

# Solid Waste Management in Poombarai Village of Kodaikanal - Strategy for Sustainability

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## Abstract

*Environmental issues are the most pertaining problems in almost all the hilly regions of Tamilnadu and its surrounding. The environment is mostly polluted and getting destroyed due to several aspects. The Mother Nature is been getting destroyed by several factors because of the human activities and nature by itself. This dissertation aims at examining certain environmental issues that are prevailing in all most all the hilly regions of the state. Some of the basic issues are the water pollution, sanitation, improper drainage systems, wastage of rain water, deforestation, soil erosion etc. This dissertation further aims to explore the relationship between the economic growth and the pressure on nature from the environmental sustainability perspective. The area chosen for the present study is one of the leading economically developed tourist spot of Tamilnadu viz kodaikanal. The region is well served with almost all economic factors and well developed area. But, it undergoes lots of environmental issues and problems that brings the value of the spot in lower level. Solid waste management is one of the major issue identified in the particular study area. In depth study and analysis of the issue is discussed in brief. The purpose of the study is to bring the better environment relating to several human aspects. The questionnaire has been developed in order to gather information regarding the current issues and demographic study on the particular village. The surrounding villages of Kodai has importance in each and every aspect, but the growth is less due to some environmental impacts that does not connects to the city easily. The second part tells about the major issues and people needs for better improvement.*

**Keywords:** Sanitation, Deforestation, Sustainability, Demographic Study.

## Aim of the Present Research

The aim of the work is to optimize the routing for the collection of municipal solid waste to the processing site using necessary tools and machines to be effectively used and in some places it can be tracked by GPS techniques in the villages of Kodaikanal.

## Objective of the Study

1. To understand the current environmental issues in the selected villages of kodaikanal.
2. To know the causes and impact of storm water drainage system in the selected village.
3. To study the importance and possible technique of the drainage system
4. To describe the various steps and factors involved in the current issues
5. To teach the village people the importance and possible solution in effective usage of storm water drainage system.
6. To suggest and reduce measures to overcome the drainage system.

## Significance of the Study

This study has a major significance in day to day life of Kodaikanal tourism. The recent trends in the population strength is an increase day by day based on several aspects and importance of tourism.

The actual population total is increasing in kodaikanal and people get more stuffed inside the city, so they started moving towards the outskirts of the city. They are getting more nearer to the villages which are present nearby. Most of the villages face lots of problems in respect to transportation, communication and waste management principles. The solid waste management is the major problems occurring in outskirts of the city and nearby villages. Most of waste are been dumped across the road side of the villages and causes several problems for the people to pass by and also makes the tourist people a challenging one.

**Research Problem**

The study proposed here is to investigate the problem of drinking water consumption and sewage water disposal of households at the municipal levels at kodaikanal villages. Starting from the quality generated other related disease and the type of existing modes of disposal in outer zones. The disposing mediums at various places involved in disposal of sewage water will be at an account. Sewage water causes negative externality. So the human welfare owing to sewage water will be analysed. Specific rules regarding disposal of sewage of water, policy on sewage water management are to the analysed at natural level. So the proposed study will come out with the set of guidelines for policy making at least at local level in the light of the empirical study.

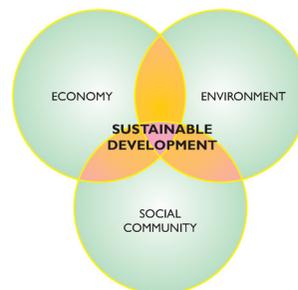
**Special Study**

In my study area I have taken an specific terminology called as vermi-compositing that is the common factor that's is considered in most of the hilly villages. The waste that are generated form the home waste and the decomposing of the fruits and vegetables that are used regularly by everyone . most of the waste are been not used in an efficient manner. in order to make the study an interesting one, the study is taken up for further investigation. In in this method the various specified of worms are been fed inside to eat up the unwanted bacteria and later it is allowed to decompose it and it is been used as the fertilizer or manure for the agriculture crops. This is rich in nutrient contents and helps the plants to grow in a better way.

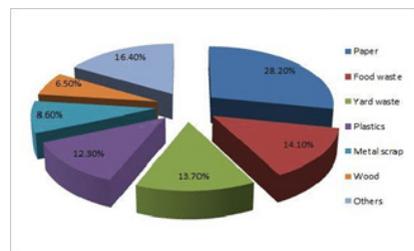
**Introduction to Solid Waste Management**

Municipal Solid Waste Management is considered as one of the most important and serious environmental issues mostly in all developing countries. The solid waste management has practised by developed nations for developing strategies largely depending on a number of factors, such as topography, population density, transportation and infrastructure, socio-economic and environmental regulations includes materials that historically have been handled in the Municipal Solid Waste that is from municipal sources, sent to municipal landfills. This includes wastes such as packing materials, newspapers, institutional and offices papers, bottles and cans, boxes, food wastes, grass, clothing, furniture, appliances, vehicle tyres, used electronic goods, batteries, excluding constructed and demolished wastes, industrial process wastes, etc. These materials, over time, have made to be processed separately.

**Sustainable Development**



**Municipal Solid Waste Percentage of Waste**



**Sustainable Development**

Here the development is obvious but the only difference is that we would be using the resources available right now without disturbing those which are reserved for future use. Thus, Sustainable development can be defined as a development where we full fill the needs of present day and we don't

compromise on the ability of the future generation to full fill their own needs. Seeing in the context of sustainable development there are lots of issues and problems in current scenario. The problems in today's context is more serious in all aspects. We twisted them and ourselves will have to solve all the problems as soon as possible to avoid further issues to the environment. Sustainable development makes the entire universe a better method of improvement. The possible way to use the natural system and other ecological services. The productivity of the resources should be maintained as natural or man made resources. For instance, if we are cutting a tree to use its wood and other parts then we should plant at least one or more than one sapling at the same time. This is the main concept of Sustainable Development. Sustainable Development can be categorized into many parts. First one is Sustainable Ecology Second one is Sustainable Agriculture, Third one is sustainable energy.

### Waste Management

The waste management is a major issue in most of the developing countries mostly in India and China are two faster growing economies which have similar problems to handle large amount of municipal solid waste. Moreover, with the population growth and the increasing domestic products, the waste generation rate is increasing in a higher risky. Both the countries are investing a huge amount of waste in landfills, the handling and treatment, but still the problem is not to an end. The main problem is the awareness of the individual and poor institutional caring all through the country. There are as many number of good initiatives, in present. This study aims to tell the current situation of the management of wastes and its analysed the sustainability of the initiatives to protect the environment and the resources that are been got to protect the near by countries been found.

### Execution Status

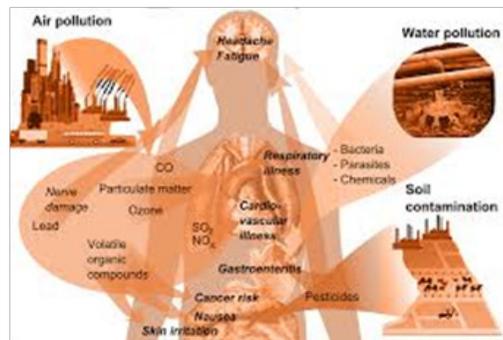
- The state is ahead of many other states and has been able to achieve 96% efficiency in collection of municipal solid waste and 67% efficiency in door-to-door collection
- However, almost 90% of the waste is not treated and 98% of municipal solid waste continues to

be deposited in open dumps, causing serious problems of public health and degradation.

- Segregation of waste at source is practised only by 28% of waste generators and manual handling of waste is prevalent to the extent of 72%
- Door-to-door collection has been introduced in most of the municipal authorities. However, 33% of the waste generators continue to throw the waste indiscriminately on the streets, drains and open spaces thus contributing to unsanitary conditions and to causing environmental degradation.

### Effects of Solid Waste

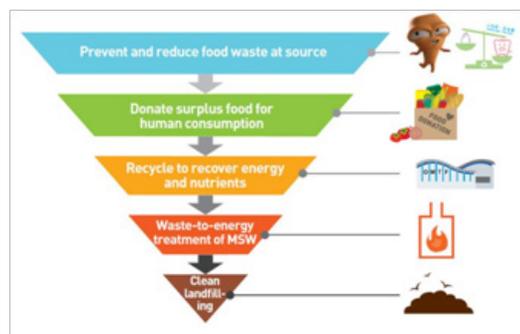
#### Impacts of Solid Waste Management



#### Effects of Poor Solid Waste Management

Due to improper disposal of solid waste on the roads, an immediate effect to the surroundings and biodegradable materials which leads to the smell which affects the surroundings. These smell leads to the air pollution and the breeding place for the insects.

#### Preventive and Controlling Techniques



#### Controlling Techniques been Adopted

## Study Area

Poombarai village is basically an agricultural based one with busy agricultural activities throughout the year the characteristic features of the upper hills has already described earlier. It is situated 20.k.m away from Kodaikanal Township on the Western side and 100 Kms. from Kodai Road Railway station. The total area of this village is around 2019 hectares.

## Soil And Climatic Condition

The soil condition of the village is almost same as that of the Kodai hills. Mostly the soils are dark brown clay loam on the surface with yellowish brown sandy clay soil in the depth below. The soils is generally well obtained with moderate permeability. The soil of Poombarai village is quite fertile with sufficient chemical content present in it. As a characteristic of the upper hills, Poombarai village receives the maximum rainfall in November and the minimum rainfall in February. The climatic conditions and the rainfall level are quite suitable to the various crops cultivated in the village.

## Size of Sampling

The size of population is based on the total population of the study. The entire population cannot be taken for the study because it gives an irrelevant information at times. An selected samples gives a proper information for the better research. In my research the sampling is based on the size of the population. The size of sampling is (n= 80). From the sampling size been taken an needed questions are been taken for study of the village.

## Random Sampling Method

The simple random sampling method involves the equal and independent chance of being selected. This technique involves the equal probability of sampling techniques. This involves all the elements in the population which will give an approximate data based on all the questions been involved. In my research the random sampling method plays a vital role in getting all information. Since it is an village area it is been clustered settlement and also been scattered all around. Based on the population growth the village is been getting increased gradually. This method is been selected because it is the easiest

method of sampling techniques to apply. It does not need any prior information of the population.

## Limitations

In the present study there are certain limitations which are listed below:

1. It is not applicable for the problem which cannot satisfy the requirements that are been mentioned earlier.
2. The problems may be based on social, economic conditions of the village, based on the present, past and future
3. Statistical analysis used for better results for the study.

## Major Findings, Suggestions and Conclusion

1. A vast majority of the members of the family were in the middle aged range.
2. A vast majority of the household's members had education up to school level only. They don't pecess higher education.
3. In the study area the family type analysis revealed the presence of nuclear and joint family system that prevailed almost equal in number
4. In the study area no kutchha houses were been found which is been highlighted the dwelling aspects of the respondents.
5. Analysis of the flooring material used are been revealed the use of the cement and tiles large in number.
6. A vast majority of the respondents depends upon the common well for the drinking water and the other house hold uses.
7. Also, in the study area there is shortage of water that's needed for drinking and house hold uses.
8. Almost all the families are owned with one or more type of vehicles that are used for the transportation to other places.
9. Analysis for the recycling of waste for the population for keeping the environment that makes clean and neat.
10. The villages are to be educated based on the importance of using waste bins.
11. Analysis on the waste disposal revealed that about two third people threw away the waste along the road side and the open places which is to be avoided through the better education.

12. Analysis of the waste from the residences are been drained into the agricultural lands and it causes more adverse effects to the crops.
13. Usage of the alcohol bottles in the village are the major findings to be analysed. They throw away the waste bottles along the road and causes damage to the environment.
14. No proper awareness schemes are been implemented in the village.
15. Improper road facilities leads to less amount of link to the other villages.
16. Rainwater harvesting scheme is not been available.

### Suggestions

1. Current Environmental Issues and Steps Been taken to Improve Most of the Issues.
2. Suggestions to Reduce and Measures to Overcome the Drainage System
3. Importance and Possible Techniques for Drainage Systems.
4. Impact of Storm Water Drainage System
5. Public Awareness Based on the Alcohol Usage to the People.

### Conclusion

Solid waste management plays an important role in the environmental pollution prevention. The people of the villages in the particular aspect takes a huge responsibility in taking care of the solid waste been generated in the village that can be satisfied by reusing, recycling and to reduce policy that is been necessary. The study that is been considered based on the solid waste management in the village and how they are been thrown in the agricultural fields. The analysis was been carried out based on the certain questionnaire been put forth to the village people. Based on the result it is been concluded that the most of the commercial zones are been disposing the waste in the open drainage and gets affected to the entire locality and the surroundings.

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