



Assessment of Household Solid Waste Generation in Rural Areas

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Abstract Solid waste disposal poses a greater problem because it leads to land pollution if openly dumped, water pollution if dumped in low lands and air pollution if burnt. Rural areas are facing serious environmental degradation and public health risk due to uncollected disposal of waste on streets and other public areas, clogged drainage system by indiscriminately dumped wastes and by contamination of water resources near uncontrolled dumping sites. The study is conducted in the district of Gujrat, Pakistan. Researchers have selected rural areas name are Sabour, Jandla, Samarala and KotlaVillage. The primary data is collected using questionnaires to interview one respondent from each selected household. The household selection is done by simple random sampling method. Sample size is 150. It is concluded the disposal methods of solid waste used by residents in the study area were very unsatisfactory. Majority of both nearby and far away residents indicated that the dumpsite is the breeding place for disease vectors, cause diseases, and makes the place dirty. Many disease is spreading in village because of solid waste and it has a bad effect on people health Effected population is considered burden on the society that area cannot progress properly. The result is concluded that if people have more awareness and they look after their health and adopt safety habit for health they can less victim of solid waste disease

Keywords Household, Solid Waste, Rural Area

Introduction

Wastes are an unavoidable part of human activity. They either come from man's production activities or as a by-product of the materials consumed by man. A rising quality of life and high rates of resource consumption patterns have had an unintended and negative impact on the urban environment - generation of wastes far beyond the handling capacities of urban governments and agencies [1]. Events of the 20th century and early into the 21st century indicate that waste, in whatever form or classification (solid, liquid, or toxic,) has become a major consequence of modernization and economic development [2]. Solid wastes are the entire fritter away takes place from human and animal actions that are usually solid and are surplus as ineffective or not needed. These surplus waste resources are often reusable and can be measured a resource in different feature. This solid waste widely comprise varied accumulation of throw-outs from the urban society as well as more homogenous buildup of agricultural, industrial and mineral wastes [3]. Solid waste is distinct as any garbage, decline, sludge from waste action plant, water supply handling plant, or air contamination manage facility and other resources, as well as solid, liquid, semisolid, contained gaseous resulting from industrials, commercials, mining and agricultural operations from community activities [4]. It is only in very recent times, when certain NGO's started working and highlighting the pathetic state of municipal waste services provision in the country, that the decision makers realized the importance of this particular aspect of environmental management [5].



Solid Waste

Solid wastes comprise all the wastes arising from human and animal activities that are normally discarded as useless or unwanted [6].

The Sanitation Connection, (2002, online) also regards solid waste as “material that no longer has any value to the person who is responsible for it, and is not intended to be discharged through a pipe. It does not normally include human excreta. It is generated by domestic, commercial, industrial, healthcare, agricultural and mineral extraction activities and accumulates in streets and public places. The words “garbage”, “trash”, “refuses” and “rubbish” are used to refer to some forms of solid waste”.

Solid waste is therefore any solid material that comes from domestic, commercial, industrial, agricultural and demolition activities, and is regarded as unwanted by those who own it. This leads us to the sources of solid waste.

Sources and Types of Solid Waste

Solid waste is generated from various sources. These sources relate to the different land uses in a community. Tchobanoglous *et al* [6] classify the sources of solid waste in a community by;

- Residential, this consists of combustible and non-combustible solid wastes from residential areas. It contains materials such as food waste (garbage), paper, corrugated cardboard, plastics, textiles, and rubber, leather, wood, and yard wastes. The non-combustible (inorganic) part consists of items such as glass, crockery, tins, cans, aluminum, ferrous metals and dirt. A great portion of the residential waste is putrisible, that is wastes which decompose quickly, especially in warm weather. These putrescible wastes come from the handling, preparation, cooking and eating of foods. Tchobanoglous *et al* [6] also identified bulky items, consumer electronics, batteries, oil and tires as special residential wastes which are collected separately. According to them, bulky items include large worn-out or broken down items such as furniture, lamps, bookcases, filing cabinets, and other similar items.
- Commercial, wastes from these sources are similar to those from residential sources, except for those related to cooking and eating.
- Institutional, the generators of this source of wastes include government offices, schools, hospitals, and prisons. They added that most hospitals’ medical wastes are handled separately from the rest of the solid wastes stream.
- Another source of waste they mentioned is the wastes from demolition and construction activities. This result from repair of individual residences, commercial buildings and other structures. It may also include wastes from razed buildings, broken-out streets, sidewalks, and bridges.
- Municipal services, other waste from street sweepings, roadside litter, municipal litter containers, landscaping and tree trimmings, catch basin debris, dead animals and abandoned vehicles are categorized as wastes from municipal services.
- Other sources of wastes include treatment plant wastes, industrial solid wastes, and agricultural wastes.

Components of Solid Waste

The domestic solid waste stream also contains different components which are used to classify them into such types as organic or inorganic, biodegradable or non- biodegradable. For example plastic, paper, glass, ceramics, textiles, metal and inert wastes [7]. A study conducted by Surrey County UK in 2002/2003 He analyzed the composition of the solid waste stream in the County as containing paper/card, plastic film, dense plastic, textiles, miscellaneous combustibles, glass, ferrous metal, garden waste and food waste The organic matter (paper, wood, food waste) is that aspect of the waste stream that is compostable. The inorganic matter on the other hand, is non-compostable (rubber, leather, plastic, metal, glass, fabric and battery, among others).The other classification is into biodegradable and non-biodegradable. The biodegradable waste matter Non-biodegradable waste will not break down (or won't for many years). Examples are plastics, metal and glass. Dangerous chemicals and toxins are also non-biodegradable, as are plastic grocery bags, Styrofoam (polystyrene), and other similar materials.



Solid Waste Effect on Human Health

The existence of heavy metals in MSW composts may have an effect on some microbiological characteristics of soil such as the structure of the soil micro biota, which are dependable for the transformations production nutrients existing to plants. The sound effects of MSW dung and mineral-N amendments in a 2-year field test on some physical-chemical property, some enzyme activities and the genetic diversity of cropped plots (sugar beet-wheat rotation) and un-cropped plots were examined [8]. Solid waste removal reasons a greater complexity because it leads to ground pollution [9].

Waste management activity effect on human health. Although the main focus is primarily on municipal solid waste (MSW), experience to bio-aerosols from composting facilities and to pathogens from sewage treatment plants is considered. The adverse health outcomes for the common population living close to landfill sites, composting facilities and nuclear fixing are usually inadequate and questionable. There is persuasive confirmation of a high danger of gastrointestinal problems linked with pathogens originating at sewage treatment plants [8].

The majority of households store up their waste in open containers and plastic bags in the home. Waste storage in the home is related with the presence of houseflies in the kitchen. The presence of houseflies in the kitchen during cooking is associated with the incidence of childhood diarrhea. Scarce solid waste facilities effect in haphazard burning and burying of solid waste. There is a relationship between waste burning and the incidence of respiratory health sign between adults and children. Poor treatment and disposal of waste are major causes of environmental pollution, which creates breeding grounds for pathogenic organisms, and the increase of infectious diseases [10]. Indoor air pollution somehow caused by the solid waste [9]. Solid can be increasing the water pollution that caused the diarrhea in rural areas [10].

Objectives of the Study

- To study the types of waste at generation point
- To study which types of solid dispose off in the village
- To find out way to disposal solid waste in the village
- To study the solid waste disease among the villagers
- To see the awareness level among villager

Research Methodology

The study is conducted in the district of Gujrat. Researchers have selected rural areas name are Sabour, Jandla, Samarala and Kotla Village. Descriptive and exploratory types of research design is used. In this study, both primary and secondary data is be used. The primary data is collected using questionnaires to interview one respondent from each selected household. The household selection is done by simple random sampling method. The household details are collected through the direct contact with the head of each sampled household. Researcher is used purposive sample technique. Sample size is 150. To collect the required data and information, the head of each sampled household will be interviewed. For the personal interview, a pre-designed questionnaire is used.

Statistical Analysis

Hypothesis

Ho = There is no relationship between improperly Disposal solid waste and Diseases.

H1 = There is relationship between improperly Disposal solid waste and Diseases.

Level of Significance: $\alpha=0.05$

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	34.839 ^a	5	0.000
Likelihood Ratio	36.251	5	0.000
Linear-by-Linear Association	9.189	1	0.002



N of Valid Cases 150
 a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 2.66.

Symmetric Measures		
	Value	Approx. Sig.
Phi	0.482	0.000
Cramer's V	0.482	0.000
N of Valid Cases	150	

Critical Region

We reject the null hypothesis if p-value is less than 0.05

The analysis the children playing near the solid is more effected than other. Our calculated p- value is less than level of significance so we reject our null hypothesis. The table shows that there is relationship between improperly Disposal solid waste and Diseases among people. It indicates by phi Cramer s value that there is wanted relation among the variables.

Conclusion

Poor management of Solid Waste can also affect ground water. Consequently everyone has to be involved in Solid Waste Management for effective and efficient Solid Waste Management systems. On the other hand waste can be a resource that can be used and provide employment opportunities that may contribute to poverty alleviation if the populations are informed, educated and included in the Solid Waste Management decision making process. It is not only important to involve individuals in Solid Waste Management but also groups and the private sector as full ownership and management by the government may not be the most efficient approach. Increasing Environmental and Health Impact of Solid Waste Disposal Residents are not happy about the location of the dump site. The disposal methods of solid waste used by residents in the study area were very unsatisfactory. Majority of both nearby and far away residents indicated that the dumpsite is the breeding place for disease vectors, cause diseases, and makes the place dirty. Many disease is spreading in village because of solid waste and it has a bad effect on people health Effected population is considered burden on the society that area cannot progress properly. The result is concluded that if people have more awareness and they look after their health and adopt safety habit for health they can less victim of solid waste disease.

Recommendations

- Need to appropriate policy and strategic framework needs to be developed, together with technical guidelines on key issues such as organic composting and landfill operations, to properly guide local bodies in effective Solid Waste Management;
- Reduce, reuse, and recycle (3R) should be promoted. The survey identified great potential for resource recovery in rural areas which could be realized with better public awareness and initiatives by local bodies and communities;
- Strengthening the capacity of local bodies is essential, as they are mandated to provide Solid Waste Management; services to the Rural areas;
- Enhancement of public participation and consultation would be effective in advancing Solid Waste Management; practices;
- Costs for Solid Waste Management; need to be recovered, albeit partially at first, to provide better services. The public is generally willing to pay for services if the level of services is improved;
- The management, updating, and dissemination of basic data will play an important role in improving planning by the local bodies and monitoring implementation progress;

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