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Research Article

A STUDY ON THE WASTE DISPOSAL PRACTICES AND ITS IMPACT IN ALAPPAD PANCHAYAT, KERALA

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Abstract

Waste is always an important problem in this era, where people are not aware of the waste they produce in their household or institutions. Waste is directly linked to human development, both technological and social. The compositions of different wastes have varied over time and location, with industrial development and innovation being directly linked to waste materials. Examples of this include plastics and nuclear technology. Some waste components have economic value and can be recycled once correctly recovered. Waste is sometimes a subjective concept, because items that some people discard may have value to others. With increase in the global population and the rising demand for food and other essentials, there has been a rise in the amount of waste being generated daily by each household. Alappad is a coastal village in the Kollam District of the Indian state Kerala. It is situated on a narrow strip of land sandwiched between the Arabian Sea a few species of ham and the TS Canal - the village is approximately 16 km long and its narrowest point is as thin as 33 meters. So the household people and petty shop people are not at all aware of the waste disposal they have been practising for a long time. The practise they make every day become a habit which affect their habitat with waste problems. Collective effort from a village can be initiated for a waste management process. Making a prompt step will be intended for effective waste management or disposal solution leads to a proper waste management process. Community level intervention should have to be done for a effective outcome. The purpose of this study is to analyse the waste disposal at the community located in the Alappad Panchayat in Kollam district of Kerala. The scope of this study within the community is assessed based upon following a three-fold approach. Firstly the awareness of community on the waste production within this community is examined. Secondly, the disposal method or model is evaluated and compared within this community. Thirdly, the Waste Disposal of the members of the community is gauged. The study was conducted upon a thin section of the society belonging to a specific ethnographic framework with the focus upon twenty participants. Data was collected via interviews and through the administration of an observation checklist. The results of this study can be extrapolated to project the overall effect Waste Management or Waste disposal in coastal villages throughout the entire nation of India.

Key words: Waste disposal; household; Alappad Panchayat; Waste management

Review of Literature

Waste (also known as rubbish, trash, refuse, garbage, junk, and litter) is unwanted or useless materials. Waste is directly linked to human development, both technological and social. The compositions of different wastes have varied over time and location, with industrial development and innovation being directly linked to waste materials. Examples of this include plastics and nuclear technology. Some waste components have economic value and can be recycled once correctly recovered. Waste is sometimes a subjective concept, because items that some people discard may have value to others. It is widely recognized that waste materials can be a valuable resource, whilst there is debate as to how this value is best realized. Such concepts are colloquially expressed in western culture by such idioms as "One man's trash is another man's treasure." Modernization and progress has had its share of disadvantages and one of the main aspects of concern is the pollution it is causing to the earth – be it land, air, and water. With increase in the global population and the rising demand for food and other essentials, there has been a rise in the amount of waste being generated daily by each household. This waste is ultimately thrown into municipal waste collection centres from where it is collected by the area municipalities to be further thrown into the landfills and dumps. However, either due to resource crunch or inefficient infrastructure, not all of this waste gets collected and transported to the final dumpsites. If at this stage the management and disposal is improperly done, it can cause serious impacts on health and problems to the surrounding environment (Sasikumar and Gopi Krishna, 2013).

Waste that is not properly managed, especially excreta and other liquid and solid waste from households and the community, are a serious health hazard and lead to the spread of infectious diseases. Unattended waste lying around attracts flies, rats, and other creatures that in turn

spread disease. Normally it is the wet waste that decomposes and releases a bad odour. This leads to unhygienic conditions and thereby to a rise in the health problems. The plague outbreak in Surat is a good example of a city suffering due to the callous attitude of the local body in maintaining cleanliness in the city. Plastic waste is another cause for ill health. Thus excessive solid waste that is generated should be controlled by taking certain preventive measures. He group at risk from the unscientific disposal of solid waste include – the population in areas where there is no proper waste disposal method, especially the pre-school children; waste workers; and workers in facilities producing toxic and infectious material. Other high-risk group include population living close to a waste dump and those, whose water supply has become contaminated either due to waste dumping or leakage from landfill sites. Uncollected solid waste also increases risk of injury, and infection. (Sasikumar and Gopi Krishna, 2013). In particular, organic domestic waste poses a serious threat, since they ferment, creating conditions favourable to the survival and growth of microbial pathogens. Direct handling of solid waste can result in various types of infectious and chronic diseases with the waste workers and the rag pickers being the most vulnerable.

Exposure to hazardous waste can affect human health, children being more vulnerable to these pollutants. In fact, direct exposure can lead to diseases through chemical exposure as the release of chemical waste into the environment leads to chemical poisoning. Many studies have been carried out in various parts of the world to establish a connection between health and hazardous waste. The unhygienic use and disposal of plastics and its effects on human health has become a matter of concern. Coloured plastics are harmful as their pigment contains heavy metals that are highly toxic. Some of the harmful metals found in plastics are copper, lead, chromium, cobalt, selenium, and cadmium. In most industrialized countries, colour plastics have been legally banned. In India, the Government of Himachal Pradesh has banned the use of plastics and so has Ladakh district. Other states should emulate their example.

Community members' responsibilities in managing their waste include:

- keeping their yards free of rubbish that is likely to attract or shelter vermin (eg. old car bodies, piles of building material, food scraps, or garden waste)
- securing rubbish bins against scavenging dogs, rats and other animals
- making their bins available for regular council collection
- cleaning up dog waste regularly to prevent flies breeding
- preventing their dog wandering and soiling public areas or neighbours' yards
- taking excess household waste to the council waste tip
- Not illegally dumping waste, especially hazardous waste.

It is becoming increasingly recognized that as waste management practices move from simple disposal by landfilling to integrated waste management schemes involving several recycling and recovery options, there is an increased need for information on the quantities and composition of the waste being managed (Pruess *et al*., 1999). During a review of a commercial waste bio-stabilization process in Germany, • Rosseaux *et al.* (1989) measured the heavy metal content of the different fractions of household waste. They concluded that these potential pollutants tended to be concentrated in the metals, batteries and electronic equipment and, to a lesser extent, in the unclassified material and the leather/rubber fractions. Plastics tended to have elevated concentrations of cadmium compared to the other fractions. A UK Environment Agency classifies waste as either controlled waste or non-controlled waste. Controlled waste includes waste generated from households (municipal solid waste), commercial and industrial organizations and from construction and demolition. Non-controlled waste includes waste generated from agriculture, mines and quarries and from dredging operations. In 1998–99 over 470 million tons of waste were generated in the UK. The mean production of daily household and commercial waste in EU Member States in 1993–96 was approximately 370 kg/capita/annum, ranging from 350 to 430 kg. Municipal solid waste (MSW) consists of many different things including food and garden waste, paper and cardboard, glass, metals, plastics and textiles. These are also generated by commercial and industrial organizations although large volumes of chemical and mineral waste are produced in addition, depending on the sector. Agricultural waste comprises mainly slurry and farmyard manure with significant quantities of straw, silage effluent, and vegetable and cereal residues. Most of this is spread on land. Certain types of waste are defined as hazardous because of the inherent characteristics (*e.g.* Toxic, explosive). The three largest waste streams in this category are oils and oily wastes, construction and demolition waste and asbestos, and wastes from organic chemical processes (WHO, 2004, 2005).

Waste management is now tightly regulated in most developed countries and includes the generation, collection, processing, transport and disposal of waste. In addition the remediation of waste sites is an important issue, both to reduce hazards whilst operational and to prepare the site for a change of use (*e.g.* for building). **Waste management** is the collection, transport, processing or disposal, managing and monitoring of waste materials. The term usually relates to materials produced by human activity, and the process is generally undertaken to reduce their effect on health, the environment or aesthetics. Waste management is a distinct practice from resource recovery which focuses on

delaying the rate of consumption of natural resources. The management of wastes treats all materials as a single class, whether solid, liquid, gaseous or radioactive substances, and tried to reduce the harmful environmental impacts of each through different methods (WHO, 2004, 2005).

Waste management practices differ for developed and developing nations, for urban and rural areas, and for residential and industrial producers. Management for non-hazardous waste residential and institutional waste in metropolitan areas is usually the responsibility of local government authorities, while management for non-hazardous commercial and industrial waste is usually the responsibility of the generator.

The major methods of waste management are:

1. Recycling—the recovery of materials from products after they have been used by consumers.
2. Composting—an aerobic, biological process of degradation of biodegradable organic matter.
3. Sewage treatment—a process of treating raw sewage to produce a non-toxic liquid effluent which is discharged to rivers or sea and a semi-solid sludge, which is used as a soil amendment on land, incinerated or disposed of in land fill.
4. Incineration—a process of combustion designed to recover energy and reduce the volume of waste going to disposal.
5. Landfill—the deposition of waste in a specially designated area, which in modern sites consists of a pre-constructed 'cell' lined with an impermeable layer (man-made or natural) and with controls to minimize emissions.
6. Environmental monitoring of all potential sources of pollution from different waste management options has been, and is being continuously, carried out and thus a great deal is known about the types and amount of substances emanating from them.

Research Methodology

To Study on the waste disposal practices in Alappad panchayat Kerala. The study takes a closer look at people's perception and knowledge on waste and waste disposal practices. It uses household surveys / interview schedule / focus group discussions to investigate communities' responses on Waste and Waste disposal

Specific objective

- To study the perception and knowledge on Waste
- To study the perception and knowledge on Waste Disposal
- To study the level of involvement of the people on Waste Disposal method.

Statement of Problem

Waste is a significant issue which affects the environment. It's a major issue where factors affected related to cleanliness also affect the environment. So awareness program like Swacth Bharath should awake awareness among people for the idea of basic waste management importance. My study will be focused on looking into how the waste problem has impacted the participants and how they respond to this issue of basic waste disposal. This study focuses on the community in the Alappad region and on the waste disposal strategies administered by them.

Research Design

This study intent to follow Descriptive research design

Universe

Allapad Panchayat

Field Setting

Alappad is a coastal village in the Kollam District of the Indian state Kerala. It is situated on a narrow strip of land sandwiched between the Arabian Sea a few species of ham and the TS Canal - the village is approximately 16 km long and its narrowest point is as thin as 33 meters. The village is connected to the mainland by a bridge at the southern part of the land strip, as well as by country boat ferries, operated by the Panchayat and private parties.

Alappad village is a ward of the panchayat of the same name. Often, the whole panchayat is referred as Alappad; however, the panchayat actually consists of various wards/places such as Azheekkal, Kuzhithura, Parayakadavu, Cheriazheekkal, and Pandarathuruthu. Portions of the village were damaged during the 2004 Tsunami. Alappad was the worst-affected village in Kerala - several people lost their lives. After the tragedy, the state government is constructing another bridge at Azheekal, in the northern part of the village.

Unit of study

Stakeholder of waste management system in Allapad panchayat (stakeholder: one who is involved in or affected by a course of action)

Sampling

- The study would follow simple **random sampling.**
- **Sample Size: 60**

Methods of Data collection

- Interview
- Observation

The researcher uses both in-depth interview and observation is the method of data collection. In depth interview is to collect the data directly from the stake holders and the observation helps to observe the activities of participants in their household especially their community.

Primary

- Interview schedule
- Observation

Secondary

- Magazines
- Articles

Results and Discussions

This study is effectively done through a parallel study done at the same field on the topic of effectiveness of campaign .This results on these pictorial representation on the effectives on this program published previously (Subramoniam and Suresh 2014).

Data Analysis

Experience of the stakeholders/ Participants

Participants are very enthusiastic on part of the interview and made effective awareness on the waste and waste management in community. All are aware and experienced knowledge of sorting waste and cleaning. Also conducted classes before was helpful for the participants to know the waste and waste disposal, these are some of the positive thing they found effective in waste management. Experiences of participants observed during study is shown in Fig 1.

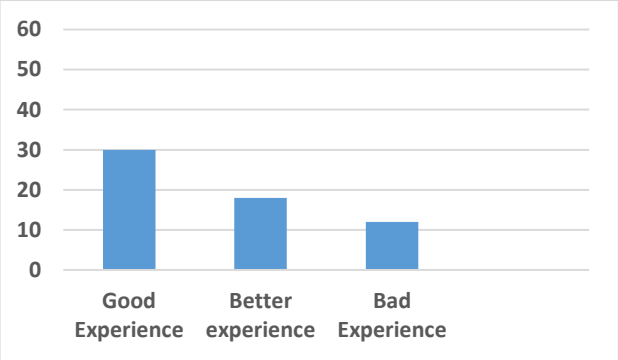

Fig. 1: Experiences of participants

Waste Sorting

Participants are effectively done the sorting the waste in Allappad Panchayat, they are aware of the procedures and know the nature of the waste. Many of the participants are still continuing in sorting of the waste according to the wastes nature. Fig 2 shows the distribution of respondents involved in sorting of wastes.

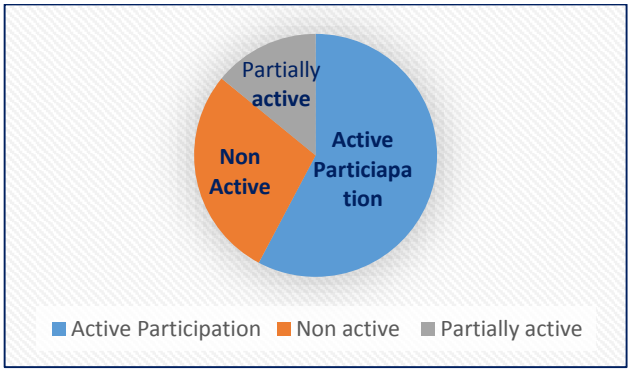

Fig. 2: Distribution of respondents

Hygiene

Participants are from a community where hygiene and sanitation properly done with the community level of satisfaction. This Panchayat consisting of 70 % of fisherman with 23 % initial sanitation coverage.(Source : SUEF India). Distribution of awareness level of hygiene and sanitation among respondents is shown in Fig 3.

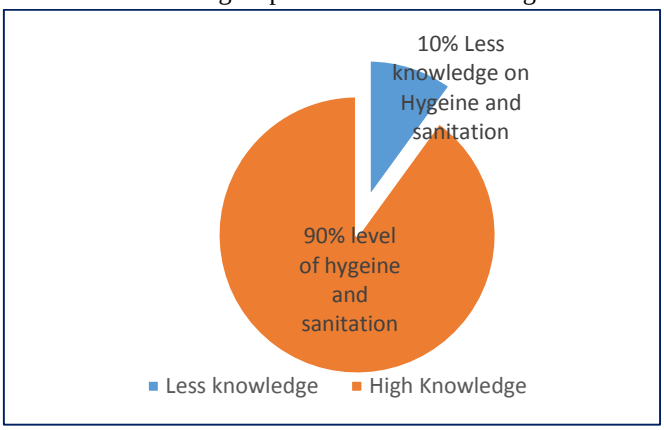

Fig. 3: Distribution of awareness level of hygiene and sanitation among respondents

Waste Management

The Participants were actively part of the waste management procedure like waste sorting, and proper segregation of waste. Also the respondent thinks waste management is the duty of Panchayat participation

Social Participation

Participants from the community where in unity in doing a campaign. People expected more participants from the other community nearby where they felt social participation is needed in this project will helpful for joining more participants

Experience of the stakeholders/Sorting of waste

Participants are very enthusiastic on part of the program and made a effective awareness on the waste and waste management in community. All are aware and experienced knowledge of sorting waste and cleaning. Experience of sorting waste was a unique one for them to gain the knowledge on waste and waste management.

Experience of the stakeholders/Hygiene

Participants are from a community where hygiene and sanitation properly done with the community level of satisfaction. By doing a program made them aware of the hygiene in their community level and individual level. So experiencing the program will make the participants about the awareness effectively

Experience of the stakeholders/ Waste Management

The Participants were actively part of the waste management procedure like waste sorting, and proper segregation of waste.

Experience of the stakeholders/ Social Participation

Unity was the word used by more participants in the community when the interviewer asked questions on the respondent's experience. People expected more participants from the other community nearby where they felt social

participation is needed in this project will helpful for joining more participants

Conclusion

Waste sorting is in which the community of Alappad Panchayat effectively took part, by actively sorting waste as well as increasing their awareness of the need of waste management in a community. Waste is a serious issue in the community because the geographical area of Alappad is enclosed by water on three sides and land area is limited, thus facilitating the need to keep rubbish piles to a minimum. Waste management is of utmost importance to reduce public rubbish accumulation, promote cleanliness and to have a clean environment.

Prior to their exposure, the villagers in the area had little awareness of the concept of sorting rubbish and refraining from depositing waste on the road-side and walkways. Participants in this study were educated in proper procedures to sort through rubbish separating recyclable items from non-recyclable, organic, etc; to create compost from food and organic waste, and to properly dispose of the various categories of rubbish.

Involvement of the process impacted the entire community by raising awareness and enthusiasm in cleaning up their community. The benefits of this involvement reach out to other areas of the villagers' lives, such as sanitation and reducing the proliferation of disease-causing microorganisms that are spread through unhygienic practices such as spitting and urinating in public.

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