

THE ATTITUDES OF THE RESIDENTS AND THE MUNICIPALITY OF
THULAMAHASHE, IN THE LIMPOPO PROVINCE OF SOUTH AFRICA,
TOWARDS WASTE MANAGEMENT

BY

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A Mini Dissertation

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DECLARATION

I declare that the dissertation hereby submitted to the University of Limpopo for the degree of Master of Philosophy in Environmental Law and Management in the Faculty of Management Sciences and Law, School of Law, has not been previously submitted by me for a degree at this or any other University; that it is my own work in design and in execution and that all the material contained therein has been duly acknowledged.

Signed :.....
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Date :.....

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DEDICATION

Dedicated to my late sister Fikile, parents, companion and all family members who contributed to my studies, may God bless them all.

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Abstract

The study was about the attitudes of the residents of Thulamahashe and the municipality towards the management of solid waste in Thulamahashe. The objectives of the study were to examine the attitudes of the residents towards waste management at the household and community levels, and to examine the efficiency of the Municipality in managing the waste. The results showed that at the household level, residents managed their waste very well and kept their compounds tidy whilst at the community level, waste was poorly managed by the municipality because it failed to either regularly collect waste for disposal, or to collect waste at all. It was also found that the negative attitude of the residents towards waste management in public places has led to widespread littering in the shopping complex and in the taxi rank, and also led to the uncontrolled dumping of household garbage. It was recommended: that the municipality endeavours to regularly collect and dispose of waste and that it provides an adequate number of collection points in all public places; that waste management campaigns be regularly organized in order to educate residents about good waste management practices; and that the municipality, with the full participation of the community, promulgates waste regulation by-laws which the community would be encouraged to implement and enforce.

CHAPTER ONE

INTRODUCTION

1.1. Background to the study

The study is about the attitudes of the residents of Thulamahashe and the Municipality concerning the management of solid waste in Thulamahashe. Thulamahashe is in the Bushbuckridge region of the Bohlabele District Municipality in the Limpopo Province of South Africa. It is one of the townships in the former Gazankulu Homeland in the then Mhala District. According to the South African Census Report (1996), Thulamahashe had a population of about 6640 residents living in about 1003 households.

The reason for selecting Thulamahashe as a study area is that the population of Thulamahashe comprises mostly of middle class residents who live a western type of lifestyle. They tend to buy or use mainly packaged and disposable products and as a result they generate a fair amount of solid waste.

The Annual Report of the then Thulamahashe Transitional Local Council (TLC) (1999 : 15) indicated that during the last decade of the twentieth century there was an increase in waste generation in the area as compared to previous years. The report further stated that the increase in waste was due to the high population growth, which had increased from 5700 to 6640 residents between 1994 to 1996.

According to Smith (1996: 146), waste is any moveable material that is perceived to be of no further use and that is permanently discarded. Once in the environment, waste can act as pollutants and can therefore cause damage to the ecosystem and human health. Solid waste is a problem that is affecting the entire world negatively. There are attempts by countries throughout the world to try and manage waste, but regardless of these efforts, the volume of waste has increased due to increases in industries, technology and the population growth.

In South Africa, particularly in townships and rural areas, waste is disposed of poorly. Open, unregulated and unmanaged disposal sites and unhealthy disposal methods are still predominant (Barbour, 1993: 214). In Thulamahashe, the generated household waste is

poorly disposed of on open lands, instead of being properly disposed of in a landfill, or by incineration or on other well-managed disposal sites. According to the *White Paper on Integrated Pollution and Waste Management* (1998: 5), waste is a root cause of pollution, is a threat to human life and the environment, and must be controlled from its generation, transportation and treatment, until its final disposal.

Thulamahashe is divided into three sections, namely, Thulamahashe Central, Beverly Hills and Thulamahashe Extension. Tons of solid wastes such as plastics, bottles, papers, tins, rubber materials- especially motor tyres, metals and hazardous waste such as used motor oil, and other chemical wastes are being generated every day by the residents in the area. The generated household waste is stored in dustbins which are provided to the residents by the municipality in the area and is supposed to be collected at the gate of each house and transported for disposal by the municipality (*The Annual Report of the Thulamahashe Transitional Local Council*, 1999 : 15). The municipality in Thulamahashe is responsible for waste management in the area. The households pay monthly rates to the Thulamahashe Municipality for the services it renders, which

include waste collection and disposal, sewage and water pipe leakage repairs and others.

In Thulamahashe Central, waste is collected once a week, in Beverly Hill, waste is collected once in two weeks and in Thulamahashe Extension, waste is not collected at all for disposal. As a result, residents in Thulamahashe Extension dispose of their household wastes that are sometimes burned on “common property resource area” such as on open lands on the outskirts of this section when their dustbins are over-flowing with waste. (Plate 1)

Plate1. Waste dumped on open land on the outskirts of Thulamahashe Extension.



In Beverly Hills, where waste is collected for disposal once in two weeks, some residents in the area dispose of their household waste

along the R40 roadside and the outskirts of Beverly Hills when their dustbins over-flow with waste before being collected for disposal by the municipality.

Plate 2. Waste dumped along the R40 roadside by residents of Beverly Hills



All the household waste collected by the municipality is disposed of at a disposal site situated 300 metres on the northern side of Thulamahashe Central. Solid household waste such as plastics, papers, bottles, tins, motor tyres, metals and rubber, hazardous waste such as motor oils, acids and medical waste such as used

syringes, bandages and other medical containers from the Thulamahashe Health Centre (THC), are disposed of here.

This disposal site is on the left bank of the N'wandhlamharhi River that flows from the Drakensberg Mountain, Range, through Graskop, and villages such as Casteel, New Forest, Shatale, and Tsuvulani upstream until it reaches Thulamahashe. From there it flows towards the east, downstream to villages such as Rolle, Dumphries, Hluvukani, Dixie, and Athol on the eastern site of Thulamahashe until it joins the Mutlumuvi River, as it flows towards the Kruger National Park.

Because the site is just an open land which is not fenced in, it is exposed to wind and rain, so that the dumped waste is scattered all over the area. During rainy seasons much of these waste plastics, bottles, tins, motor oil, and medical waste-is washed from this unprotected disposal site into the river, thereby polluting the river water. Some of this waste might contain dangerous chemicals which can pollute the river water, which will become harmful to plant and animal life. Residents in the nearby villages such as Rolle, Dumphries, Athol, Allendale, and Dixie downstream of the river use the river water for household purposes such as washing, bathing and

drinking, when there is no water running from the water taps. This exposes them to diseases such as cholera, diarrhea, skin diseases, cancer, and bilharzia.

The disposal site is always wet during rainy season. As a result rats, flies and malarial mosquitoes may breed in the area, with negative consequences for the residents. Waste is sometimes burned at the disposal site by the municipality in Thulamahashe and by some residents on open land and along the roads in Thulamahashe. This produces thick black smoke which is blown all over the area and pollutes the air. The rotting of waste also produces bad odours which affect residents living nearby. Waste such as metals, rubber and tyres do not easily break down, but stay in the environment for a long time. All these negatively affect the aesthetic value and the health of the environment. Medical waste such as used syringes, bandages and other medical containers from the Thulamahashe Health Centre can impact on the health and well-being of the residents in Thulamahashe.

The above conditions contravene the provisions of Sections 24 (a) and (b) of the Constitution of the Republic of South Africa (Act 108 of 1996 : 11), which states that “Every one has a right-

- (a) to an environment that is not harmful to their health or well-being; and
- (b) to have the environment protected, for the benefit of present and the future generations, through reasonable legislative and other measures that-
 - (i) prevent pollution and ecological degradation;
 - (ii) promote conservation; and
 - (ii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The right of the residents of Thulamahashe to a clean environment and the nearby villages to clean water is violated by the Thulamahashe Municipality and by some of the Thulamahashe residents themselves. The Thulamahashe municipality, as an organ of the state at the local government level, is supposed to take reasonable measures to ensure that the rights of the residents to a clean environment and the nearby villages downstream of the river to clean water is protected, by ensuring that waste is collected regularly in the area and disposed of either in a sanitary landfill or in a well-managed disposal site, from which the waste cannot be

washed into surface streams by overland flow (*National Government Gazette no:18 Dec 1996: Constitution of the Republic of South Africa(Act 108 of 1996)*).

1.2 Statement of the problem

According to the 1999 Annual Report of the Thulamahashe TLC, there has been an increase in waste generation in the area especially between 1996 and 1999 compared to previous years. The waste that is generated is not collected regularly for disposal by the municipality from the sections of Beverly Hills and Thulamahashe Extension. This has resulted in the residents disposing of household waste randomly on common property resource areas such as open lands and along the roadsides in Thulamahashe Extension and Beverly Hills. This uncontrolled disposal of waste in Thulamahashe can have a negative impact on the health of the environment and the residents.

The municipality waste disposal site is just an open area, which is not fenced, situated 300 hundred meters on the northern side of Thulamahashe, on the left bank of N'wandlhamharhi River. Medical

waste from the Thulamahashe Health Centre is also disposed of in the area by the municipality. Because the waste is scattered all over the disposal site, during rainy seasons the waste is washed into the river. The nearby downstream villages such as Rolle, Dumphries, Anthol, Dixie, and Saville use the river water for household purposes such as bathing, cooking, washing and drinking when there is no water from their taps. This exposes them to diseases such as cholera, cancer, diarrhea, skin diseases and others.

1.3 Aim and objectives

1.3.1 Aim

The aim of the study is to examine the attitudes of the residents of Thulamahashe and the Municipality towards the management of solid waste in Thulamahashe.

1.3.2 Objectives

The objectives of the study are to examine:

- (a) The attitude of the residents in Thulamahashe towards waste management at the household and community levels.
- (b) The efficiency of the Thulamahashe Municipality in managing waste at the household and community levels.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Waste is the rubbish and unwanted things that are thrown out of homes, offices and industries on a daily basis. It may be ordinary garbage in the dustbin or a large amount of dry or wet industrial waste. Problems caused by waste exist in all human populations. The characteristics of such problems may differ from one place to another, and may also vary with time as societies develop. Although such problems may first appear to be local issues, their scope increases as the populations grow and the standards of living rise. Waste is not only a problem in terms of quantity, but in its composition, which is determined by the lifestyle of a community.

According to the *White Paper on Integrated Pollution Control and Waste Management* (1998) compiled by the Department of Environmental Affairs and Tourism, domestic and industrial waste are the root causes of pollution, hence their disposal should be controlled. This control should encompass the waste generation

cycle, from the cradle to the grave, including the generation, transportation, treatment, and its final disposal. All these acts should be carried out in a holistic and integrated manner. According to Allers (1998 : 267), measures to reduce, control and prevent pollution need to be reinforced in both developed and developing countries.

The Report by the Department of Environmental Affairs and Tourism (1996), on waste management and pollution control in South Africa, has revealed that the country has relatively high levels of waste pollution impacting on air, water and land, and that the country's waste disposal practices are unsatisfactory. In South Africa, domestic refuse, mainly solid wastes generated by household, businesses and municipalities (sewage waste excluded), equaled 15 million tons in 1998. About 95% of this kind of waste is disposed of on land. Sewage sludge (bio-sludge), agricultural waste, industrial waste, and solid wastes are some of the wastes that cause health, environmental, ecological, and other problems for communities all over the world.

According to the Department of Water Affairs and Forestry (1998) report on *Waste Management and Minimum Requirements for the*

disposal of solid waste in South Africa, solid waste products such as bottles, plastic, cans, and papers is a serious problem in South Africa. This type of waste, which is visible, is being dumped along highways, in parks and even along streams on a daily basis.

According to Band and Schank (1994 : 367), littering has a negative impact on social and economic development since it reduces the availability of land that can be of benefit to the society and also impacts on tourism. This problem can be addressed with the help of the citizens themselves. The residents of Frankdale in Cape Town, for instance, frequently dispose of waste near residential areas and cover it with soil to prevent attracting vermin and leading to the spread of diseases. However, the problem is aggravated because there is inadequate collection of household waste for disposal. The accumulated refuse is disposed of on the land and streets, sometimes to the point where it blocks the roads. The resulting problems are obvious but given low priority by the authority so that the inhabitants are suffering from bad smells, diseases and pests attracted by the garbage.

According to Hardy (1992 : 267), uncontrollable waste disposal contributes to serious environmental pollution as well as being a serious health hazard.

The dangers of an uncontrolled dumping site is that both bio-gradable and non-bio-gradable waste materials are dumped there, while most of these disposal sites are very difficult to manage as there is no proper legislation to control them. In most European countries, such problems do not exist as legislation had been adopted to reduce the volume of domestic waste going to the dumpsites.

2.2 Classification of waste

Before waste can be handled, we must know what it consists of and whether it is dangerous or not. According to the report on *Waste Management and the Minimum Requirements* by the Department of Water Affairs and Forestry (1998), waste can be classified into two groups, namely, general and hazardous waste.

2.2.1 General waste

General waste is sometimes known as “solid waste”. Much of this waste comes from our homes, gardens, offices, and building sites and is not dangerous to our health or the environment if it is correctly disposed of.

According to Andrea (1994 : 213), municipal waste can be divided into refuse and trash. Refuse can further be divided into garbage, which is highly decomposable food waste such as vegetables and meat scraps, and rubbish, which consists of dry material such as glass, rubber, paper textile, and wood objects. Trash, on the other hand, is bulky waste material that requires special handling and is, therefore, not collected on a routine basis. This consists of objects such as old furniture and large uprooted tree stumps.

2.2.2 Hazardous waste

Hazardous waste is sometimes called “special waste” and includes waste such as radioactive, pesticides, medical, and poisonous waste. It poses a threat to the public health and safety or to the

environment because it contains explosive, corrosive, flammable, poisonous, infectious, and other dangerous substances. Special care must be taken when handling and disposing of hazardous waste. The minimum requirements for the disposal of such substances are much stricter than for general waste. Usually, hazardous waste comes from factories or mines.

2.3 Different methods of waste disposal

According to Rikhotso (2000: 11), waste disposal is a serious problem. There are various methods that can be used when disposing of waste. These methods depend mainly on the climatic conditions and the economy of the village or city. Worldwide, waste is being disposed of in different ways, such as dumps, landfills, composting, burning in incinerators and deep-well injections, and resource recovery. All these methods are environmentally harmful.

2.4 Site selection for disposal of waste

According to the Department of Water Affairs and Forestry (1998 : 9), a site for waste disposal must be carefully selected and the authority should make sure that the site will not cause problems,

especially for landfill. Everybody who may be affected by a landfill must have a say in the selection of the site. The site must not be close to where people live. The selected site must not be near water that can be polluted, and there must be enough soil to cover newly dumped waste every day to reduce smells, flies, litter, and health risks.

The site must be thoroughly investigated before it can be developed to avoid problems and make sure that it complies with all the requirements. There are different factors that should be considered such as doing an Environmental Impact Assessment (EIA) to determine the impact that the site will have on the environment. There might be some species in that particular area that are not found anywhere else in the country or the area might be a wetland.

2.5 Legal requirements

According to Fuggle and Rabie (1998:502), the legal requirements in respect of waste disposal facilities must be clearly understood. Before embarking on a project, a complex investigation is needed to identify the most suitable site, before an application for the proposed site is made.

According to the report *Waste Management and the Minimum Requirements* by the Department of Water Affairs and Forestry (1998), the application should be lodged with the Department of Regional and Land Affairs, the Department of Agriculture, the National Health and Population Development, and Water Affairs and Forestry. The site must be registered as well.

The application should be accompanied by a proposed rehabilitation programme, and a detailed outline of how the site will be rehabilitated when the operation closed, in terms of the National Environmental Management Act (Act 107 of 1998). According to the Department of Water Affairs and Forestry's document on Waste Management and Minimum Requirements, when the disposal site is full, it cannot just be abandoned but has to be closed in an environmentally acceptable way so that it can be used by the community for other development purposes, for example a sports field.

The site must be monitored or checked after its closure to ensure that it does not pollute the air, water or soil. This must be done regularly. The law requires the site to be monitored for up to thirty (30) years after its closure to check for possible pollution.

2.6 Waste treatment before disposal

Waste needs to be treated before it can be disposed of. Waste treatment involves actions taken to reduce the volume and/or hazardousness of the waste. Once again, waste treatment in particular can significantly reduce disposal costs and potential liabilities. Examples of waste that would need to be treated before they could be disposed of at a landfill site include explosives, flammable liquids and infectious waste (such as medical wastes). Waste can also be used for the recovery of materials during waste minimization and recycling programmes.

2.7 Effects of unmanaged waste

If waste is not controlled and is just dumped anywhere, it can be extremely harmful to all forms of life. Waste should be disposed of in some place where it will not pollute the soil or water and where people will not be exposed to it. According to the Department of Water Affairs and Forestry (1998), waste can harm the environment if it is not properly managed. The effects might be of (i) short-term or (ii) long-term.

2.7.1 Short-term effects

- a. The environment looks bad and smells bad.
- b. Flies, rats and other pests breed and spread diseases.
- c. Plants, animals and humans are poisoned.
- d. The air and water become polluted.

2.7.2 Long-term effects

- a. Poisonous chemicals stay in the environment and do not dissolve.
- b. Waste damages the natural resources such as water and soil.
- c. Waste also causes cancer and birth defects if is not managed properly.

2.8 Waste management legislation in South Africa

Legislation is one of the tools societies use to protect the environment. South Africa has a good legal framework that enables environmental management to be taken seriously. However, the law that regulates waste management is not unified but is haphazard and uncoordinated, unfocussed and ineffective. It is scattered

throughout various acts, municipal by-laws, and also regulated by the International Conventions and Treaties that are entered into.

There is a resultant lack of control in all aspects of waste management. For example, there are no national minimum standards for the provision of waste collection services. In addition, on account of the lack of capacity on the part of government, the enforcement of existing legislation is frequently unfocussed, especially with regard to waste disposal. There seem to be little coordination, consolidation and central planning.

The multidisciplinary impact of waste is such that, legally, the Department of Environmental Affairs and Tourism (DEAT) manages all aspects of waste, other than its disposal, which is the responsibility of the Department of Water Affairs and Forestry (DWAF).

According to Fuggle and Rabie (1998 : 637), the following are legal provisions and policy initiatives that have a bearing on, and are currently applicable to attempts to address waste generation and its disposal in South Africa:

(i) The Draft White Paper of 1997 on Environmental Management developed from the Consultative Conference on National Environment Policy (CONNEP), that provides the background against which waste management and pollution control is ensued;

(ii) The Constitution, 1996 (Act 108 of 1996), Section 24 of the Bill of Rights (Chapter 2), in the Constitution, 1996 (Act 108 of 1996).

(iii) The Environmental Conservation Act (ECA) (Act 89 of 1989)
Waste management and disposal are regulated mainly in terms of Section 20 of the ECA, (ACT 89 of 1989).

(iv) The Water Act (Act 36 of 1998)

The Water Act (Act 54 of 1956) governs water resources in South Africa. Chapter 1 of the Act prevents pollution of water resources.

CHAPTER THREE

METHODOLOGY

3.1 Research Sample

The sampling frame is the residents of Thulamahashe, a settlement with a population of about 9790 in 1427 households (*Census Report, South Africa: 2001*). About 10% of the households were selected as the study sample.

3.2 Sampling method

A random sampling method was used to select the required one hundred (100) households for the study. The reason for using the random sampling method was that the residents of Thulamahashe were observed to have homogeneous waste generation characteristics. Because of their western type of lifestyle, they use or tend to buy mainly packaged and disposable products and as a result they generate a lot of solid waste. All the households were assigned numbers on pieces of paper. The numbered pieces of paper were put in a container and mixed well and one-numbered piece of

paper was drawn at a time until the desired sample size had been obtained. On each occasion, the selected household's number was recorded and then returned into the container so that all households had an equal chance of being selected. When the same household number was drawn again, the numbered piece of paper was not recorded but put back in the container.

3.3 Data collection

Three main data collection methods were used. These were questionnaires, observations and visual aids, specifically photos.

3.3.1 Questionnaire

Two different sets of questionnaires were designed, one for the households, and one for the official from the waste management division of the Bohlabelo District in Thulamahashe. The questionnaires for the residents had three sections. The first part dealt with the attitude of the residents of Thulamahashe towards the management of waste at household level. The following questions were asked of the households:

- How do households manage waste?
- How do households store and dispose of waste in Thulamahashe?
- What would you do if waste was not collected for disposal?
- Do you know of any law that prohibits littering?

The second part of the questionnaire dealt with the attitude of the residents towards the management of waste in public places commonly referred to as “common property resource areas”. The following questions were asked:

- Suppose you were shopping around the shopping complex and you drank a canned juice what would you do with the empty can?
- Suppose you are inside Score Supermarket and you have eaten a banana, what would you do with a banana peel?

The third part of the questionnaire dealt with the attitude of the residents of Thulamahashe towards the management of waste in public transport such as taxis. The following questions were asked to the residents:

- Suppose you are in a taxi and have eaten a banana, what would you do with the banana peel?
- Suppose you are in a taxi and have drunk a bottle of beer, what will you do with the empty bottle?

The questionnaire for the official of the waste management division in Bohlabele District Municipality in Thulamahashe contained questions on how the municipality managed household waste in Thulamahashe. The following questions were asked of the municipality official:

- How do you collect household waste in Thulamahashe?
- What do you do with it?
- Why do you dispose of waste on the surface of the land and not in a landfill?
- Do you have a waste management law for the public?
- Does the public know about such laws?
- How do you enforce such laws?

The one hundred-and-one (101) questionnaires were self-administered in the form of interview schedules to the 100 households and the official from the waste management division in Thulamahashe. For the households, only the head or any older member of the family in each household who was responsible for keeping the household clean was required to answer the questionnaire.

3.3.2 Observations

Three days were used to observe the physical conditions of the disposal site, the dumps along the R40 road and on the open lands.

Waste was dumped on the surface of the land at the disposal site; bottles, tins and papers were scattered all over the area and plastics were hanging on the trees. On the dumps along the R40 road and on the open land in Thulamahashe, waste such as bottles, tins and papers were mixed up in the area. What was observed was recorded on the paper and photos were taken.

3.3.3 Visual aids (Photographs)

Photographs were used to show the physical effect of waste dumps on the environment such as:

- (i) Piles of waste, dumped on the surface of the land on the outskirts of Beverly Hills and site scattered all over the area.
- (ii) Bottles, tins and papers were dumped along the R40 roadside and on the open land in Thulamahashe.

4. Data analysis and presentation

The data collected were analyzed and presented by means of proportions, graphs, tables, and photographs, as appropriate.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents and discusses the results of analysed data obtained from the sample of 100 residents of Thulamahashe and from the municipality official in charge of waste management in Thulamahashe.

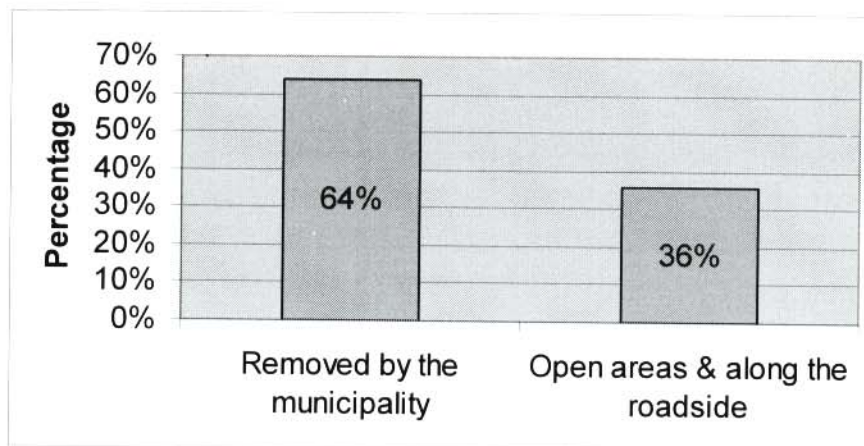
The results discussed in the first part of this chapter are about the attitudes of the residents of Thulamahashe and of the municipality official towards the management of waste at household level. The second part of the chapter discusses the attitude of residents towards the management of waste in public places commonly referred to as "common property resource areas". Lastly, the responses of the residents about their attitude towards the management of waste in public transport commuter taxis are discussed.

4.2 Results and discussion

4.2.1. The attitude of the residents and the municipality towards waste management at household level

The residents were asked how they managed their household waste. Their responses are presented in Figure 4.1 and discussed below.

Figure 4.1: How household waste is disposed of in Thulamahashe



All the households indicated that they stored their household waste in dustbins located in their yards for removal by the municipality. However, even though the majority of the residents (64%) indicated that the waste in their dustbins was eventually removed by the municipality for disposal (Figure 4.1), a sizeable proportion (36%) of the residents indicated that they disposed of their household waste on what is commonly referred to as "common property

resource areas" such as open areas and along roadsides in their neighbourhoods. This was because the Municipality did not collect waste from their households for disposal. Consequently, they argued that they could not sit with dustbins overflowing with rotting waste in their back yards. This was because the odour from the rotting waste would be unhealthy and unbearable, and because the rotting waste would attract flies, cockroaches and rodents which might transmit diseases into their households.

To determine whether there was any justification for dumping waste on common property resource areas, the residents were asked how often the Municipality collected household waste for disposal. The results are given in Table 4.1.

Table 4.1: Frequency of waste collection: Views of the residents

Frequency of waste collection	Percentage of households
Once a week	49
Once in two weeks	32
Not collected	19

The results in Table 4.1 indicate that waste was collected once a week for disposal from only 49% of the households. For most of the

households (51%), waste was either collected once in two weeks 32% of the households or the waste was not collected at all from 19% of the households.

With a view to cross-checking the views of the residents, the municipality official was also asked the same question about their frequency of waste collection from the households. His responses are presented in Table 4.2.

Table 4.2: Frequency of waste collection: Response from the Municipality

Section of Thulamahashe	Frequency of waste collection
Thulamahashe Central	Once a week
Beverly Hills	Once in two weeks
Thulamahashe Extension	Not collected

The waste collection frequencies given by the residents (Table 4.1) and by the Municipality (Table 4.2) are the same: once a week, twice a week and no collection. The Municipality explained that they could not increase the frequency of waste collection in Beverly

Hills because of a lack of adequate resources. They pointed out that there was only one truck which was shared between their department (Waste Management) and the Department of Works. They also explained that they could not service Thulamahashe Extension because the section had no motorable roads (see Plates 1.1 and 4.1).

These results indicate that the residents in all three sections of Thulamahashe demonstrated a good management of waste at household level. This was because all households kept their homes and yards clean by storing the waste in dust bins awaiting removal for disposal by the Municipality. However, this cannot be said of the Municipality which is responsible for collecting and disposing the household waste. They failed to collect the household waste generated from a whole section of the settlement, and only irregularly collected waste from one other section. It can, therefore, be argued that their failure to collect waste for disposal did not bode well for good waste management practices in the community.

4.2.2. The attitude towards waste management in common property resource areas: open (uninhabited) spaces.

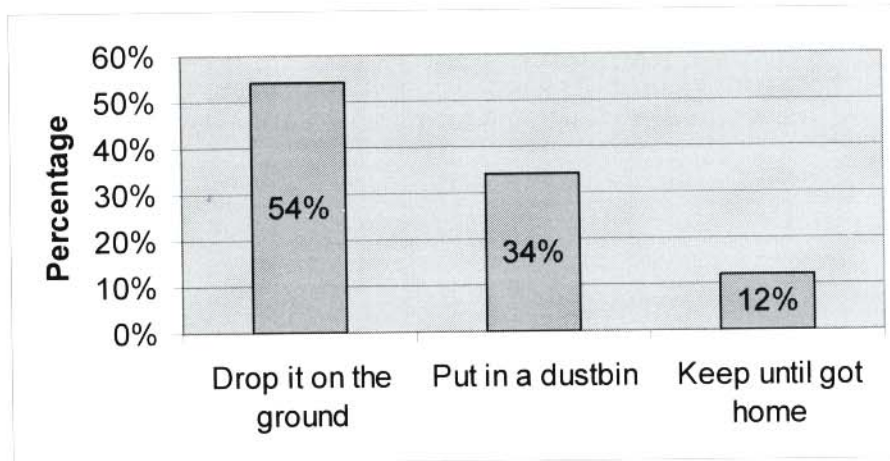
The results in 4.2.1 revealed that the Municipality did not collect waste from many households for disposal. Also, the households argued that they could not afford to store the waste in their compounds for any extended periods because of health and aesthetic reasons. Consequently, they continued, they dumped the waste in unsettled open spaces in the community, far from their homes (see Plate 4.1).

When asked about waste management in open spaces, all households agreed that it was a very poor solution and that they would rather not have household waste scattered all over their community because apart from the offensive odours, the widespread uncontrolled waste dumps were unsightly. This line of argument by the residents implies that their attitude to dumping waste the way they had to do had been forced on them by the inability of the Municipality to perform its duty of collecting and disposing of household waste regularly.

4.2.3. Attitude towards waste management in common property resource areas: The shopping complex, including the taxi rank.

Observation of the open spaces in the shopping complex and the taxi rank in Thulamahashe clearly showed widespread littering even though there were dustbins around, albeit very widely spaced. Blatant littering could be observed everywhere – as if the culprits were involved in a littering competition! With a view to determining the attitude of members of the public in these places towards littering, a random sample was asked what they were likely to do with waste which they generated, such as cans or bottles, banana or orange peels, as they were walking around the shopping complex and as they were waiting for taxis. The responses are presented in Figure 4.2.

Figure 4.2: What shoppers at the Shopping Complex would do with waste generated during shopping.



The results indicate that most of the respondents (54%), would simply deposit the waste on the ground because they felt it was not their duty to take care of waste and because there were people who were paid to clean up. Interestingly, 34% indicated that they would put the waste in the dustbins located around the shopping complex while 12% said that they would keep the waste and dispose of it when they got back home. These results clearly show that most of the shoppers have a negative attitude towards either avoiding or minimising littering in public places. If this is a reflection of the attitude of the residents of Thulamahashe, it is not surprising that apart from the widespread littering around the shopping complex, waste is dumped not only in open spaces but also along streets and motor roads. Clearly then, the environmental ethos of the general

public in Thulamahashe has not developed to the extent that littering can be seen as serious or wrongful at all. This too means that even if the residents would see or witness other persons littering they will not regard such activity as morally wrong.

4.2.4. Attitude towards waste management in common property resource areas: taxis.

It was shown in Section 4.2.3 that the taxi rank in Thulamahashe is notorious for widespread littering. On the other hand, observation showed that the interiors of the taxis found in the taxi rank were litter-free, even though the people who blatantly littered the shopping complex and the taxi rank were the same people who used the taxis for their travels. Since most of the residents of Thulamahashe depend on taxis for public transport, it was deemed necessary to determine their attitude towards littering in the taxi cabs. Consequently, a random sample of the taxi passengers were asked what they would do with the waste which they generated whilst in the taxis – waste such as banana and orange peels, empty drink cans and bottles.

The responses, indicated that most (56%) of the residents would throw the waste out of the taxi window mainly because taxi drivers objected to passengers littering in their taxis. However, 36% of the respondents indicated that they would keep the waste until they found a dustbin to dispose of the waste because they did not want to be embarrassed by the taxi drivers if they were to litter in the taxis. The remaining 8% of the passengers reported that they would drop the waste in the taxi undetected by the taxi driver, and obviously, with the tacit approval of the rest of the passengers. When the passengers were asked what they would do with the waste in the taxi if they had a choice, they all said they would litter the taxi.

These results clearly show that the passengers from Thulamahashe and especially the taxi drivers had the same negative attitude towards the "common property resource areas" as had been observed previously. The taxi drivers would rather have clean taxis even at the expense of a littered environment. That the taxi drivers succeeded in keeping their taxis litter-free shows what can be achieved in waste management when regulations are put in place and enforced.

Nevertheless, this attitude of the residents regarding the environment as freely available to degrade it is, according to Park (2001:10-11), one of the root causes of the current environmental crises. According to Hardin (1968 : 1245), this kind of behavior demonstrates how, in a reverse way, "the tragedy of the commons" reappears in the form of waste pollution: "Here it is not a question of taking something out of the commons, but of putting something in; in this case, household waste. This behavior needs to be changed through education because it is clearly a negative attitude to the common property resource areas – regarding them as areas that can be misused because they belong to all and, therefore, belong to nobody.

However, it must be pointed out that this negative attitude towards waste management at community level can be regarded as having been learned because of the negligence of the Municipality in failing to collect waste for disposal. In the Polokwane Declaration on Waste Management (www.environment.gov.za/ProjProg/WasteMgmt/Polokwane_declare.htm), adopted at the first National Waste Management Summit, 26-28 September, 2001, the participating National, Provincial and Local Governments committed themselves "To provide comprehensive waste

management services." This is meant to include the "Provision of efficient and effective [waste] collection and disposal facilities." Unfortunately four years since then, this declaration is far from being realized in the Thulamahashe Municipality, most probably because of a lack of the required resources.

4.2.5 Knowledge of Municipality waste management legislation

At the above mentioned First National Waste Management Summit held in Polokwane, the participating Government bodies also committed themselves to, inter alia, "... develop and implement a comprehensive legislative and regulatory [waste management] framework by June 2002." In order to determine how far this commitment has been implemented, the residents were asked whether they knew of any Municipal by-laws that regulate waste management. None of the residents knew of the existence of any such by-laws or regulations. The municipality official also confirmed the residents' response that there were no such regulations.

The existence of good waste management regulations can be regarded as a critical first step in successfully managing waste at community level. That the public taxis in Thulamahashe are litter-free, in a community in which there is widespread littering, is mainly due to the drivers insisting that passengers do not litter their taxis. It is, therefore, necessary that this commitment of the Polokwane Declaration on Waste Management be implemented. This is especially so if the community waste management regulations are put in place with the full participation of the community and if they are enforced through 'self regulation' (Kidd, 1997 : 21) where community members enforce compliance. The value and success of such community participation has been very widely documented in many environmental management activities (Khatiwada, 1994; Rwejuna, 1994; Shah, 1993; Sluis, 1994; and Thompson, 1994).

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This study has investigated how waste is managed by the residents and the Municipality at the household and community levels in the Thulamahase Township. The purpose of this chapter is to present conclusions drawn from the discussions of the findings in Chapter Four, and to make recommendations based on the findings.

5.2 Conclusions

5.2.1 Waste management at household level

Two main role players were identified at this level of waste management: the household residents who generate the waste and the municipality that collects rates for the collection and disposal of the waste.

At this level of waste management, the study found that:

- i) The residents of households were managing their waste very well and keeping their compounds free of waste.
- ii) The Municipality either failed to regularly collect waste for disposal from the households in some areas, or in some areas it does not collect the waste at all.
- iii) It is because of this inability of the Municipality to regularly collect and dispose of household waste that the households whose waste is not collected for disposal became poor waste managers who had developed the wrong attitude of disposing of their waste in the community's common property resource areas - open places and along streets.

5.2.2 Waste management at community level

At this level of waste management, the main role players are the public, the taxi drivers and the Municipality. At this level, the study found that:

- i) Littering was widespread in the shopping complex and in the taxi rank; and

- ii) Uncontrolled dumping of household garbage was also widespread.

The main causes of this observed widespread poor waste management practices were:

The negative attitude of the community to carelessly litter in the shopping complex;

- i) The negative attitude of the households to carelessly dump garbage randomly.
- ii) The negative attitude of the taxi drivers who encourage their passengers to litter in the taxi rank and along the taxi routes so that the inside of the taxis remained litter-free.
- iii) The inability of the Municipality to regularly collect and dispose of waste.
- iv) The inability of the Municipality to provide large metal or plastic dust bins strategically distributed in the public spaces in the community.
- v) The lack of any waste regulation by-laws about which the community was educated and which the community participated in promulgating, implementing and enforcing.

5.3 Recommendations

On the basis of the findings of the study, the following recommendations can be made with a view to promoting an efficient waste management system in Thulamahashe:

- i) That the Municipality be provided with the necessary resources to enable it to regularly (at least once a week) collect and dispose of waste generated by all the households. In this way, residents with full bins would not be tempted to dump waste in public property resource areas.
- ii) That the Municipality should provide large metal or plastic waste bins, well distributed in all public places. These will be used for the storage of waste that is awaiting collection. In this way, there will not be random dumping of waste.
- iii) That in order to minimize and subsequently eliminate the observed widespread littering, the density of refuse bins in the shopping complex and the taxi rank be considerably increased such that they are easily accessible to shoppers and taxi passengers.
- iv) Because taxi drivers prohibit their passenger from littering in their taxis, it is recommended that the taxi drivers be

encouraged to carry litter or refuse plastic bags in their taxis. These, rather than the taxi routes, could be used by the passengers for waste disposal. In this way the taxi drivers would be directly contributing to a healthy and litter-free environment.

- v) That community waste management and environmental awareness education campaigns be regularly organized with a view to educating all members about good waste management practices.
- vi) That the Municipality, with the full participation of the community, promulgate waste regulation by-laws which the community would be encouraged to implement and enforce. In this way, the whole community will take part in keeping the whole environment, not just their compounds, a healthy place about which they can be proud.

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APPENDIX 1: QUESTIONNAIRES

Topic: The attitude of the residents of Thulamahashe and the Municipality towards waste management, in the Limpopo province of South Africa.

Part: A

Questionnaires for the Residents:

Instructions:

- Read each question carefully and chose the most correct answer.
- Mark the relevant answer with a tick and fill the space where necessary.
- Information provided will be treated confidentially.

SECTION A:

Attitude of the residents towards waste management at household level.

1 How is your household waste disposed of? (Tick one answer)

Removed by the municipality

Disposed off in an open area and street

3. How often is the household waste collected for disposal? (Tick one answer)

Once a week

Once in two weeks

Not collected at all

Why-----

3. What do you do when household waste is not collected for disposal?

4. Do you know of any law that prohibit littering? (Tick one answer)

Yes

If yes what does the law says?

No

5. Do you think we need such law to deal with the problem of waste in the area?

Yes

Why -----

No

SECTION B:

Attitude of residents towards waste management in common property resource areas: The shopping complex, including the taxi rank.

1. Supposed you are around the complex, doing shopping and you drink a juice, what would you do with the empty bottle or can?

(Tick one answer)

Put it in a dustbin

Keep it until dustbin is found

Drop it on the street

Why-----

2. Suppose you were inside Score Supermarket and you have eaten a banana, what would you do with a banana peel? (Tick one answer)

Put it in a dustbin

Keep it until dustbin is found

Drop it on the floor

Why-----

SECTION C

Attitude towards waste management in common property resource areas: Taxis.

1. Supposed you are in a taxi and have eaten a banana, what would you do with the banana peel? (Tick one answer)

Drop it on the taxi

Throw it out of the window

Keep it until dustbin if found

Why-----

2. Suppose you are in a taxi and have drunk a bottle of beer, what will you do with the empty bottle? (Tick one answer)

Drop it on the taxi

Throw it out of the window

Keep it until dustbin if found

Why-----

3. Do you know of any law that prohibit littering? (Tick one answer)

Yes

If yes, what does the law says?

No

If no, why -----

Part: B

Questionnaire for the Municipality official in the Waste Management division in Thulamahashe:

The attitude of the municipality towards waste management, in the Limpopo province of South Africa.

Instruction:

- Read each questionnaire carefully and choose the most correct answer.
- Mark the relevant answer with a tick and fill the space where necessary.
- Information provided will be treated confidentially.

1. How often do you collect household waste? (Tick the one answer)

Once a week

Once after two weeks

Not collected at all

Why _____

2. Do you provide facilities to the households to put in waste? (Tick one answer)

Yes

If yes, what type of facilities do you provide?

No

If no why -----

3. Do you have waste a management law for the public? (Tick one answer)

Yes

If yes, what does the law says

No

If no, why don't you have such law?

4. Does the public know about such law? (Tick one answer)

Yes

No

If yes, how do you make them aware?

5. How do you enforce such law?

THANK YOU FOR COMPLETING THIS SURVEY