the study area.

Table.2
Problems related to solid waste

Problems	Percentage of respondents
Water pollution	24
Air pollution	8
Sewage problem	22
Effect of improper dumping	41
Other problems	5

Source: Primary data

The problems due to solid waste were shown in the Table .2. It is inferred from the table that 41 percent of respondents reveals that effect of improper recycling (41 percent) is the major problem, followed by water pollution (24 percent) and air pollution (22 percent) respectively .8 percent of respondents opined that sewage problem and only 5 percent says about other problems.

Problems related to Cooking fuel

Table.3
Classification on the Basis of type of Fuel Using for Cooking

Fuel	Percentage
LPG	78
Wood	14
Other	8
Total	100

Source: Primary data

The classification on the basis of fuel using for cooking is shown in the Table.3. It is observed from the table that majority (78 Percent) of the respondents were depending LPG, 14 percentage on wood and only 8 percentage of respondents were depending other fuels for cooking.

Table .4
Problems for depending LPG as a cooking fuel

Problems	Percentage
Unavailability	25
High price	66
Risk of using LPG	4
Other problems	5
Total	100

Source: Primary data

Table .4 reveals the problems of depending LPG as a cooking

fuel, 25 percent of the respondents opined that unavailability is the major problem. It is due to the central government’s new policy of reducing number of cylinders as nine for one card holder with a subsidized rate of Rs 400.The price for one cylinder it unaffordable for a middle income group. So respondents reveal that high price (66 percent) is also a problem.

Model

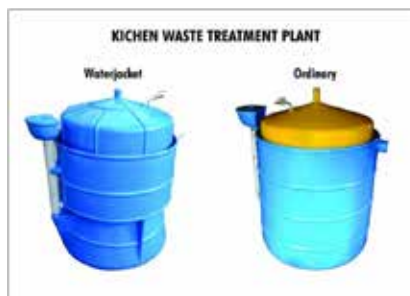
Portable Biogas digesters are provided as a solution that not only helps manage wet waste but also displace a family’s LPG needs by half. An average Indian family of 4 consumes one LPG cylinder a month, thereby 12 a year. According to the new government provisions made for LPG, only 9 cylinders will be available under subsidized rate of Rs.400 and the rest 3 will have to be purchased at a commercial rate of Rs.770-800. If Biogas is installed in homes, the family only has to spend Rs.2400 on the first 6 cylinders of LPG, the remaining 6 is taken care by biogas, resulting in an average savings of Rs.4800 a year. With about 1.2 sqm space, they can be placed in balconies, terraces, backyards, basements and gardens. Larger units are available for apartment complexes, hotels, restaurants, choultrys and office buildings with an option of converting gas into electricity. The lifespan of a digester is about 25 years.

A biogas unit comes with a digester tank in which everyday kitchen waste is digested by anaerobic bacteria that emit about 70% flammable methane and other gases. This gas is stored within the upper drum that floats in water and moves up or down, according to the quantity of gas. The gas drum is prevented from tilting by a guiding frame. If excess gas is produced, it is automatically released due to buoyancy, ensuring safety. Gas passes through a gas pipe connected to a Biogas stove, similar to LPG stoves, and is ready for cooking. The input for the digester is one part kitchen waste and one part waste water that can be obtained from washing rice and dhals. Once the entire mass gets digested, it is converted into a rich liquid manure which comes out of the outlet pipe and collected in a bucket. This can be used for gardens, potted plants or poured into the drain.

Working of the biogas plant

- 1 Collect the food waste , water after washing cereals , meat , fish etc in a vessel and then put the wastes of vegetable and fruits and other shabby food into it.
2. Then pour this mixture into the tank of the plant.
3. Along with these can dump the excreta of cattle, goat, hen etc with equal amount of water into the tank.
4. These waste materials change into cooking gas and bio fertilizers.
5. The cooking gas that get collected within the plant can be transferred into the gas stove of the kitchen as needed through a pipe line connected to plant.
6. The bio fertilizers that come out the plant can be used for agriculture.

The government of Kerala introduced a project named “Thanal” in which subsidize the biogas plant at household level at low cost. Portable biogas plants in Kerala the specialty of the biogas plant is that along with the production of cooking gas, it keeps the surroundings clean and it is very safe to use. It occupies only a very small area and it is portable. It can also be easily transferred from one place to another. No labour work or digging a pit is required for this.



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