Chapter I
INTRODUCTION

1.1. Introduction

“People everywhere are affected by pollution. Pollution is sensed intuitively that it has pressed beyond limits. Therefore it is essential to clean up the world, make it a better place, and be good trustees of the earth for future generations”

- James Gustave Speth, 1997

Madalaimary (2005) there is a close relationship between man and nature. Nature is kind and generous. But man’s commercial activity and eagerness for maximizing profit are responsible for damaging the environment. Environment performs three important functions 1) It provides natural resources like beautiful landscape and grassing land. 2) It also supplies materials for producing economic goods. 3) Environment acts as a ‘sink bet’ for waste materials. Production and consumption activities of the firms and households are resulting in larger amount of solid waste, liquid waste and gaseous waste.

No longer economies i.e., a science of production and distribution. It has taken into account the ecological representation of economic activities that could affect production and distribution. It is understood from the above statement that economic activities are concerning with production, distribution and ecological representation also. But this statement was proved because whenever 100 per cent of raw material was used in production only. 5 per cent raw materials are turned into finished product and remaining raw materials are disposed into the environment in the form of solid, liquid and gaseous waste. This could be seen in material balance approach. Since Environment is free good, it does not have any market at all. That is why environment is used by all the people as much as they like. Tragedy of commom is also found everywhere. Externality or social
cost is going on increasing in order to reduce pollution. For that pollution tax; effluent fee and property tax are to be imposed for protecting environmental quality. Every year June 5th is celebrated as “World Environment Day” that shows the importance of environment.

Man is the cause for pollution and ultimately man himself has become the victim of it. There are different types of pollution i.e., air pollution, water pollution and Solid waste pollution etc. Among these three important types of pollution, this study concentrates its attention on solid waste pollution.

Solid waste pollution means the unwanted organic and inorganic, plastic, wood, Iron, steel sand etc are thrown into the environment, ultimately that leads to pollution because that causes number of health hazards to human beings so it is called solid waste pollution. Waste refers to whatever may be the unwanted substances and objects which are thrown into the environment and caused diseases to human beings, plants, animals is known as waste pollution. Comparatively speaking air pollution is more dangerous than water pollution. But at present solid waste pollution is also more dangerous like air and water pollution. When solid wastes are burnt, air is polluted and it leads to respiratory and intestinal diseases. Solid wastes are thrown into water courses; finally water is polluted and caused dysentery cholera etc. Thus solid waste pollution is leading to land pollution also. Soil fertility is polluted to a great extent. Since it is accumulated on the land the underground water is spoiled. Mosquitoes and other dangerous insects have been bred in it. So malaria, Chikungunya, elephantiasis and filariasis are the diseases caused by solid waste. Solid waste has been increasing not only in developed nations it is also increasing to a great extent in developing nations.
America is the first nation for producing more solid waste because of the advancement in every walks of life. The U.S with its affluence and high tech industrialization is the most profligate offender. Each year America thrown away 16 million diapers, 1.6 million pens, 1.2 million razors and blades and 20 million tyres. The discarded aluminum from U.S can rebuild U.S commercial airlines every three months.

No country on the earth is spared of the problem of garbage. Hong Kong with 5.7 million people and 49,000 factories with its 40 sq miles dumps 1000 tones of plastic a day- triple the amount thrown away in Europe. The situation in India is worse. According to a survey by NEERI (National Engineering and Environmental Research Institute), Nagpur, the total refuse generated is 174 class I cities (whose population is above 1,00,000) alone is 32,450 tones per day which projected to a figure of 60,000 tones per day in the year 1991 and 61200 tones in 1996-1997, per day. The largest seven of twelve metropolitan cities, Kolkata, Mumbai, Delhi, Chennai, Bangalore, Hyderabad and Ahmadabad alone contribute 18,000 tones of refuse per day i.e. 2570 tones per day per city an average. Twenty five cities with population between five and twenty lakhs generate 2700 tones of garbage per day produced in 1995. It has increased to 18200 tones per day in 2008-2009.

Thus solid wastes are generally classified into

1. Garbage: Putrescible (composable) wastes from food slaughter houses, canning freezing industries and market refuse.
2. Rubbish: Non-putrescible wastes like paper, wood, cloth, rubber, leather etc. Which are all combustible. It also includes non-combustible like metals, glass, ceramics, stone etc.
3. Ashes: Like fly ash from thermal plants, residues of combustion of soil fuels or residues of incineration of solid wastes by municipal bodies or industries.
4. Hospital refuse: Cotton, plaster, ampoules, needles and operation theatre wastes.
5. Large Wastes: Debris from construction site, old furniture, automobiles.
6. Dead Animals: Households, veterinary hospitals and zoo,
7. Sewage treatment process solids or sludge.
8. Industrial solid wastes: Chemicals, paints, sand etc.
10. Agricultural wastes: Farm animal manure, crop residue etc.

**EARTH CRUST**

The planet on which we live, soil, soft substances of minerals, particles, decayed organic matter, chemicals and water in which plants can grow. The planet earth can be divided into various zones; the lithosphere (solid rocks and molten interior) the hydrosphere (the water covering the earth surface), atmosphere (gaseous zone rising above earth surface) and the biosphere (those parts of the other zone in which organism exists. The interior of the earth is formed by a central core made up nickel and iron, part of which is solid. Above the core is the mantle a thin layer about 2700kms thick of molten minerals. On the top of the mantle is the crust formed of solid rock between six and seventy kms thick. The resources of the earth are used by human beings for various activities and due to over use and misuse the resources become scarce. The waste disposal activities are highly responsible for various types of pollution. The waste disposal activities rate also increased, that in turn responsible for global warming and greenhouse effect.
BIODIVERSITY

Biodiversity refers to richness of number of species of living organism in an area (plants, animal and micro organisms). Richness of the number of species in an area indicates that the area is not affected by pollution and vice versa.

SUSTAINABLE DEVELOPMENT

SANDRA POSTEL-2001 Reconciling our economic rules and practices with the dictates of environmental sustainability is now much more than a purely academic interest, it is essential for human survival.

The term sustainable development was brought into common use by the World Commission on Environment and Development in its seminal report called “Our Common Future”, despite a wide acceptance of the concept of sustainable development, no single definition is yet available which everybody accepts. Most of the definitions are built upon the view expressed by the Brundtland commission which defines sustainable development as “Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs”.

This definition contains three concepts that require explanation. They are: needs, development and future generation. Development is often confused with growth. Growth is an expression for quantitative expansion of the economic system. Development on the other hand is a qualitative concept incorporating notions of improvement and progress and including cultural, social and economic dimensions.

The use of the concept “needs” in the definition, is linked to the distribution of resources. Elsewhere in the Brundtland report, sustainability is defined as “meeting the basic needs of all and extending to all, the opportunity to
satisfy their aspirations for a better life”. Economic growth has converted luxuries to need for some people while for the poor even the basic necessities are not affordable. Meeting the needs of all, therefore involves heavy environmental costs. It means redistributing resources and hence is a moral issue. **EDWARD BARBIER** defines sustainable development as one which is directly concerned with increasing the material standard of living of the poor at the grassroots level which could be quantitatively measured in-terms of increased food, real income, educational services, health care, sanitation, water supply etc. In more specific terms sustainable development aims at reducing the absolute poverty of the world’s poor by providing lasting and secure livelihoods that minimize resource depletion, environmental degradation, cultural disruption and social instability. Sustainable development is in this sense a development that meets the basic needs of all, particularly the poor majority, for employment, food, energy, water and housing and ensures growth of agriculture, manufacture, power and services to meet these needs. According to **MUTOFA K TOLBA** (of UNEP), the concept of sustainable development implies:

1. Help for the very poor because they are left with no option other than to destroy their environment.
2. Idea of self reliant development, within natural resources constraint.
3. The idea of cost effective development, using differing economic criteria to the traditional approach; i.e., to say, development should not degrade environmental quality, nor should it reduce productivity in the long run.
4. The great issues of health control, appropriate technologies, food, self reliance, clean water and shelter for all.
5. The notions that people centred initiatives are needed; human beings in other words, are the resources in the concept.

The **BRUNDTLAND** definition emphasizes on protecting the future generation. As emphasized by most environmentalists we have a, moral obligation to
handover the planet in good order to future generation, i.e., the present generation should bequeath a better environment to the future generation. The present generation should promote development that enhances the natural and built environment in ways that are compatible with:

a) Conservation of natural assets, offsetting any unavoidable reduction by a compensating increase so that the ‘stock’ does not diminish.

b) Preservation of the regenerative capacity of world’s natural ecosystem.

c) Achieving greater social equality.

COMPONENTS OF SUSTAINABILITY

There are three basic components of sustainable development: economic, social and the environment component. The three components are interdependent. The objective of sustainable development, according to Edward Barbier is to maximize the goals in the three systems balancing the trade offs and setting priorities among arious goals.

The economic component of sustainability requires that societies pursue growth paths that generate optimal flow of income while maintaining their basic stock of man made capital, human capital and natural capital. Economic sustainability also requires internalizing all costs including the environmental costs associated with production and consumption. There are three basic goals of an economic system:

a) increasing production of goods and services

b) satisfying basic needs or reducing poverty

c) improving equity

The three goals should be pursued in sustainable way following the requirements explained above.
The social dimension of sustainable development is built on the twin principles of justice and equity. For a development path to be sustainable over long period of time, wealth, resources and opportunity should be equitably shared. All citizens should have access to minimum standards of security, human rights, and social benefits such as food, health, education, shelter, and opportunities of self development. Social equity implies equal opportunities to all for education and for making productive contribution to society. These have to be ensured to achieve the social goals of a) cultural diversity b) social justice c) gender equality d) public participation.

The environment component requires sustainable resource use, efficient sink function and maintenance of stock of natural capital i.e., the environment should be able to perform its three function efficiently and uninterrupted so that ecological stability and resilience are not affected. As development becomes sustainable the three systems converge as shown in figure.
SOIL

Soil is perhaps the most important part of the earth’s crust from the viewpoint of living forms. Soil is a mixture of minerals, water, and organic matter. It is formed by the combined action of physical, chemical, and biological weathering. The rich biomass constituted by microorganisms such as bacteria and fungi and macro organisms such as earthworms provided the much needed support for plant growth. The inorganic contents provide nutritional supplements.

AIR POLLUTION

The presence of one or more contaminant such as dust, gas, odour, smoke, smog or vapor in the outdoor atmosphere, in quantities, of characteristics, and of duration so as to be injurious to human, plant or animal life or to property or which unreasonably interferes with the comfortable enjoyment of life and property is known as air pollution.

1.2. STATEMENT OF THE PROBLEM:

Modern life style of the people is responsible for increasing more amount of solid waste. Demonstration effect of the people in India is also another reason for polluting the environment. Use and throw habit of the people has added fuel to solid waste problem. Among different types of solid waste polythene covers, plastics, paper, cloth, rubber, tyres etc are found more in rubbish. These are all non-degradable in nature. Even in village, now-a-days more polythene covers, plastics paper etc are found because village people are copying urban style abruptly. Thus all the above mentioned solid wastes are non degradable and they are the source of soil pollution, air pollution, water pollution, marine pollution etc. This pollution has ultimately led to global warming and green house effect. The functioning of earth is completely changed, that is why Tsunami, rain Tsunami etc are happened to-day. One pollution is the cause for other types of
pollution or chain of pollution is taking place. The causes for increasing solid waste are GLP (Globalization, Liberalization and Privatization). India is becoming the market for western countries products. Generally consumerism both in developed and developing countries is highly responsible for increasing solid waste.

Solid waste is a global problem because all the nations irrespective of economic development are generating much amount of solid waste and are thrown into the environment. The law of entropy specified that the resources are becoming inconvertible and can not be used again or irreversible. Most advanced nations are dumping the solid waste into ocean. So the result is Tsunami that has taken away heavy toll of life. This is due to the adoption of high tech or latest technology in production that has resulted in large amount of solid waste. Electronic industries are the source of hazardous wastes which are very dangerous to human beings. Households are producing large amount of organic and inorganic solid wastes. The households are divided into HIG, MIG and LIG. Depending upon size or area built up and the number of members in the households, the amount of organic and inorganic solid waste generated in different activities is also taken into account. Organic solid wastes are putrescible in nature, so it could be filled in the land sites by which compost is available for cultivating flower, vegetable and fruit plants. Non-putrescible solid wastes like glass, wood, iron, paper, plastic, pulps etc could be used for further purpose or otherwise it is to be recycled or destroyed or disposed by incineration or by sanitary land filling method.

America is exporting solid waste to developing countries like India. Useful items of goods like wires, machines, equipments pulps, glasses, plastic items etc are extracted from it and the remaining waste are to be thrown into ocean, so ecology of ocean is spoiled. That is why ocean has lost its capacity for
assimilating the wastes. The sea water colour becomes black instead of white. If at all hazardous solid wastes are dumped into land, underground water is spoiled, and this in turn affects drinking water and agricultural activities. Advanced nations have to give importance only to environmental problems alone. But India has to give attention to poverty eradication first, and then only it can give importance to environmental problems. If at all a nation is not giving due significance to environmental problems the growth rate of the economy will be definitely pulled down. So again the nation is becoming an underdeveloped nation.

Solid wastes are causing number of health complaints, like Respiratory diseases, lung disease, breast cancer, dysentery, cholera, malaria, elephantiasis, filariasis, chikungunya, etc. Due to this the number of man-days of a person is lost, income of the family is becoming low. So the standard of living of a family is low. Life expectancy of persons is also affected. Since solid waste is a source of too many problems, it is to be controlled by many ways. Solid waste is to be collected, transported to the place where it is going to be disposed. For it too many number of sweepers, drivers, supervisors and managers are required for doing the work. Thus solid waste problem is an externality because much social cost is incurred.
Table 1.1 shows Solid Waste Generation Rates in important cities of India during the year 2005-2006

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Urban population</th>
<th>Generation Rate (kg/cap/day)</th>
<th>Total Waste (kg/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahmadabad</td>
<td>2005</td>
<td>26,77,000</td>
<td>0.59</td>
<td>15,79,430</td>
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<td>41,30,000</td>
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<td>2005</td>
<td>10,63,000</td>
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<td>Delhi</td>
<td>2005</td>
<td>8,16,000</td>
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<td>3,50,880</td>
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<td>Lucknow</td>
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<td>Ludhiana</td>
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<td>0.38</td>
<td>3,96,340</td>
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<tr>
<td>Madurai</td>
<td>2005</td>
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<td>0.66</td>
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<td>Mumbai</td>
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<td>0.39</td>
<td>3,66,990</td>
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<td>2005</td>
<td>9,17,000</td>
<td>0.36</td>
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<td>2005</td>
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<td>2005</td>
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<td>0.4</td>
<td>3,00,800</td>
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</table>

Source: Environmental Resources Management (ERM) India 2005-2006.

Table 1.1 shows solid waste generation in different cities of India in 2005-2006. Solid Waste generation in important cities is very useful to understand the causes of population growth and urban sprawl. Migration of people is also another important cause for high rate of solid waste generation. Ahmadabad had generated 0.59 (kg/cap/day) in 2005-2006. Bhopal had generated 0.51 (kg/cap/day). Kanpur was also another city to generate more solid waste. Lucknow had been another city which had generated 0.52 (kg/cap/day), Ludhiana had been also generating 0.62 (kg/cap/day), Chennai had been also
highly responsible to generate more solid waste 0.66 (kg/cap/day), Surat was also another city which had generated 0.6 (kg/cap/day) solid waste. Thus the table 1.1 has clearly shown the amount of solid waste generation rate by the important cities of India.

Table 1.2 shows Solid Waste Generation Rate in important cities of India during the year 2008-2009

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Urban population</th>
<th>Generation Rate (kg/cap/day)</th>
<th>Total Waste (kg/day)</th>
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</thead>
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<tr>
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<td>2009</td>
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<td>Bangalore</td>
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<td>0.39</td>
<td>20,00,200</td>
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<td>Coimbatore</td>
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<td>Delhi</td>
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<td>2009</td>
<td>8,61,130</td>
<td>0.46</td>
<td>3,96,120</td>
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</tbody>
</table>

Source: Environmental Resources Management (ERM) India 2008-2009.
Table 1.2 shows solid waste generation in important cities of India. Population and urbanization have been also responsible for increasing. Solid waste generation rates in India during the year 2008-2009. Ahmadabad Generation Rate is 0.61 (kg/cap/day), Bhopal has generated 0.54 (kg/cap/day), Chennai has generated 0.54 (kg/cap/day), Delhi has generated 0.54 (kg/cap/day), Kochi is the highest solid waste generator viz 0.7 (kg/cap/day), Lucknow is also generating much solid waste viz 0.68 (kg/cap/day). Madurai in Tamilnadu generates, 0.74 (kg/cap/day). Comparatively speaking all the other capital cities are generating waste but somewhat lesser than other capital cities of India. Whenever population growth is higher there are too many problems. Among the problems solid waste is one of the problems. Increasing consumerism is also responsible for the solid waste generation. These two tables gave clear solid waste generating activities of human being in important cities of India.
A FLOW CHART SHOWS SOLID WASTE MANAGEMENT

Solid Waste Management

Solid Waste Pollution

- Land or Soil Pollution
  - Fertility lost
  - Productivity is lower
  - Income is lower
  - Standard of living is also low
  - Poor people are becoming poor (Living on poverty line (or))

- Air
  - Respiratory diseases

- Water
  - Impact of water pollution on man
    - Malaria, Chikungunyya, Dysentry

- Intestinal diseases
  - Diarrhea
  - Intestinal diseases

- Bronchitis

- Breast Cancer

- Lung Cancer

- Skin diseases

Methods of Disposing

- Incineration (or) burning
- Open Dumping
- Land filling
- Thrown into ocean or Sea
- Food for hog
- Pyrolysis
  - Filariasis
  - Virus fever

Collection of solid waste

- Buckets
  - Use me
  - Solid waste heap
door to door collection

- Driver (carts)
  - Which is made for caring only solid waste

- Solid waste heap
  - door to door collection

- Supervisor

- Manager

Transpiration to place of disposal

- Sweepers
  - Which is made for caring only solid waste

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1.3. OBJECTIVES OF THE STUDY

The following are the objectives of the study.

The overall objective of the study is how to manage the solid waste in Thanjavur Municipality.

1. To quantify the amount of solid waste in North, South, East and West zones of Thanjavur Municipality and causes for it.

2. To estimate the cost of collection, transportation and disposal of solid waste. By which social cost is estimated. The relationship between social cost and social benefit is also analysed.

3. To analyse various types of diseases caused by solid waste pollution on human beings and animals.

4. To attain sustainable development by proper management of solid waste in Thanjavur Municipality.

5. To solve the problem of solid waste pollution and its management by the involvement of common people especially women (creating environment awareness among the people) voluntary agency and municipality are essential and inevitable.

1.4. HYPOTHESES

The overall hypothesis of the study is that,

The above stated objectives are studied by empirically testing the following hypotheses.

1. There is a significant direct relationship between solid waste generation and population growth, income and urbanization.

2. Solid waste collection has positive effects on the society but its effects are negative on workers involved in solid waste management.

3. Social cost of solid waste management is greater than social benefit.

4. By reducing solid waste sustainable development of Thanjavur municipality is achieved easily.

5. Solid waste pollution is reduced by the co-operation of the common people (especially women), government and voluntary agencies.
1.5. SCOPE OF THE STUDY

In the light of the global concern on “Green House Effect” and the growing awareness among the people about environmental pollution problem and management of solid waste the finding of the study would have policy implication. Moreover in the recent past, and also present environmental issues have drawn the attention of the scientists, social scientists and researchers. The concept “Tragedy of commons” reveals that the environmental goods are public goods having the features of non-rivalry and non-excludability resulting in misuse and over use of natural resources. Since environmental goods like air, water and land are free goods of nature, they should be put to maximum social welfare. These goods are becoming scarce by the damage caused by pollution. Since solid waste is causing air, water and land pollution, management of solid waste pollution is essential and inevitable.

The quality of these goods is also detenorating; pollution leads to inequality and social injustice in the economy. More characteristically pollution causes damage to those external to solid waste generators who pollute. The environment consequently it envisages the need for regulation by government and interaction of people especially women. Fiscal tools can be also to be adopted to minimize/prevent the loss to the society at large.

As such environmental impact of the economic activity in terms of pollution of water, air and land (soil) are the consequences of such pollution on human life needs a study. This is the main thrust of the study of solid waste management in Thanjavur Municipality, TamilNadu- South India. The findings would bring to light the economic gains and economic goals of pollution control and suggest a practical way to implement the same.
1.6. LIMITATION

During the course of conducting a research one has to constantly guard against bias, subjectivity and inaccuracy. Yet it is difficult to totally avoid them and minimum of bias and inaccuracy is always present in any research. This study happens to be no exception and it is replete with instances of problematic situation where some errors cannot be possibly avoided. Thanjavur municipality officers, workers, supervisors and managers are not able to give proper data about solid waste composition, collection, transfer and disposal. Women at home are also to some extent not co-operative in giving data. The records maintained by the Thanjavur municipality are not satisfactory. The officers and workers in Thanjavur solid waste department have given data from their memory may involve recall bias. The study carefully minimize such errors by educating respondents about the solid waste pollution and its evil impacts on human beings i.e. scope of the study and with all possible cross checks the comprehensive enquiry schedule helps this cause.

ORGANISATION OF THESIS

Chapter I:

The chapter presents introduction, statement of the problem, objectives of the study, hypotheses, scope and limitations of the study.

Chapter II:

Review of literature

This part is divided into two parts. Part I deals with definition, economics and ecology, growth vs environment, the concept of externality theory of pervasive external cost, the Roskill’s and Walter’s model, theory of unmarketed goods, input output environmental models, Leontief’s extended input output model, the controversy over limit to growth theories, the social psychology model, the theory of spaceship earth,
social cost and externality, Pollution externality, process, pollution cost, pollution abatement pollution damage cost, explicit and implicit cost, policy pollution control policy, recipient lobby, interaction of principal actors in pollution control implementation. Coase theorem and transaction cost, pollution fee or tax, pollution charges, environment quality standards, prescriptive regulation, emission standards, economic incentive system, effluent fee, subsidy, property rights, motivation, accounting for the environment.

Part II Review of related studies
Solid waste generation and management of municipal solid waste, solid waste generation by individual households, the advantages and disadvantages of alternatives for urban solid waste management, current solid waste management in salam city, solid waste and power generation, solid waste impacts, solid waste treatment, informal sector role, social, political and economics effects of solid waste.

Review of literature
What is waste and why does it require management, Integrated waste management and the waste hierarchy, solid waste, solid waste management, types of solid waste, Characteristics of solid waste, Properties of solid waste typically used fuel, generation, storage, collection& transportation of solid waste management, norms for generation of garbage, segregation and storage at source, Collection of Solid Wastes, Collection and Transfer Operations, Transportation, Direct method of transportation, Indirect method of transportation, Transfer Stations, conveyors for solid wastes, Merits and demerits of direct and indirect methods of transportation, Processing and Recovery, current disposal methods of solid waste management, waste management and 3Rs concept, Reduction in waste generation, Recycling, Economics of Recycling, Resource Recovery, For discarding wastes the following methods can be adopted, Materials Recovery

Chapter III:
Profile of the study area

Solid waste management in developed and developing nations, solid waste management in Indian metro city and state capital, solid waste management in Tamilnadu, solid waste management in Thanjavur municipality.

Chapter IV
Methodology

Primary and secondary data, period of study, tools used, sample wards, sample households, sample solid waste, sample petty shops, sample small scale industries, bio degradable, non-bio degradable and hazardous solid waste sample – classification of solid waste, market solid waste – bio degradable in nature. Types of solid waste and estimation of waste by percentage rank.

Tools

Average, Mean, Median and correlation between income households and solid waste of HIG, MIG and LIG in 2005-06 and 2009-10.
Chapter V

Results and Discussion

There are five parts in this chapter.

Part I deals with generation of solid waste and its sources i.e. households, markets, petty shops and small scale industries, types of waste and classification of waste, physical and chemical composition of solid waste.

Part II deals with collection, segregation and transportation of solid waste to dumping yard, different trips of transportation of solid waste to dumping yard.

Part III deals with types of vehicles or transport, transportation, new and existing vehicles. Social cost in 2005-06 to 2009-10.

Part IV deals with occupational diseases of the workers, amount of money spent for treatment of diseases, families living near dumping yard, solid waste associated expenditure, treatment cost incurred, man-days loss.

Part V deals with different methods of solid waste management, 3R’s and 4R’s solid waste management method, Rules and responsibilities of Thanjavur municipality’s authorities in managing. Solid waste, participation of common people (women) in solid waste management, participation of voluntary agency in the management of solid waste, funding pattern, action points and time table, environmental preservation committee, implementation and review committee, opinion of the people about Thanjavur municipality with regard to solid waste management.

Chapter VI

Findings, policy implications and conclusions