

VISITOR PERCEPTIONS AND AWARENESS OF LITTER AT THE JOHANNESBURG ZOO

by

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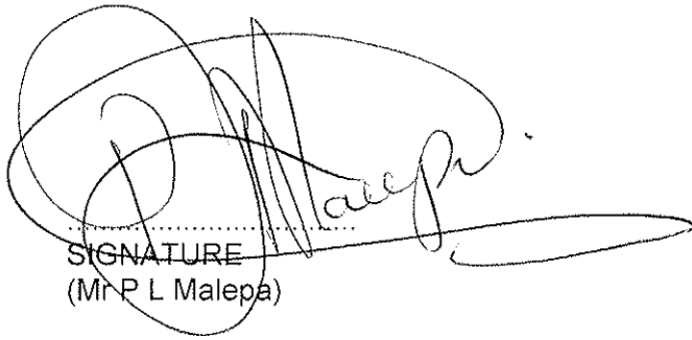
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DECLARATION

I, Piet Lesiba Malepa, hereby declare that this dissertation for the MSc (Geography) degree at the University of South Africa has not been submitted elsewhere by me before and is the work done by me.


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ABSTRACT

The aim of the study was to determine how litter affects the image of the environment and the animals at the Johannesburg Zoo, situated in the Northern part of Johannesburg, as perceived by various stakeholders. Furthermore, effectiveness of the educational awareness programmes developed and currently being presented at the Zoo were assessed.

The central themes of the research on the issue of litter in a conservation area included the current status of litter in the Johannesburg Zoo, the perception of stakeholders frequenting or living in the vicinity of the Zoo and the nature and effectiveness of educational programmes presented at the Zoo. The stakeholders included visitors (n=332), employees (n=20) and others who represented the Zoo and people from the neighbouring Forest Town.

It was possible to collect data on the premises while the Zoo was in full operation. The data-collection tools included two questionnaires (for visitors and employees) and interviews (other stakeholders), as well as a reflective recall of eight years of hands-on experiences and observations of a current curator at the Zoo. The latter served as a situation analysis of the Zoo to provide a backdrop for exploring the litter problem and served as background for designing the data-collection tools. The data of the survey conducted with questionnaires was quantitative in nature and was analysed descriptively in form of frequencies and percentages. The qualitative data gathered by means of the interviews were analysed and described against the experiences, beliefs and contact with the Zoo of the specific stakeholder. The educational programmes were described and the content assessed based on the effectiveness regarding litter minimisation information.

The situation analysis revealed some tragic consequences of littering at the Zoo. It became clear that educating the public was a necessity to provide knowledge in such a way that it would inculcate a spirit of caring about and valuing the environment and the animals. All stakeholders identified that the Zoo has a serious litter problem and that the signboards needed more specific litter control messages and should be placed strategically so that they are noticed. Although the number of dustbins were sufficient, their distribution and placement in and around the Zoo were not effective. Educational programmes were considered by all to be the answer to the litter problem if the content could be expanded to include information on the consequences of and the legislation on littering. Recommendations regarding litter management for Johannesburg Zoo and for further investigation were suggested.

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Chapter 1

STATEMENT OF THE PROBLEM

1.1 INTRODUCTION

Litter products are seen to lack value in the areas they have been produced. This is one of the critical challenges faced by public entities. Litter often occurs when there are a lot of people in one place (Elkington *et al.*, 1990:71) and it creates a negative perception about a place. Litter is both an environmental and social problem since the impact affects the environment and people (Kornblum & Julian, 2012:25). Litter may also have economic implications, because if visitors do not return, the Zoo loses revenue and this could impact on all aspects of the Zoo, such as its ability to retain employees and to care for animals.

A tourist attraction area should adopt good littering control measures, as failure to do so will result in many problems for the organisation (Aldis, 1992:32). The problems may include making a place look filthy as litter attracts pests, such as rats, free roaming birds and other small animals, which are perceived as a sign of dirt (Aldis, 1992:32). One reason why people visit tourist attraction areas is for relaxation. However, it will be difficult to relax in a dirty area (Ryan, 1997:5).

In the case of an area like a zoo, animals and birds might eat the plastics and other materials thrown into their enclosures, which would then affect their digestive system and could eventually, kill them (Anna articles, 2009). The amount of uncontrolled litter found in a zoo will affect its image and devalue the aesthetics of an area which will in turn discourage return visits (George, 2001:133).

According to McDonald (2002), litter is part of waste and should also be managed by waste control policies. McDonald (2002:383) stated that improving management and control of processes can lead to significant waste reduction, which in turn can lead to considerable savings in costs due to less wastage and more efficient procedures. Furthermore, a good control of litter will lead to less litter entering the enclosures, therefore reducing the number of animals that might

die from consuming plastics and other materials blown in by wind or thrown in by visitors.

Johannesburg Zoo is a visitor attraction in Johannesburg, frequented by many people every day. This Zoo is a member of and accredited by the African Association of Zoos and Aquaria, and also a member of the World Association of Zoos and Aquaria (WAZA), which has enabled this Zoo to attract visitors from all over the world. The Zoo has to be perceived as a clean environment if it wants to continue to attract more people and achieve one of its goals of being perceived as an edutainment organisation. Zoos worldwide encourage good relationships between people and the environment through education (IUCN, IUDZG & WWF, 1993).

It is important for a Zoo to involve the staff members in dealing with litter problems. Employees are some of the most important stakeholders within the Zoo, because if the Zoo experiences a decline in visitor numbers and less revenue is generated, fewer employees will be needed, so jobs are at stake. This is because the responsibility of dealing with litter problems should not be left to a specific department but should rather rest on the shoulders of all the employees since the implications affect the image of the Zoo. The employees are also aware of some of the problems associated with litter, such as animal death. They can become ambassadors of change and communicate to visitors, who litter the area, what the consequences the litter has for the Zoo. The employees are also the first people to experience the impact of litter in the organisation (Laws, 1995:98).

Perception plays an important role for tourist attraction areas. A Zoo has to be perceived as clean and not tolerating litter because environmental institutions and public members regard it as an eco-friendly organisation (Kotze *et al.*, 2009). According to Aslin (1981:3-4), visual experience can exert a greater influence on the development of the visual pathway at certain stages of life than at others. People develop perceptions of an area based on their experience or information given to them by others. Day (1969:182) believes that although some features of perception are innate, much perception is dependent upon experience with the environment. A person will perceive a particular environment and will learn that observed situation, which in turn will influence his/her behaviour. According to

Bruno (1980:126), the more traditional point of view in contemporary psychology is that behaviour is determined by perception.

In conclusion, the amount of litter within tourist attraction areas has the potential to damage the image of any tourist attraction if not properly managed (George, 2001:133). However, if the areas were managed well, it would encourage people to return to such areas, since they would go away with positive impressions and good experiences of such places. People are likely to recommend areas to others if they had a good experience and if they perceived the areas as environmentally friendly (George, 2001:133).

1.2 BACKGROUND OF THE STUDY

According to the City of Johannesburg attraction data pamphlet distributed in 2011, Johannesburg Zoo is considered a popular tourist destination in Johannesburg. This is confirmed by an increasing number of visitors over many years. Cook (1999:374) states that whether recreational facilities such as parks are close to residential areas or far away, people love them all. This Zoo is not any different especially with its four-pillar strategy of conservation, recreation, research and education, which requires the Zoo to be popular amongst the communities. In a situation similar to this, where communities interact with institutions, perceptions are likely to be influenced and developed. It is critical for the Zoo to be perceived as an eco-friendly environment.

For the past seven years, the Zoo has had an ever-increasing number of visitors. In 2009, there were more than 500 000 visitors. This was considered the highest number of visitors ever, and this continued to increase in 2010 (Johannesburg Zoo, 2011b). The growth in visitor numbers may be attributable to infrastructure development and new animals brought to the Zoo (Geddes, 1994:2). Furthermore, it could be due to change in South Africa's political situation and also society in general becoming more interested in wildlife and nature.

The unfortunate part of the increasing visitor numbers is that more litter could be generated. The various visitors behave in different ways since they come from diverse backgrounds (Ryan, 1997:1-5). Most people keep their homes and gardens neat and tidy but for some strange reason, they litter the countryside and

seaside. They will carelessly discard drink cans, plastic containers, sweets wrappings, broken bottles and cigarettes all of which could be dangerous for animals (Bright, 1991:26). More so, litter gets into the enclosures either by wind or having been thrown in by visitors and has the potential to kill some of the animals and birds in the Zoo. It also enters via Zoo water bodies and affects aquatic species and the quality of water (Brown, 2003:5).

Litter also causes conflict between the Zoo and its neighbours. For instance, in 2010, the Military Museum offered the Zoo parking space. This was to enable the Zoo to accommodate the increasing number of visitors. This offer was soon withdrawn because visitors to the Zoo left behind a lot of litter in the allocated parking lot (Gordon, 2011).

The Zoo introduced proactive programmes to control litter dropped by the visitors however, a lot of litter is still left behind. The Zoo has offered the following programmes to deal with litter: 'holiday programs' for scholars, 'be mad' for middle school children and 'honey badger' programme for primary scholars. These have yielded disappointingly modest results hence the programmes need to be evaluated if they are to be effective (Geddes, 1994:2). Furthermore, the Zoo uses more than three hundred dustbins to reduce litter. This method does work yet the visitors still leave litter lying around (Geddes, 1994:3).

The Zoo has been through different developmental stages, which has made it relevant in the modern world. These developments were initiated because the Zoo is intent on setting a good example of taking care of the environment, as it is a conservation facility. If this is not achieved, the public and other conservation organisations will have a wrong impression of this Zoo. An increase in visitor numbers has posed more challenges for the Zoo, such as litter, which has the potential to not only damage the image of the organisation but would also increase animal death through litter thrown into enclosures. If litter is not managed diligently, it has the potential to devalue the area.

1.3 VALUE OF THE STUDY

Johannesburg Zoo is one of the important municipality owned entities of the City of Johannesburg. It is part of the City's Human and Social Development Cluster,

which aims to create a good relationship between people and the environment. The core business of the Zoo is to preserve and manage biodiversity through direct conservation activities, education, research and recreation (Johannesburg Zoo, 2010). The fundamental value of the Zoo is that of sustainability, social and environmental responsibility. The Zoo states clearly that it supports a clean environment, which complies with sustainable development approach adopted in South Africa in 2002 at the world summit on the environment. For these reasons it becomes imperative for the Zoo to be seen as environmentally conscious and to take all the necessary measures to maintain an exemplary clean facility. In an effort to meet this expectation, thorough research of the problem of litter that is at hand, would be the responsible route to take.

1.4 MOTIVATION FOR THE RESEARCH

The Zoo belongs to the City of Johannesburg Social Development Cluster, which requires the Zoo to be eco-friendly and it must comply with the bylaw of the City covered under the Municipal System Act no 32 (South Africa, 2000a). Thus regular assessment of the status of the facility would ensure that these laws are honoured by evaluating the situation. The current litter problem is one such aspect that affects the desired eco-friendly image.

Litter can have a negative impact on the image of an organisation. Although the Zoo provides environmental education and is a recreational facility, it also depends on visitors for revenue generation. It is therefore important for the Zoo to understand how visitors perceive litter, since the presence of litter may lead to declining visitor numbers.

In the Zoo large amounts of litter are collected during weekends and some weekdays. This can worsen during some months of the year and therefore there is clearly a need to evaluate the way in which the Zoo is managing litter and also to find out why visitors litter the Zoo. An advertisement on Radio 702, May 2012 campaigns that 'litter attracts more litter'. This serves as good example of the need for proper measures to control litter.

Litter, especially plastics, that is not collected eventually ends up in animal enclosures. The plastics when swallowed by animals often result in increased

medical costs or the death of the animals. As an animal welfare concerned organisation, this cannot be allowed to continue.

The above-mentioned problems regarding litter indicate that there is a need to conduct a study that investigates problems caused by litter, the impact of litter on the Zoo's image and how stakeholders perceive the Zoo.

1.5 RESEARCH PROBLEM

Zoos in South Africa play an important role in protecting wildlife and educating the public about the importance of the environment. The Johannesburg Zoo has seen an increase in the number of visitors since the late 1990s. This presents it with challenges such as litter and the management thereof. Litter is bad for the Zoo as it can kill animals by suffocating them. This happens when plastic bags end up in animal enclosures after being thrown into the enclosures by the wind or left behind by the visitors. Furthermore litter tarnishes the Zoo's image as the Zoo is supposed to be perceived as friendly to the environment. It was therefore necessary to conduct a research study, which investigates how people perceive litter at the Zoo.

1.6 PURPOSE OF THE STUDY

The purpose of the study is to investigate how visitors perceive the Johannesburg Zoo based on the amount of litter they saw during a visit and whether they consider the Zoo to be an eco-friendly establishment. Secondly, there is a need to verify whether environmental awareness programmes presented at the Zoo are effective in dealing with the litter problem. Lastly, the perceptions regarding litter by employees of the Zoo and other stakeholders will be determined.

1.7 AIM AND OBJECTIVES

The aim of the study is to determine how litter affects the image of and the animals at the Zoo as perceived by visitors and staff and to establish whether the awareness programmes developed by and currently presented at the Zoo are effective so that litter management of the Zoo can be improved.

The specific objectives of this study to achieve the aim stated include the following:

- To determine the social, cultural and contextual background and status of the Johannesburg Zoo reflectively;
- To establish the perception of staff, zoo visitors and other stakeholders of the impact of litter on the Zoo;
- To investigate the perception of the effectiveness of existing litter awareness programmes presented at the Zoo.

1.8 SEQUENCE OF THE CHAPTERS

The following chapter (Chapter 2) reviews related literature that serves to reveal existing knowledge on the topic and to provide a background for the discussion of the findings of the current study. Various sources will be consulted extensively to examine the impact of litter on the image of an organisation and the importance and nature of the perceptions of visitors and other stakeholders.

Chapter 3 will provide a description of the research methodology selected and the various data-collection tools applied while focusing on the objectives of the study and the participant selection.

This will be followed by Chapter 4 that covers an analysis of the current situation at the Johannesburg Zoo that should impart information about the facility, the management structures and its operational strategies as perceived and experienced by the Curator of the Zoo who is also the researcher. This chapter is the first chapter on the results and will serve as background information for interpreting the findings and for making attainable projections for the future.

Subsequently, Chapter 5 presents of the results of the data collected in the various surveys, as well as a discussion and interpretation of the findings. Finally, the report will conclude with Chapter 6 where a summary of the findings, conclusions and recommendations for improvement of the facility and further research that could be pursued, will be presented.

Chapter 2

REVIEW OF LITERATURE

2.1 INTRODUCTION

People contribute to environmental problems. Litter is one of the environmental problems worldwide and it only varies in the nature of the problem between developed and developing countries. According to Gilpin (1996:136), litter refers to any article or matter that is deposited, dropped or thrown in a public place, public reserve or on private land which leads to defacing or defiling of that place or land. Litter such as broken bottles or plastic bags can harm people and wildlife (Smith 2001:12).

Modern society has become a throwaway entity where people buy things, use them and then throw them away. In 2008, people disposed over 410 million tons of solid waste, including paper, glass, plastics, cans and other waste (Spiegelman & Sheenhab, 2008). According to Allaby (2000:281), every manufacturing process generates by-products with no value and every product eventually wears out and is thrown away. These products that are carelessly thrown away have a severe and detrimental effect on the environment, including animals.

Litter is not only an environmental problem but also a social problem. When many people in a society agree that a condition exists, which threatens the quality of their lives and their most cherished values, and also agree that something should be done to remedy it, the sociologists define that condition as a social problem. People will react differently to a social problem as everyone has a unique perception about the causes and what must be done to remedy it (Kornblum & Julian, 2012:25).

This chapter reviews literature on how people perceive litter when they visit tourist destinations. Firstly, literature on the role of Zoos worldwide will be cited in order to highlight the importance of Zoos within the modern world and their role as environmental agencies. The focus then shifts to litter as a problem within tourist destinations and how litter affects the image of tourist attractions. Finally, attention

is paid to methods that could be applied when managing litter while considering the approaches of a variety of institutions. Research methods applied in related studies of litter within tourist destinations concludes this chapter.

2.2 IMPORTANCE AND ROLE OF ZOOS WORLDWIDE

2.2.1 Formation of *ex-situ* conservation areas

When preservation of a site or landscape is inadequate to protect their species, *ex-situ* mechanisms may be necessary. *Ex-situ* means places away from the site where the species naturally occur (Jordan, 1995:253). Examples of *ex-situ* conservation areas are botanical gardens, game farms, captive breeding programs in Zoos, aquariums and gene banks. These facilities are particularly important for those wild species whose populations are rare or endangered. Even for wild species that are not threatened, *ex-situ* collections are needed to make material readily available for breeding, so that the genetic base can be kept broad (Jordan, 1995:253).

Zoological gardens and aquaria have an enormous potential to contribute towards conservation, education, research and recreation. Such potential, already expressed by a number of institutions, particularly those organised in professional associations, is a combination of the added value offered by the way that living collections are managed today. There is a growing focus on global to local conservation and research initiatives, and the power of attraction such living collections have on the general public (Allaby, 2000:265).

2.2.2 Zoos and conservation

Ex-situ institutions such as Zoos can directly support *in-situ* survival of some species by providing the nuclei for re-establishment or reinforcement of wild populations in nature. The World Zoo Conservation Strategy emphasize that in accordance with the International Union for conservation of nature position statement on the Translocations of Living Organisms issued in 1987, such re-introductions and restocking projects, when properly applied, can bring great benefits to natural biological systems (Allaby, 2000:265).

According to Tudge (1992:2), conservation by breeding in Zoos is more feasible than the protecting habitats for some animals, such as primates, several cranes, rhinos, many parrots and various reptiles. This option has become the only option with a reasonable chance of success in the short and medium term. Involvement of Zoos in successful conservation has been stressed by the 2009-2012 European association of Zoos and Aquaria Strategy and an increasing number of Zoos have become involved in both *in-situ* conservation and sustainable development efforts, and *ex-situ* programmes.

It is important to indicate that South Africa as part of the global world can be seen to be working towards protecting the environment through establishment of *ex-situ* conservation areas. Government agreed that there is a need to establish zoological gardens as part of institutions, which work towards the protection of the environment. The importance of Zoos has been emphasised in a White Paper on the Environment of 1999, which recognises that there is a need to take urgent and coordinated action to save our remaining natural resources and to use them in a sustainable way. It goes further to indicate that there is a need to coordinate the establishment of Botanical and Zoological gardens and Gene Banks, and to educate people to use resources in a sustainable manner (South Africa, 1999a:159).

According to Brice *et al.* (2006), management and disposal of litter is a critical element in protecting South Africa's environment. If not properly managed, it could have severe implications in the environment.

2.2.3 Zoos and education

The world Zoo and aquarium community has the potential to play an important role in both environmental education and wildlife conservation. Indeed by working together, the global Zoo and aquarium community can have a cumulative conservation impact that builds significantly on the achievements of individual Zoos and aquariums, which overall may have a greater synergy and impact (Hardy, 1999).

Zoos and aquariums with their unique base of live animals, their expertise and their links to field conservation will be recognised as leaders and mentors in formal

and informal education for conservation. The educational role of zoos and aquariums is socially and culturally relevant, and by influencing people's behaviour and values, education is seen as an important conservation activity. Zoos remain open to the public, because they do offer educational facilities (Allaby, 2000: 265)

Living animals form the foundation for Zoo education. They provide a unique harmony between the recreational purpose of a visit to the Zoo and effective education about them. The attractiveness of living charismatic animals serves as a starting point to stimulate the visitors' interest in the subtle relationships and balances of the living world (IUCN, IUDZG & WWF, 1993).

The sustainability of conservation initiatives is largely dependent on developing public understanding of the inter-relatedness of species, the environment and the attitudes and actions of people. Captive facilities are uniquely positioned to bridge the gap between people and the natural world through creating a learning experience that raises awareness of environmental threats and biodiversity loss (Kotze *et al.*, 2009).

2.2.4 Zoos and recreation

One of the largest industries today is tourism. People have become more mobile, from rich and poor countries alike, but particularly for poor countries, tourism has become a prime source of income. People want more than photographs and memories. Zoos provide real experience of wild life to visitors (Tudge, 1992:6-7).

2.2.5 Zoos and research

Zoological gardens and aquaria form partnerships with universities and other institutions to conduct research. Through research on captive populations, zoo researchers learn lessons about wildlife management, which may be applied to protected areas that deal with small populations (Jordan, 1995:253). A good example of this was at the Rome Bioparco. A study was done in collaboration with the University of "Roma Tre" to analyse the reproductive behaviour of the red-eared slider (*Trachemys scriptaelegans*) in a semi-natural habitat, as well as how these harmful exotic creatures compete with the native European pond turtles (Scalera, 2011:10).

A unique role of the wildlife ranching industry is conserving, promoting scientific knowledge generation and providing expertise in the care of animal collections in collaboration with captive facilities such as Zoos (Kotze *et al.*, 2009). A good example of such facilities is the National Zoological Gardens of South Africa that falls within the jurisdiction of the National Research Foundation, which has established a relationship with universities within South Africa and funds students who participate in research. It has also incorporated a gene bank, which is situated within its property in Pretoria (NRF & NZG, 2012).

It is therefore important that the vision for zoos of the 21st century should become proactive in terms of wildlife conservation caregivers and providing intellectual resources. They cross their boundaries by aiding parks and reserves to sustain animals, which have lost their habitats. Furthermore, Zoos can conduct campaigns to restore habitats and provide many key species that would stimulate and showcase conservation efforts around the world (Conway, 1999:7).

2.3 IMPACT OF AN INCREASE IN VISITOR NUMBERS ON LITTER GENERATION

Zoos and aquaria play an important role within the tourism industry. They also rely on the number of visitors to survive. An increase in the number of visitors will increase their revenue. According to Allaby (2000:265), because of the high cost of running Zoos, they depend on entrance charges to support their operational costs. The increasing visitor numbers are positive for the park when properly managed but also negative if not properly managed. If litter is not properly managed it may eventually enter into enclosures and get consumed by animals, which might lead to their death. This could lead to severe economic impacts because there will be a need to purchase another animal to replace the deceased animal.

Jordan (1995:247) states that even when individual tourists are respectful, sheer numbers can overwhelm a park, which supports the latter. Degradation of the environment will somehow lessen the aesthetic pleasure for each visitor. It also has potential to endanger the wildlife. A good example is Bergen County Zoo in New Jersey. The Zoo conducted their own study found that with the increasing

number of visitors per annum, another form of litter control was necessary since there was an increase in litter generation (Challis, 2010).

This section focuses on potential challenges, which may be presented by an increase in visitor numbers. It also considers how litter is caused during events and how the increase in the population in cities affects *ex-situ* conservation areas.

2.3.1 Visitor increase as a necessity and the effect on destinations

The success of a tourist destination depends on the regular arrival of large numbers of visitors and the effects of their activities during their visit. Tourists are attracted to a destination by the following factors: accessibility, the relative expense of visits and potential awareness of visitors concerning the attractions and amenities offered. To be precise, actions and decisions are based on the perception of the place. A destination may undergo a number of changes such as expansion and improved infrastructure as it grows (Laws, 1995:1). Visitors have an obligation not to pollute the areas they are visiting even though their money sustains conservation organisations (Stuart & Stuart, 1996:4).

Laws (1995:91) states that tourism, like any other large-scale human activity, could have adverse consequences on the land, vegetation and wildlife in the areas where it occurs. Laws (1995:91) maintains that most visitors are attracted by the specialised ecology and wildlife of the area. The inevitable consequence is that tourists put pressure on their guides to show them animals and birds. As the number of visitors increases so does the pressure and the likelihood of more environmental damage. Tourists' insensitive use of an area may bring them into conflict with conservationists. Litter forms a large part of this and has created serious waste disposal problems. Many of the problems contribute to pressure on the land and diminish its role in the environment (Kemp, 2004).

Litter is harmful to wildlife. Plastic can cause animals such as birds to choke, when they mistake it for food. Even worse, small bits of plastic can accumulate in the stomach of a bird, never digesting or decomposing, to the point where there is no more room for real food and the bird starves to death with a full stomach (Anna, 2009). Litter does not only change the soil content of an area, but can also serve

as an attraction point for external animals, who will compete for food and change the feeding habits and diet of enclosed animals (George, 2007:306).

A good example of a place that has removed the dustbins to reduce the invasion of the area by scavengers is Walter Sisulu Botanical Gardens through introducing a Waste Management Policy of “Picnic in - Litter out” in 2012. The wild animals scavenge from the refuse bins at night causing harm to their health and creating an unhygienic mess in the morning that required the staff members to clean it up.

2.3.2 Littering during events

During certain periods of the year, such as the holiday periods or events (sporting, concerts etc.), litter in certain areas may increase substantially because the normal waste collection service during the same period may be inadequate. The local waste management services are challenged by the influx of tourists to holiday destinations (CSIR, 2011). The Kruger National Park experienced an increasing number of visitors during March 2013 and it was reported through *SABC News at Seven* on 29 March 2013 at 07h00 that because of an increase in visitor numbers, they have experienced lots of litter within the park which is not good for the park and even more so for the wildlife.

Special events, from the visitors' perspective, provide opportunities for leisure and social or cultural experiences outside the normal range of choices beyond everyday experiences. To some extent events might lead to certain visitors behaving in an unruly manner. It is during these events that visitors might litter within tourist destinations (Ryan, 1997:136). In the United States of America, for example, at some baseball games, a massive amount of plastic cups, plates and cutlery are used, in some cases for only the seconds it takes to spill down ten ounces of beer before being consigned to a trash barrel (Haley, 2003:204).

Tourist destinations that depend on tourists for income are faced with a high risk of damage to their image during increasing numbers of visitors (Laws, 1995:3). The numbers and types of visitors affect its ability to absorb tourists. For example, an impact of a thousand people at a beach resort, which has a carrying capacity for 600 people, will result in severe damage to that area (Laws, 1995:73). When a carrying capacity of a destination has been exceeded, the destination will most

likely be faced with lots of litter. This will have a negative impact on the resources, will lower visitor satisfaction, or exert a negative perception upon a destination (George, 2007:309).

2.3.3 Population increase in cities and litter generation

Cities worldwide have been experiencing an increase in population. The extent and nature of urbanisation in developing countries have major implications for litter generation and management (Thomas-Hope, 1998:2). The growth of cities and the development of nations have been interdependent processes. The cities have always acted as magnets in attracting people because they are sources of economic development, energy, vitality and progress.

However, cities are also focal points for pollution, littering, crowding, poverty, disease and oppression (Walmsley & Botten, 1994:9). According to Gutberlet (2008:4), urban lifestyle generates significantly more litter than rural livelihoods. Urban life styles further persuade consumption intense and wasteful attitudes. With economic growth and population increase, the problems related to litter are most likely going to increase even more.

The *ex-situ* conservation areas that are situated within cities are likely to face the same problems faced by most cities, of which littering is one (Laws, 1995:73). According to Arms (2004:369), litter that plague cities now plague many conservation areas. Belfast Zoo is a good example, with its record breaking 70,000 visitors for the month of August. Litterbugs were beginning to become a problem with the increased litter throughout the Zoo site (Challis, 2010).

Population growth, new lifestyles and rapid changing technology have contributed to an increase in waste (Kemp, 2004). According to the White Paper on Environmental Management Policy of April 1999, the rate at which animals and plants are becoming extinct is now higher than ever. The White Paper (South Africa, 1999b) stated that South Africa has lost genetic resources and species, and its habitats and ecosystems have deteriorated as a result of population growth and the over-use of natural resources.

Human impacts on the land takes many forms, ranging from the complex infrastructure of urban areas in the developed world to the garbage left behind by visitors in isolated places (Kemp, 2004:214). According to the United Nations Population Fund (1991), the developing world is projected to contribute 60% of all new waste generated between 1985 and 2025 because of population growth alone.

A good example of an increased population size that affected the generation of litter is that of Colorado. Statistics released on the volume of litter collected along its highways in 1971 indicated that the litter collected was enough to cover a football field to a depth of 13feet. There were more than 21 million items collected or 95 pieces per person in Colorado. They found that the amount was directly related to traffic volume, the number of traffic lanes and the population of the nearest town (NCHRP, 1993:7).

It is therefore important to state that wildlife is declining so fast that the end of animal acquisitions for zoos is in sight. This decline is associated with an increase in human population, which is resulting in the disappearance of wildlife (Conway, 1999). An increase in visitor numbers should always be considered when setting strategic targets for a conservation area, since they might have positive and negative impacts on an area.

2.4 LITTERING AS A PHENOMENON

According to Gilpin (1996:136), litter refers to any article or matter that is deposited, dropped or thrown in a public place, public reserve or on private land which leads to pollution by defacing or defiling of that place or land. Pollution is the discharge of litter in ways that raise the cost of later activities, harm people, or reduce the enjoyment people get from their surroundings (Schramm & Wardford, 1989:26).

Litter is something that people care about in every locality, which affects their sense of well-being. It is a negative emotional feeling when it is in a public place and is considered bad for people if not properly managed (Clark, 2008:3). This section focuses on the littering as a phenomenon within the world, littering in South Africa and littering within *ex-situ* conservation areas.

2.4.1 Littering worldwide

People have always been involved in the change of the planet for centuries. People have always thrown garbage away without serious issues occurring since nature could then take care of it. This was due to the fact that most of the things were made of natural materials, such as wood, that decayed easily when thrown away. Due to the industrial revolution which started 250 years ago that garbage started to become more than a local problem only (Brown, 2003:6).

The growth of mass tourism in the 1960s, along with an increasing awareness of the impact of people on the environment, led to a growing realisation that nature is an exhaustible resource. Littering by tourists at conservation areas and visitor attractions can detract from the aesthetic quality of the environment and harm wildlife (George, 2007:306). Lizards often crawl inside bottles or cans to bask in the warm interior, to seek protection or search for food; but they may find it difficult to squeeze out again and can die of overheating (Barbalace, 1998).

Recently, it was recorded that an average family in North America, Europe and Australia throws away more than a ton of litter each year and this volume has been increasing every year. There is not much emphasis on recycling and people worldwide have a tendency of using cans and plastic containers once and throw them away (Brown, 2003:26). The United States, with only 4.6% of the world population, produces about 33% of the world's solid waste, of which 1.5% of that waste is generated by homes and businesses in or near urban areas (Miller, 2004:302)

Litter is a problem worldwide and affects the value attached to certain areas. According to Clark (2008:1), people living adjacent to schools or playing fields are more concerned about litter than noise or traffic. They are not happy to see old empty cans, greasy food wrappers and last week's teen magazines blowing around the place.

The way of disposing litter in open spaces and oceans is causing problems for wild animals. Hoof stocks can eventually put their sharp hooves into old items thrown away which will make them lame and could stress and die if the lameness is not

attended to. Ducks and other waterfowl pick up the pull-tabs from cans which get caught on their beaks, preventing the birds from feeding and could eventually die of hunger (Bright, 1991:26). Worldwide bottles which are thrown away can trap many small mammals which could cause them to drown or get trapped by these bottles and eventually starve to death if people do not pay attention to their predicament (Bright, 1991:27).

A good example of problems associated with the impact of litter on animals is the one, which happened in Great Britain whereby the Royal Society for the Prevention of Cruelty to Animals dealt with 11 589 litter-related incidents in 2006 (NCHRP, 2009).

2.4.2 Littering in South Africa

South Africa is part of the global world and has to be seen working towards protection of the environment. According to the White Paper of May 2000 on an integrated pollution and waste management strategy (South Africa, 2000b), South Africa has a growing obligation to meet international commitments and to be a globally responsible country. The environment can be protected with the creation of protected areas. The White Paper on the Environment of April 1999 has recognised that there is a need for the establishment of *ex-situ* conservation areas, which will work towards protection of the environment (South Africa, 1999a). It also realised the need to take urgent and coordinated action to save our remaining natural resources and to use them in a sustainable way.

According to George (2001:212), one of the reasons visitors are attracted to South Africa is because of its wildlife reserves. It has been estimated that there are about 300 game and nature reserves. There are also a larger variety of smaller, privately owned reserves that truly make South Africa a nature lover's paradise (George, 2001:212). In addition there are about 422 formally protected areas in South Africa. These constitute 6% of the land. They are affected by many of the same sources of pollution as the environment. Litter is one of the problems, which face these protected areas as indicated in the White Paper on Environmental Management Policy of April 1999 (South Africa, 1999b).

South Africa experiences a lot of littering in most cities. It is important that the country controls litter even though it is costly. There are various reasons, which make people to litter all over the cities, such as insufficient dustbins. Most cities are dirty hence people do not see a need to keep them tidy and more importantly it might be their attitudes. According to Ryan (1997:25), an attitude is an expression of personality when a person considers something in the external environment.

2.4.3 Littering within *ex-situ* conservation areas

Zoos and aquariums were formed with the idea of protecting endangered wildlife. The modern zoos and aquariums are working towards sustainability and reducing the 'environmental footprint', by using natural resources in a way that does not lead to their decline. Zoos and aquariums are progressively contributing more to the conservation of biological diversity. These places are also created to provide edutainment to visitors. Zoos and aquariums, if they are to survive financially, have to cater to the need of people to be provided with the opportunity to learn and relax while visiting them (Gruen & Jamieson, 1994:292).

Visitors to these areas sometimes behave in a manner, which is contradictory to the survival of this place by leaving garbage lying all over. This kind of behaviour is not good since litter that is left in open spaces have a potential to kill animals. Litter devalues the aesthetic value of conservation where most visitors relax and may serve as a deterrent for future visitors (Tsagbey *et al.*, 2009:1). Clark (2008:3), indicates that 95% of veterinarians in Britain have treated animals injured by litter which included, cuts caused by glass or cans, stomach problems caused by swallowing discarded food, and suffocation caused by stray plastic bags.

Tourist behaviour can cause problems, of which one of the problems might simply be, thoughtlessness, such as littering with soft drinks cans (Jordan, 1995). Miller (1995:336) provides a good example of litter caused by thoughtlessness, namely when helium-filled balloons at parties are released into the atmosphere. When the helium escapes or the balloon burst, they become litter. Fish, turtles and other animals die when they ingest balloons that end-up in their enclosures.

People in most cases will behave differently in different areas. People will usually not litter at their own homes but turn to littering when they visit tourist destinations.

Bright (1991:26) observed that most people keep their homes and gardens neat and tidy, but for some strange reason, often apply different standards in the countryside or at the seaside. People carelessly discard drinks cans, plastic containers, sweet wrappings, broken bottles and cigarettes, which might be dangerous for both wildlife and domestic animals. Similarly visitors will discard rubbish next to a dustbin that is provided to carry rubbish. The environmental impact of plastic litter on the land has a negative aesthetic effect. Discarded plastics and other garbage is not only annoying and ugly, it can also trap and suffocate turtles, fish, birds, and other animals (Brown, 2003:5).

2.5 PROBLEMS ASSOCIATED WITH LITTERING

Littering is associated with many problems, and often arises where there are lots of people in open public spaces. One of the problems relates to the perception that litter has no value (Elkington *et al.*, 1990:71). Litter is aesthetically unattractive. People do not consider litter as valuable because it is waste in a wrong place and it ruins the appearance of an area (Cecilia *et al.*, 2012)

2.5.1 Effects of visual litter in an *ex-situ* conservation area

Littering occurs in many ways, some of which are more visible than others. Plastics can have unfortunate consequences when they show up in areas they are not wanted. When they are not collected, they could have an impact on vegetation of an area. They are the first to indicate that people within an area do not care about the environment. Discarded plastics are annoying and ugly especially in the beaches and parks (Brown, 2003:4).

Beside the fact that litter makes an area ugly, animals in the zoo could also mistake it for food. Mammals and birds could eat plastics and eventually die of starvation, as they are unable to digest it. Plastics can also suffocate a bird in cases where a bird covers its head with it. The death of any species from litter is costly to an organisation and is not necessary (Hunter, 2001:28). Visible litter like ring-pulls from cans be mistaken to be food by birds; as such it may end up with a ring-pull around its beak. This will make it difficult for that bird to eat (Bright, 1991:26). It has been indicated that due to rubbish lying around, some polar bears in Manitoba, Canada, which is situated hundred kilometres from the factories,

were found to have high concentrations of chemical pollutants in their bodies (Bright, 1991:7).

Since the *ex-situ* conservation areas rely on an increasing number of visitors to provide revenue and also to convey the conservation message, they will be negatively affected if people decide not to visit those areas due to visible litter (IUCN, IUDZG & WWF, 1993).

2.5.2 Effects of odour from uncollected rubbish in an *ex-situ* conservation area

Litter, which is not collected, can become a breeding area for mosquitoes, pests such as rats, and free roaming birds. Bottles that are left uncollected could trap some small animals, which will eventually rot in a bottle and start to smell if not collected. A good example is the voles (rodent) of love canal, which is found in Niagara Falls, in the United States. They have high level of *lindane*, a dangerous insecticide and one of the chemicals. The animals are ordinarily trapped in bottles and die from liver damage. Should they survive they become an easy prey for predators. The same predators will also die from being poisoned (Bright, 1991: 27). The bad odour discourages people from re-visiting conservation areas.

2.5.3 Problems associated with the disposal of litter in a conservation area

Plastics are so aerodynamic that even when properly disposed of, they can still blow away and become litter. They easily escape from garbage trucks and disposition sites. Not only are they visibly an eyesore, plastic bags can be dangerous to wildlife as well. They are often mistaken as food by marine mammals and seabirds, many of which die each year by ingesting them. These animals suffer a painful death where the plastic wraps around their intestines or as they choke to death (Miller, 1998:578).

2.5.4 Litter in tourist destination areas

Any tourist destination must have litter control measures in place as the alternative may result in a lot of problems for the destination (Aldis, 1992:32). If left uncontrolled, it might lead to decreased numbers of visitors as a result of dirt and pests, including rats, free roaming birds and other small animals (Aldis, 1992:32).

This is because people visit tourist attractions to relax and it may be difficult to do so in a dirty area with high numbers of pests (Ryan, 1997:5). Furthermore, uncontrolled litter may negatively affect the image of attractions and devalue the aesthetics, resulting in fewer return visits (George, 2001:133).

Each year plastic items dumped near beaches threaten the lives of millions of marine animals and seabirds. The animals may swallow it, become entangled or choke from such debris. A good example is a Hawaiian monk seal that could not eat because its mouth was completely closed by some pieces of plastics. The seal almost died (Miller, 1998:579). Discarded plastics and other garbage is not only annoying and ugly, it can also trap and suffocate turtles, fish, birds and other animals (Brown, 2003:5). This has been supported by audited results of the International Coastal Clean-up Day, which took place on 17 September 2011, by showing that plastic litter continues to be a problem on South Africa's beaches (Kieser, 2011). According to Mutsinyalo (2012), litter left in the area is also not safe as it may be consumed by free roaming animals and may create a perception that people in the area does not care about litter.

2.5.5 Effects of litter on the decision to visit a tourist destination

Individuals or groups of people will make many decisions while visiting tourist attractions (Manners & Mikesell, 1974:252). Some of these decisions may be as a result of the litter situation at the attractions being visited. Even though the decisions about litter may be perceived as unimportant, the action of littering as such may have a serious detrimental effect on animals. This could include killing endangered species. These deaths could create a negative perception about the attraction (Manners & Mikesell, 1974:252). Perception is very important for tourist attractions, including zoos. Worldwide zoos are perceived to be clean and without litter. This is as a result of the association between zoos and eco-friendly environmental institutions (Kotze *et al.*, 2009).

2.5.6 Littering along the roadside near conservation areas

City tourist attractions usually do not have enough space for parking (Geddes, 1994:2). This compels visitors to park along the roadsides where they leave litter. This conduct can send out the wrong messages to neighbours and people driving

past the entity (Geddes, 1994:2). The impact of roadside litter is serious but not always obvious. Studies in America have indicated that there is a loss of tourists due to roadside litter (NCHRP, 2009:4).

According to NCHRP (2009), as the number of vehicles increases, so does the potential for roadside litter. The impact of roadside litter and litter collection is staggering. In America the estimated cost of collecting roadside litter exceeds \$130 million per year. Collecting litter requires a lot of staff, and sometimes it is toxic material, which may threaten the environment and staff. Roadside litter has been correlated with the reduction of tourists to an area (NCHRP, 2009:1). Litter removal is a costly exercise where the cost to taxpayers is more than R80 million a year within South Africa (CSIR, 1991:43).

2.5.7 Problems associated with litter in zoos

Litter is a problem in zoos throughout the world. In Indonesia, the largest zoo, Surabaya Zoo, a 30-year-old giraffe died in the beginning of March 2012 with a beach ball-sized wad of plastic food wrappers in his belly. The ball of plastic weighed 18 kilograms (40 pounds). This incident has focused attention on a scandalous condition at Indonesia's largest zoo. Having been set up nearly a century ago in one the most biologically diverse corners of the planet, Surabaya Zoo once boasted to have the most impressive collection in Southeast Asia (Sumampouw, 2012:02).

It has been reported about Twycross Zoo in Leicestershire that litter causes huge problems for many animals, especially those that live in water, as it is easy for them to become entangled in the litter. Discarded plastic bags cause problems as, to many aquatic predator species; they look very similar to jellyfish when they are floating in the water. It has been documented that sea lions have eaten plastic bags by mistake. These plastic bags become tangled inside the animals and cause them to starve to death (Oldham, 2008:3).

In conclusion therefore it is important to indicate that according to the majority of ecological and health risk analysis, littering is classified as a high-risk ecological problem since its contribution to the alteration and destruction of wildlife habitat (Miller, 1994:12).

2.6 PERCEPTIONS OF LITTERING AT A TOURIST DESTINATION

Perception enables people to interact with their surroundings and guides their behaviour (Wade, 2005:3), hence people will behave differently based on their perception (George, 2001:132). It involves both the ability to think and interpret things on the basis of past experiences. Similarly, environmental perception involves how people interpret and sense the natural environment. Interestingly, even with the same stimuli, different people will tend to create different cultural landscapes based on their perceptions (Kendal *et al.*, 1962:361).

Perception can also be described as a way in which people interpret messages through their senses of sight, hearing, taste, touch and smell. Perception, like beauty, lies in the eye of the beholder and may also differ according to life stages. For instance, what is important and attractive to old people may not be the case for young people.

It is more precise to indicate that actions and decisions, which are made about visiting certain tourist destinations, are based on place perception. Place perception is both rational or irrational feelings and understandings about the natural and cultural characteristics of an area, and the opportunities that the area might provide that will be enjoyable for tourists (Fellmann *et al.*, 1997:77).

This section will focus on management's perception on litter, visitors' behaviour as influenced by perception, how employees perceive litter in their place of work and the perception of litter on the neighbouring community

2.6.1 Perception of management regarding litter

The biggest problem with litter is that it affects the image of an organisation and creates a perception that people in an organisation do not care. According to Mark Challis, Zoo manager at Belfast Zoo in Ireland, the staff members are aware of the danger associated with litter, but the public in general are not always aware of the problems associated with litter. The lack of understanding of problems associated with litter from the general public, is the reason the Belfast Zoo supported 'Captain Clean-up campaign' which took place in September 2010. The campaign focused

on education of the general public about the dangers associated with litter in the Zoo environment (Challis, 2010).

The management of Twycross Zoo in Leicestershire perceives litter as a problem because it affects the animals. Litter causes huge problems for many animals, especially those that live in the water, as it is easy for them to become entangled in it. The management has encouraged the visitors through notices to take care of their garbage while visiting the zoo (Boardman, 2008).

In Indonesia, the government decided to employ a well-experienced zookeeper to create a better and a clean environment for Surabaya Zoo. However, with the death of Kliwon the Giraffe, the zookeeper indicated that the management of the cleaning problem is a serious challenge but sadly it was reported that the zookeeper has given up (Sumampouw, 2012).

2.6.2 Perceptions of visitors

Human perception is influenced by different aspects. It might be influenced by previous experience of visiting a certain tourist destination, other people who visited the area before and also by visual experience. The function of perception is to provide us with an awareness of the surrounding environment (Bruce *et al.*, 2003). A good example is the perception of visitors around beaches. It is believed that litter at beaches, especially those from recreational sources, accumulate in large quantities in the festive and rainy seasons. This perception is not always correct but people might decide not to visit a destination at a certain time based on the perception mentioned (Tsagbey *et al.*, 2009).

2.6.3 Visitors' behaviour as influenced by perception

Behaviour of people is influenced by psychological factors, such as motivation, perception, learning, personality and attitudes. These would influence their decisions to visit an area (George, 2001:131). Society, with its diverse views, may also influence individuals, impacting on their experiences. The latter involves all senses and not simply the visual. Like many human activities, tourist behaviour could result in either positive or negative activities when a destination is visited. They may bring revenue into an organisation but at the same time damage the environment through litter generation, which in itself could negatively affect the

image of an organisation and at the same time would need to be managed (Ryan, 1997:25).

Tourists have different motives when they visit a tourist destination and they are likely to behave in different ways while expressing their motives. The environment around them at a tourist destination will also influence their behaviour. Social context is pluralistic in nature and provide many opportunities for the expression of different behaviours. It is this plurality that is complex, for example, observing young people will be different from observing elderly people (Ryan, 1997:25).

A report on a study conducted in the USA in 2009 indicated that adults under the age of 35 are likely to litter twice more than people of ages 35 to 49 and three times more than people over the age of 50 (NCHRP, 2009:9). Research conducted in 1968 for 'Keep America Beautiful, Inc.' identified specific demographic variables related to littering. Among the findings were that males are likely to litter twice more than females (NCHRP, 2009:9).

There is a well-developed school of thought that stipulates that the extent of littering in an area or by societies is largely based on perceived social norms. For example, people are more likely to litter in areas that already have litter than in areas that are generally clean. This is because a dirty environment reflects a social norm that tolerates litter, whereas a clean environment reflects a society that is intolerant of litter (NCHRP, 2009:10). A person is unlikely to litter if their item is going to be the first piece of trash in a clean environment and where disposal facilities are conveniently provided (Kuehn *et al.*, 1979).

2.6.4 Employees' perception of litter in their area of work

People who experience the impacts of tourism are those who work in tourist destinations. It is fair that their views and concerns are considered when any developments are considered (Laws, 1995:98).

Employers should put more effort into getting their employees to see litter as a concern for all and not as a mechanism to create jobs. There is a perception that litter-pickers will become unemployed should there be no litter (Shirinda, 2012). It is considered to be a form of job creation (Lambert, 1988:43-44). In some cases people dump large amounts of rubbish in odd corners of cities and expect

someone to clean after them. The practice is known as 'fly-tipping' and the fact that it is illegal seems to make no difference.

Employees need to see litter as a health hazard in their places of work. Trade unions have begun to regard industrial health and occupational safety as part of their mandate (McDonald, 2002:29). Litter can be treated as an industrial health and occupational hazard as it creates an unsafe working environment for the workers. The behaviour of employees has a potential to influence the behaviour of visitors. If the employees consider litter to be a problem in their working area, they are likely to communicate the message to visitors and will pick-up litter (Zeithaml & Bitner, 1996:26).

The action of constantly removing trash from the employees is considered by some employees as a burden and also time consuming. In Bergen County Zoo in New Jersey the problem with the gallon trash is that staff would empty these cans daily, and twice per day on busy days. The trash collection burden is a significant demand on staff time, as the main visitor areas must be kept clean and litter-free. The gallon trash also caused a major problem with bees being encountered around them in the Zoo, which is dangerous to the visitors (Gunther, 2008).

2.6.5 Perception of litter by the neighbouring community

The presence of litter has a variety of impacts on neighbouring communities ranging from health issues to economic impacts. Most commonly it is seen as an aesthetic issue. Most people have perceived litter as a reason for a decline in property values within some communities. Another way that litter can cause health problems is if it builds up and attracts rats or other pests that may carry disease (Geers, 2008).

Litter which is left along roads and in gardens sometimes consists of toxic materials, which may pose a threat to the environment. It may then become the problem of the neighbouring community to collect and dispose it and therefore affect them economically. It is also wasteful and time consuming to deal with litter which was not created by the community, but someone else (NCHRP Synthesis 394, 2009). According to Clark (2005) litter is something which people care about in the locality and it affects their sense of well-being.

2.7 LITTERING AND THE IMAGE OF A TOURIST DESTINATION

This section will focus on the relationship between litter and the image of a tourist destination. Although some zoos were initially not open to the public, those that were open became highly popular for their entertainment and educational value. They were considered as places where parents could spend a fine afternoon with their children (Allaby, 2000:265). However, with the increasing popularity of the zoos, there are challenges regarding litter and some zoos still do not provide adequate enclosure for animals that might be perceived as bad practice and eventually create damage to the reputation of a zoo (Allaby, 2000:265).

While the importance of the attractions and amenities of a destination cannot be underestimated, research has shown that the image of a destination is of equal importance (George, 2001:298). If litter is not properly controlled in a tourist destination, it is likely to affect an organisation's image (Clark, 2008:2).

2.7.1 Importance of the image of a destination

It has been found that prospective consumers are influenced as much by their own perceptions of the particular destination as they are by its potential performance. Perception is the process by which an individual selects, organises and interprets information they received to create a meaningful picture of the world (Day, 1969).

A destination image can be defined as the visual or mental impression of a place or a product experienced by the general public (Pizam & Mansfield, 1995). All destinations have images: some are based on geography, people, infrastructure, climate and other natural attributes. Destinations rely heavily on positive images created through word of mouth and the media, as a tourism experience is indescribable. The prospective visitor usually has a very narrow perception of a destination. It is also possible for a negative image to be created through media (George, 2001:298).

One of the key tasks that a destination has is to develop, maintain or alter its image in line with its target visitors. To achieve this, it becomes important to know how people perceive it and to understand what influences their perception (George, 2001:299). Belfast Zoo in Ireland had experienced an increase in visitor numbers in the month of August 2010. With the increasing numbers developed a

litter problem throughout the Zoo. It is because of constant monitoring that they were able to identify the problem hence they introduced 'Captain Clean-up' as part of their management strategy to help protect their image as a clean zoo (Challis, 2010).

Furthermore, effective image management techniques depend on understanding the potential interests and attitudes of visitors towards a destination. It is critical to involve the public when developing a litter management strategy since this might improve litter control. According to Challis (2010) staff members are aware of the problems which are caused by litter, however public members are not aware hence the introduction of the campaign via 'Captain Clean-up'. Image can establish a meaningful position for a destination in the public's mind, for instance making the destination different to the others who offer similar primary attractions. Other organisations have failed to achieve a planned level of tourism activity, because of low standards of service compared to alternative destinations (Laws, 1995:112).

To provide good services at all times in order to gain and keep a lasting place in the market, a good image is essential (Anderton, 1995:102). Zoos as part of conservation areas have to be seen providing a service where visitors could experience the beauty of nature and they could enhance their mental and physical health by getting away from stressful and dirty areas. Zoos have to be perceived as areas, which provide recreation and important ecological values (Miller, 1998:659).

2.7.2 Effect of litter on the image of a destination

Destinations can be negatively affected when the number of visitors goes beyond its capacity. The visitors may start to pollute the area. A good example is the increase in tourist numbers in the Hawaiian resorts. It resulted in water pollution, freshwater runoff, litter and sanitation problems, which resulted in pressures on the marine environment and prejudiced the future of the dive industry. It also affected the image of the resorts when people lost interest in visiting those resorts (Laws, 1995:95).

Another example is Mount Everest, which was first conquered in 1953 by a team led by Colonel John Hunt. Hundreds of climbers have since attempted the mountain, sometimes as many as 38 in one week, and they queue to reach the top of the mountain. There are also shops and bed-and-breakfast facilities, which were developed in the area. Everest itself experienced a lot of rubbish, which was accumulating. Some rubbish is from unused mountaineering equipment left by expeditions. Litter is normally considered an eyesore and by some also recognised as destructive to the environment. This had a negative impact on the mountain and has led to the instigation of several regulations to manage the litter (Anderton, 1995:118). Litter is also a problem in the Himalayas and has also affected the image of that destination (Anderton, 1995:119).

Litter is aesthetically unattractive. It is a public nuisance and its tendency to be blown or moved about, decreases the scenic potential. Litter can be an aesthetic blight. It creates a perception that people in the area do not care about the environment (Muñoz-Cadena *et al.*, 2012: 1734). Litter can also create a perception that people within a dirty tourist destination area are lazy. It will discourage people from visiting such areas, since no one wants to visit a dirty place when on vacation (McKenna, 2012).

2.8 MANAGEMENT OF LITTER

According to Amsel (2011), people often litter because they are lazy and cannot be bothered to find a trashcan. However, when everyone litters, it can have an effect on the environment. Litter on the land is ugly, as wind catches paper and plastic and traps it against trees in parks and against fences. It is therefore important to always manage litter in a pro-active way (Amsel, 2011:1). It has been stated that people litter for the simple reason that it is the easiest way to get rid of unwanted things. According to McAndrew (1993), a professor of environmental psychology at Knox College, people will not take the trouble to find a place where they can dispose their rubbish. Studies also found that most litter occurs within 16 feet of a trash bin (McKenna, 2012).

This section will focus on the importance of managing litter, the legislation that covers litter management, the significance of non-governmental organisations (NGOs) in managing litter and other methods of managing litter in Zoos.

2.8.1 Importance of litter management in tourist destinations

Human activities generate waste, which can cause changes in the environment and harm to animals, plants and ecosystems. However, managing waste, of which litter is a part, carefully, can limit the environmental damage and conserve scarce resources (Powell *et al.*, 2001).

It is therefore important to manage litter within any particular environment, through waste control policies (McDonald, 2002:383). Zoos worldwide are working towards sustainability and reducing the 'environmental footprint', by using natural resources in a way that does not lead to their decline. The zoological community must initiate and increase those activities that will achieve reduction and embrace the concept in principle and practice.

Zoos should be working towards the prevention of litter through operating environmentally sound waste management practices, minimising the total production of waste, managing the separation of waste at the source to encourage maximum reuse and recycling, minimising the risk of pollution and to encourage recycling as much as possible to reduce the amount of waste being sent to landfill sites. By introducing sustainable practices the Zoos will, without doubt, help to improve the environment and will fulfil the institutions moral imperative to be involved in such practices (IUCN, IUDZG & WWF, 1993).

Litter management in *ex-situ* conservation results in the reduction of the high cost of refuse removal as reported in the Walter Sisulu National Botanical Gardens Policy document of March 2012. In Bergen Zoo, the introduction of 'big belly' for litter management has managed to free up staff for other tasks. This also contributes to a better aesthetic. It was also through this introduction of 'big belly' litter management that pest problems such as bees were reduced (Gunther, 2008). According to McDonald (2002:383), improving control and management of processes can reduce waste significantly, which in turn can lead to considerable savings in cost, as there will be less wastage and more efficient procedures. Furthermore, good litter control can lead to less litter entering enclosures thereby reducing the number of animals dying from consuming plastics and other materials blown into the enclosures by the wind or thrown in by visitors. A good waste management programme will provide basic data on how much waste is produced

and by whom (Powell *et al.*, 2001). This will help during the development of an appropriate litter management plan. A tourist destination must take care of its environment including managing litter if it is to attract more visitors and encourage them to visit again. Litter which is not properly managed in an environmentally friendly manner will have an influence on how people react and will influence their future decisions to visit or not visit a tourist attraction (George, 2001:133).

2.8.2 Legislation relating to litter management in South Africa

In South Africa the disposal of litter is dealt with in the Environment Conservation Act (73 of 1989) (South Africa, 1989). Furthermore, the National Environmental Waste Management Act (58 of 2008) also addresses this issue (South Africa, 2008). Litter is considered a major problem in many areas in South Africa. Especially in developing areas, litter and illegally dumped waste constitute a significant proportion of the total waste generated (Powell *et al.*, 2001:74). The legislation reflects man-made decisions as to what is acceptable for the society in which people live. The attitudes of people towards wildlife also reflect the culture and society people are coming from. Wildlife conservation must be accomplished through legislation (Fuggle & Rabbie, 1999:190). The following policies deal with littering and the disposition of waste in South Africa.

2.8.2.1 Environmental Conservation Act 73 of 1989

This Act (South Africa, 1989) makes it an offence to discard, dump or leave any litter on any land or water surface, street, road or site in or on any place to which the public has access. Furthermore, it makes littering an offence punishable by fine of up to R5000 or by imprisonment for up to three months or both (CSIR, 1991). However, any organisation with public access has a duty to ensure that containers or appropriate places are provided for discarding of litter by the public (CSIR, 1991). Protected areas such as zoos can use this Act to address litter since they are covered by the Act.

2.8.2.2 Constitution Act 108 of 1996

Any environmental policy in South Africa has its roots in the Constitution. When the government adopted the Constitution and the Bill of Rights, it made government accountable to the people (South Africa, 1999b:70). The Constitution

(Act 108 of 1996) also protects people from any environment that is harmful to their health or well-being by preventing pollution and promoting conservation areas (South Africa, 1996). However, some of people's actions do not take this aspect into consideration since they may act in a way that could be harmful. Such actions will include throwing away litter into animal enclosures, which could be swallowed by animals that could then eventually die. This action does not promote conservation.

2.8.2.3 National Environmental Waste Management Act (59 of 2008)

According to National Waste Act (59 of 2008), the owner of land that is accessible to the general public must ensure that sufficient containers or places are available to discard litter (South Africa, 2008). The litter must be thrown away before it becomes a nuisance, a ground for a complaint or causes a negative impact on the environment. The act also indicates that no person may throw, drop, deposit, spill or in any way discard any litter in any public place, land, vacant plots, stream, watercourse, street or road, or any place to which the general public has access, except in a container or a place specifically provided for that purpose.

2.8.2.4 National Environmental Management: Biodiversity Act of 2004

The Act (South Africa, 2004) provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998 (South Africa, 1998); the protection of species and ecosystems that warrant National protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for any matters connected therewith. This Act provides an opportunity for Zoos to work in a sustainable way in protecting animals.

2.8.3 Significance of NGOs in litter management

The perception of litter as a substantial problem has given rise to some of the most active non-governmental impetus, such as Fairest Cape Association and Keep South Africa Beautiful, which focus on the solid waste issue in South Africa (Powell *et al.*, 2001:74). Zoos worldwide have a duty in relation to litter awareness

campaigns (IUCN, IUDZG & WWF, 1993). Public participation in litter reduction and the creation of awareness within communities are both crucial (WRC Report No: 629/1/96). According to the National Waste Management Strategy (South Africa, 2008:1), the implementation of South Africa Recycling public-private partnerships is important as it links waste minimisation clubs, industrial ecological parks and waste exchanges. There are areas that serve as good examples. One such area is Bangkok. In Bangkok, “The Magic Eyes are Watching You” campaign is a private initiative aimed at children age 10-16 and has been credited for reducing litter on the streets by 90% (Sopchokchai, 1990).

Between 1994 and 1996, most of the toxic waste sites in South Africa were revealed by civil society, who campaigned and highlighted poor management practices or the inappropriate location of these sites. In 1996, various local communities in South Durban established the *South Durban Community Environmental Alliance*, when they realised that a strong unified community voice had to be developed if they were to succeed in the environmental justice struggles in their region (McDonald, 2002:203).

A good example of active participation from community members in controlling litter occurred alongside Belfast Zoo. Brian the Lion, Belfast City Council's anti-litter superhero of “Captain Clean-up”, visited the Zoo to help staff with their efforts in keeping litter under control. The community realised that although Zoo staff members are aware of the impact of litter in their area, the same could not be said about some community members who visit the Zoo. Hence they introduced this campaign because the visitor record of the Zoo started breaking 70 000 in August 2010, but so did the amount of litter generated (Challis, 2010). The staff members were delighted to welcome “Captain Clean-up” to the Zoo.

2.8.4 Other methods of litter management

Different approaches can be applied when dealing with issues of litter management. In South Africa there was the introduction of Waste Minimisation Clubs who were aiming at encouraging industries to reduce pollution (Barclay & Buckley, 2006). According to Waste Management in South Africa (South Africa, 1998), there is a need for new approaches to handle rapid urbanisation and the increase of waste of which litter is part. Zoos could also adopt this method by

creating Zoo litter minimisation clubs, which might convey litter related messages to visitors. Club members could be from the communities and schools around zoos as 'Friends of the Zoo'.

Options for managing waste including litter are often arranged in a hierarchy to reflect their desirability (Harrison, 2001). The first priority is waste avoidance, which means not producing waste in the first place. If the waste must be produced, then the quantities should be minimised. Once that has been achieved, the next priority is to maximise the recovery, re-use and recycling of sustainable waste materials (Harrison, 2001:380).

2.9 RESEARCH METHODOLOGY AND FRAMEWORK

Most studies undertaken in the field of litter management have resorted to collecting both quantitative and qualitative data. Quantitative data is the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect. A qualitative enquiry aims to get a better understanding of the phenomenon through first-hand experience, truthful reporting, and quotations of actual conversations. It aims to understand how the participants derive meaning from their surroundings, and how their meaning influences their behaviour (Saldana, 2011: 65).

The discussion will focus on methodologies used by other conservation bodies, in particular, *in-situ* and *ex-situ* conservation entities, seaside resorts and roadsides. Table 2.1 to follow indicates research methodologies and techniques applied by different researchers on the perception of litter within tourist destinations. Researchers use different methodologies when conducting their research depending on the topic and nature of the participants targeted. It seems that the most appropriate and consistent data-collection tool under the prevailing circumstances and conditions has been the questionnaire, as well as interviews.

Table 2.1 Methodologies applied in various studies

Study	Data collection techniques
Spanou <i>et al.</i> , 2012. (Perception of visitors: The Valley of Butterflies protected area, Rhodes Island, Greece)	Two-page questionnaire administered through personal interviews.
Rom & Smith, 2003. (An evaluation of environmentally responsible behaviour in the Lake Baikal region of Russia and summer ecological school: pollution problems and solutions)	Two methodologies were applied. 1. Interview, which included face-to-face cognitive tasks where respondents use a card sort method to answer a proposed question. 2. Three-page questionnaire, using a five-point Likert scale for each item.
NCHRP, 2009. (The survey was designed to focus on state departments of transportation and their practices and principles as they relate to litter prevention and abatement programs)	Questionnaire with 46 questions for maintenance personnel. The questionnaire were sent to 10 provinces and three territories of Canada
Green & Higginbottom, 2001. (Negative effects of wildlife tourism on wildlife in Australia)	A semi-structured telephone interview with key staff from conservation agencies.
NCHRP, 2009. (The study conducted by Mansfield University on the impact of roadside litter on tourism, economic development, or other social and community features)	Telephone interview with 1102 adults randomly selected in Pennsylvania.
Gyan & Thapa, 2010. (Perception of environmental impacts of tourists Annapurna Conservation Area Project (ACAP), Nepal)	Questionnaires distributed on-site among local residents and managers.
Tsagbey <i>et al.</i> , 2009. (Tourist pressure on “beach litter” and microbial quality, La and Korle beach resorts in Accra, Ghana)	A weekly collection of fresh and accumulated litter from a belt transects of 500m ² and samples of seawater from beaches.
Garyfallos & Grigoroudis, 2010. (Visitors' satisfaction, perceptions and gap analysis: National park of Dadia-Lefkimi-Soufilion protected area of Greece)	Designed questionnaire for a multi-criteria satisfaction analysis.
Santos <i>et al.</i> , 2005. (Socio-economic characteristics of beach users on litter generation in southern Brazilian)	Personal interviews.
Tudor & Williams, 2008. (Important aspects of beach pollution to managers, Wales and the Briston channel, UK)	Interviews (females aged 30 to 39).

2.9.1 Quantitative representation and analysis of data

Quantitative methods of analysis generate statistics through the use of large-scale survey research, using data-collection tools, such as questionnaires and structured interviews. It is during this research that an attempt is made to include the maximum number of people. To cope with this large number, the contact with participants is much quicker than it is with the qualitative route (Dawson, 2007:16). According to Marvasti (2004:7) quantitative analysis involves the use of methodological techniques that represent the human experience in numerical categories providing and utilising statistics.

There are two designs when planning the research to accommodate quantitative data, namely the experimental and non-experimental design where the latter implies that data would be descriptive in nature. According to De Vos *et al.* (2008:155-156), the non-experimental method is used in descriptive studies where the units selected take part in the research and are measured on all the relevant variables at a specific time. There is no manipulation of variables that occurs and it does not include experimental or control groups.

2.9.2 Qualitative collection and analysis of data

Qualitative research explores attitudes, behaviour and experiences through such methods as interviews or focus groups. It attempts to acquire an in-depth opinion from participants. As it is attitudes, behaviour and experiences that are being explored, fewer people need to take part in the research, but the contact with these people tends to be more intense, personal and lasts a lot longer (Dawson, 2007:15-16). It also aims to describe an individual's experiences, because it analyses a participant's individual and collective social actions, beliefs, thoughts and perceptions (Dawson, 2007:18).

Under the umbrella of qualitative research, there are various methodologies to employ. In qualitative research, there is greater flexibility in both methods and the research process (Schumacher & McMillan, 1993:14). There are four main qualitative approaches, which are action research, ethnography, feminist research and grounded theory (Dawson, 2007:17-20).

This approach focuses on subjectivity, as the researcher is expected to interact with the respondent for the purpose of obtaining in-depth information and gaining an understanding of the meaning the respondents attach to everyday life (Lebeloane, 1998:181). It entails a detailed description and analysis of quality or the substance of the human intentions and experience (Marvasti, 2004:7).

2.9.3 Reflection as a technique for collecting data

Reflection entails an interpretation of own practices, experiences and a recollection of incidents by looking at your perspective as opposed to those of others and subjecting your assumptions to a critical review (Alvesson & Skoldberg, 2000). It is aimed at a heightened awareness of theoretical suppositions, of language and pre-understanding, but secondly aimed at the innermost of practitioners, of narrative and context.

Reflection is concerned with critically looking, thinking and interpreting experiences, actions, feelings and responses so as to learn from them (Plymouth University, 2010). The process of reflective research comprises of a reconstruction of reality, which is performed by practitioners, critically interpreting and reflecting on past experiences. Reflection involves thinking about the prevailing condition and the way in which underlying theory, cultural values and political perspectives impact on interactions (Alvesson & Skoldberg, 2000).

According to Jasper (2005), reflective writing is a data source within the analytical processes, can be used as a technique within the philosophical and theoretical framework adopted by researchers. The researcher has to ensure that the application of reflection will be true to this framework. Reflective writing encourages a researcher to consider and comment on his/her own learning experiences — not only what he/she learned, but also to look at the process that took place (University of New South Wales, 2010).

Even though reflective writing may be reflective and logical, it is also subjective as it concerns the thoughts and beliefs of the researcher. He/she may raise his/her opinion and hypotheses and criticise and be creative. It affords a researcher an opportunity to make comment based on experience, rather than limiting a researcher to academic evidence (University of New South Wales, 2010).

2.10 CONCLUSION

The literature review served to reveal existing knowledge on the topic and to provide a background for the discussion of the findings of the current study. Various sources were consulted to examine the impact of litter on the image of an organisation and the importance and nature of the perceptions of stakeholders.

Much has been published about the problem of litter in conservation areas. A zoo is one such area and there is agreement that it is a valuable asset to a society and serves as a popular tourist destination. Worldwide the increase in visitor numbers has resulted in accentuating the problem of litter, leaving the impression that stakeholders do not care enough about the natural environment. The responsibility of litter control is laid at the door of management. Litter managers are challenged to think innovatively and reflect on their policy and facilities. Legislation has the potential to curb littering but the application of laws has not been totally effective. One avenue that has been successfully applied regarding the problem of litter has been research. If scientifically applied, it could alert the authorities and motivate them to assist in removing the curse of litter.

Chapter 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

As framework for the research methodology, it is necessary to clarify again what the aim of the study is and then to select suitable methods and techniques to provide data that would address meeting the identified research objectives. The themes central to the research on the issue of litter in a conservation area include the current status of litter in the Johannesburg Zoo, the perception of stakeholders frequenting or living in the vicinity of the Zoo and the nature and effectiveness of educational programmes presented at the Zoo. The specific objectives formulated in Chapter 1 are:

- To determine the social, cultural and contextual background of the Johannesburg Zoo;
- To establish the perception of staff, zoo visitors and other stakeholders of the impact of litter on the Zoo;
- To investigate the effectiveness of existing litter awareness programmes.

This research will make use of both quantitative and qualitative data as it addresses the social problem of littering. The data of the survey conducted with questionnaires as tool, is quantitative in nature and has the purpose of reaching a significant number of people. This was due to the fact that perceptions on litter in the Zoo from different people were necessary for the study. It was possible to collect data on the premises while the Zoo was in full operation. Basic data analysis was descriptive and the responses were expressed in the form of frequencies and percentages.

The purpose of the qualitative part of this study was to probe the perceptions of role players more intensely with fewer people to identify the nature and seriousness of the problem and to seek workable solutions. The data based on the reflections of a single Zoo official included the historical background and his

hands-on experiences, which served as a situation analysis to provide the backdrop for exploring the litter problem.

3.2 RESEARCH DESIGN

The research was designed to address the objectives of the research problem by means of identifying suitable participants who are exposed to the litter problem and the kind of measurement tools to extract the information required. An outline of the research design is presented in Table 3.1.

Table 3.1 Outline of the research design

Objectives	Participants	Measurement tools
Determine the social, cultural and contextual background and current status of the Johannesburg Zoo	Former animal keeper and later curator with 8 years' experience at the Johannesburg Zoo	Reflective reporting on experiences and a situation analysis of current litter status at the Johannesburg Zoo using observation and existing records
Establish the perception of litter of visitors to Johannesburg Zoo	Selection based on availability and willingness to participate including a range of age groups	Survey using Questionnaire A addressing perceptions regarding the litter issue at the Zoo
Establish the perception of litter of staff members/ employees of Johannesburg Zoo	Representative selection from staff members in administration and grounds and animal personnel willing to participate	Survey using Questionnaire B addressing perceptions regarding the litter issue at the Zoo
Establish the perception of litter of other stakeholders of Johannesburg Zoo	One representative from each of the following: management, veterinarian, a representative of a community committee and a resident from the neighbouring township	Individual personal interviews
Investigate the effectiveness of existing litter awareness programmes presented at the Johannesburg Zoo	Former animal keeper and curator with 8 years' experience at the Johannesburg Zoo and some colleagues	Content analysis evaluating the themes addressed and the appropriateness regarding the litter issue

3.3 METHODS AND PROCEDURES

The management of the Johannesburg Zoo very willingly gave their approval to launch this research at the Zoo. The research proposal was submitted to the Ethics Committee of the college of Agriculture and Environmental Sciences of university of South Africa and was approved, after which the conditions of consent were signed (Addendum 1). The project was explained and assurance of confidentiality and anonymity guaranteed to all participants and their consent was sought on the questionnaire. In the case of the visitors and employees, communication was in writing on the questionnaire, which the participant signed as approval. All communication regarding consent from the remaining participants who were interviewed, was procured by means of a verbal mutual agreement, and the written document was signed. The time duration for the collection of the data was over a period of 12 months.

3.3.1 Participants and sampling procedure

3.3.1.1 Visitors

The selection of the visitors was based on availability and willingness to participate and answer Questionnaire A (Addendum 2). They were approached on leaving or entering the entrance gate at the Johannesburg Zoo. The researcher or an assistant handed out and collected the questionnaires. Most of the visitors were approached during holidays and on weekends to allow a good distribution of age groups. After a year, 332 visitors had completed the questionnaire. The mean age for this group was 32.3 (standard deviation =10.47) years (range=14-78 years) and the largest groups were in the age ranges of 30-39 (n=125) and 20-29 (n=101). Age and the community/school were the only demographic information items included. It was important to consider age in order to obtain an understanding of how different age groups perceive litter in the Zoo. Thus different age categories were analysed. Because of the race sensitivity in South Africa it was decided that race cannot be used as one of the demographic variables during the study. Gender was not considered as the focus was on the perceptions and behaviours of the group as a whole.

3.3.1.2 Employees

There are about 150 employees in the Johannesburg Zoo and about 15 of them are based at the Zoo farm. Only the ones who are based in the Zoo and not the farm were targeted. A representative group based on the job status of the personnel at the Zoo was earmarked to participate. The 20 individual employees who agreed to participate were assured of their confidentiality and anonymity and included those mainly from staff who work outdoors in the Zoo. The mean age for the employees was 35.55 (standard deviation =6.45) years (range=27-62 years) and the largest groups were in age ranges of 30-39 (n=11). Of these, the majority had been working for the Zoo for more than three years and the remainder for two to three years. No further demographic details were asked. Questionnaire B (Addendum 3) was handed out and collected personally during the 12-month period.

3.3.1.3 Other stakeholders

The purpose of the research was explained and confidentiality and anonymity assured when recruiting four (4) other stakeholders. They were interviewed individually and personally at a venue of their choice using semi-structured questions applicable to the position they held. These four stakeholders were the former acting Chief Executive Officer, the veterinarian at the Zoo, the Chairperson of the Forest Town Ratepayer's Association and Michel, a resident in Forest Town, the neighbouring residential area.

3.3.1.4 Curator at the Zoo

The former Animal Keeper and Curator of the Zoo is the current researcher. He had been in employment at the Johannesburg Zoo for eight years and worked there during the period of the research. The latter made it possible for him to make observations and reflect on experiences to compile a situation analysis with the focus on the litter issue. His position also made it possible to be granted access to the official records of the Zoo.

3.3.2 Data-collection tools

Litter at the Johannesburg Zoo was central to all measurement tools employed. These included questionnaires, semi-structured interviews, and observation and reflection on previous experiences and events.

3.3.2.1 Questionnaires

The researcher compiled the questionnaires. To validate the questions included, the questionnaires were submitted to a panel of experts after which some questions were revised. A trial run was done with a few persons to ensure that the wording of the questions in the two questionnaires was clear and easy to understand and to establish how long it takes to complete. The questionnaires were then finalised and prepared for distribution.

Questionnaire A: This was for the target group, **visitors** to the Zoo. On the questionnaire a brief purpose of the study, the ethical handling of personal anonymity and the privacy of the information were provided. Willing participants signed the agreement and provided their name, age and school/community.

The questions were closed and required either a 'yes/no' response (Question 1) on a Likert-scale type response to statements made (Questions 2–10). The latter included 'Strongly agree', 'Agree', 'Disagree' and 'Strongly disagree'. No values were assigned to the options as only the frequencies and percentages for each option were noted. The questions addressed a personal view of litter, perceptions of littering at the Zoo and the management of litter at the Zoo. Only a single response to the four options was required for each question. For questions 3 to 10, the respondents were provided the opportunity to make a brief comment. The questionnaire took an average of 5 minutes to complete.

Questionnaire B: The **employees** at the Zoo served as the target group. On the questionnaire a brief purpose of the study, the ethical handling of personal anonymity and the privacy of the information were provided. Voluntary and willing participants signed the agreement and provided their name and their age.

The first closed question (Question 1) with four options required their years of experience at the Johannesburg Zoo. The remaining seven closed-questions

required a Likert-scale type response to statements made (Questions 2–8). The latter included ‘Strongly agree’, ‘Agree’, ‘Disagree’ and ‘Strongly disagree’. No values were assigned to the options as only the frequencies and percentages were noted. The questions established their perception on litter and litter management within the Zoo. Only a single response was required for each question. The questionnaire took an average of three minutes to complete.

3.3.2.2 Interviews

The interviews were conducted individually with other stakeholders of the Zoo by the researcher. Responses were documented during the session. The questions asked were specific to the stakeholder but all questions related to littering in and around the Zoo within the context of their unique contact with the litter problem. The questions for the two staff members of the Zoo and the community representatives were as follows:

Chief Executive Officer

- Q 1: What is your opinion about litter in the Zoo?
- Q 2: How does it affect the image of the Zoo?
- Q 3: What happened to the agreement between the Zoo and the Military museum?
- Q 4: Do you believe the litter problem has an effect on return visits to the Zoo?
- Q 5: Do you believe the Zoo has enough dustbins and are distributed in the right places?
- Q 6: Do you believe the Zoo is doing enough to control litter?

Veterinarian at the Zoo

- Q 1: How long have you been working in the Zoo?
- Q 2: Do you consider litter to be a problem in the Zoo?
- Q 3: How many animals have you treated due to impact of litter, either directly or indirectly?
- Q 4: Are you happy with number of dustbins in the Zoo and do you believe the Zoo could do more to reduce litter?
- Q 5: Do you believe enough is done to educate the public about litter and the consequences?

Chairperson of the Forest Town Ratepayer's Association

- Q 1: As the chairperson of the community, how has litter from the visitors to the Zoo impacted on the community?
- Q 2: Do you believe litter problem from the zoo visitors is severely affecting the image around the community?
- Q 3: Have you previously received complaints from other members of the community relating to litter?
- Q 4: Based on your observation, is the Zoo doing enough to deal with the litter problem?
- Q 5: Do you believe there are enough dustbins around the Zoo?
- Q 6: What would you suggest as a possible solution to deal with the litter problem around the Zoo?

Michel, a resident from the neighbouring Forest Town

- Q 1: Is litter a problem around the Zoo and, if so, does it affect the image of the area?
- Q 2: Are you satisfied with number of dustbins around the Zoo?
- Q 3: What would you suggest as a possible solution to deal with the litter problem around the Zoo?

3.3.2.3 Reflections on littering at the Zoo

Reflection on incidents and personal experiences during the eight years of employment and observation backed by photographs were documented. The researcher's perceptions were recorded according to the various incidents observed. In some cases, existing documentation at the Zoo were consulted to provide further details. Problems associated with litter in the Zoo and animal enclosures, impact of litter on the animals and the influence of litter in the parking area of the Zoo and the surrounding streets and neighbourhood. The current status of the litter problem at the Zoo was illustrated with photographs.

3.3.3 Analysis of data

The quantitative data provided by the questionnaires were analysed by employing descriptive statistics by means of Excel. Frequencies and percentages were calculated for the Likert-scale items of each question for the visitors and the employees. The results were recorded in tables and represented graphically by

means of pie-graphs. The data was also examined for the visitors based on age groups, community representation and the frequency of visits to the Zoo as a categorical analysis. In the case of the employees, age group and years of employment at the Zoo served as additional categories. No statistical comparisons were made, however, the results were applied when discussing and interpreting the responses.

The qualitative data was presented according to each question by the narrative and the actual words of the respondents as they answered and provided personal comments of their views and perceptions. The emphasis here is on words rather than numbers.

Finally, both the quantitative and the qualitative results were triangulated and discussed in the light of the original objectives set for the study.

3.4 CONCLUSION

The methodology outlined in this chapter relates directly to the intention with this research. The study examined a single issue faced by the Johannesburg Zoo, namely littering at the Zoo. An effort was made to include the various stakeholders who come to experience the Zoo and at the same time to gain knowledge about animals and the environment. Litter has violated the intention of the Zoo and has affected the image of the Zoo. The purpose of this research is to understand the perceptions of those who visit and those who are employed at the Zoo. Analysing these perceptions may reveal the causes of littering and provide possible solutions to this problem to ensure that the Zoo meets the expectations of the tourist and the commitment of the Zoo management to live up to and achieve their mission.

Chapter 4

RESULTS OF THE SITUATION ANALYSIS

4.1 INTRODUCTION

As stated in the 'methodology' applied for this study, the data-gathering tool applied to meet the first objective of this research is based on a reflection of experiences and the current status at the Johannesburg Zoo, as it relates to the litter management issue. The following research objective has relevance:

To determine the social, cultural and contextual background and status of the Johannesburg Zoo reflectively;

The findings from this part of the study will serve as a situation analysis that will be the background against which the results of the survey can be interpreted.

Johannesburg Zoo is situated in the Gauteng Province (Addendum 4). There have been a number of changes over the years as to how the Johannesburg Zoo engages and interacts with visitors, which in turn have had an influence on the increase in visitor numbers. The Zoo is now viewed, by a large majority of the general public based in the greater Johannesburg area (Addendum 5), as a destination of choice based on statistics relating to the increase in visitor numbers over the past few years. This may be due to several factors such as the changing political climate since the early 1990s, which saw a change in the political dispensation and more people started to realise the value of the Zoo due to more accessibility of such areas.

Another reason for an increase in visitor numbers is due to the location of Johannesburg Zoo. It is ideally situated within the biggest city in South Africa and also the economic hub of the country, and for that matter the continent. Unfortunately though, with the increased numbers, litter has become very much more of an issue. Litter is one of the problems faced by environmental institutions within cities as people increasingly move to the cities worldwide (Walmsley & Botten, 1994:9). The Zoo has a responsibility to ensure that it takes care of the

environment and that it is not just perceived to be a good agency of nature, but actively undertakes good conservation and sustainability practices. As more people visit the Zoo, they behave in a way that often compromises the environment to its detriment, which includes leaving litter lying around in many of its picnic areas.

The findings in this chapter are based on a reflection on incidents, which were observed and/or documented over a period of eight years by the researcher as animal keeper and later curator and related to animals suffering and sometimes dying. Often this was due to the exposure to litter, which for the most part involved the digestion of litter.

This chapter will also include problems associated with litter in the Zoo and the impact of litter in the parking area of the Zoo and the surrounding streets and neighbourhood. It will outline each section following the framework of first stipulating the facts, showing evidence where available and providing the personal perceptions of the researcher as the observer. In certain cases, available documentation will be consulted to provide supporting details.

4.2 RESEARCHER'S ROLE IN JOHANNESBURG ZOO SINCE 2005

The researcher started working for the Zoo in 2005 as an animal keeper and was later promoted to curator (a middle management position). The researcher has also acted as a general manager for some months.

An animal keeper takes care of animals within subsections, which involves general husbandry and direct involvement with translocation of animals and supervising the animal attendants who feed and clean enclosures. After a period of two years, a position became vacant and the researcher was promoted to a curatorial position. The curator position entails management of a defined section within the Zoo, which meant taking care of more animals, including acquisition and disposition. It also includes development of programmes, which relate to the improvement of animal husbandry techniques and working towards sustainability within the environment. The curator is involved when animals are being treated and when they are taken for post-mortems after death.

It so happened that the researcher was given an opportunity to work in an acting capacity as a general manager for approximately four months. The general manager position entails management of the animal collection of the entire Zoo. It means that any decision relating to movement or purchase of animals has to be approved by the general manager. Management of animals means that there should be plans to ensure that animals are not dying unnecessarily. Reports of animals that die in the Zoo are therefore submitted to the general manager. This therefore means that all the cases relating to animals will be made from the office of general manager.

The development of the Johannesburg Zoo gained momentum in early 2000 with numerous enclosure renovations. In February 2009, M. Geddes, in a personal communication, imparted that the Johannesburg Zoo underwent major infrastructural development and introduced modern ways of housing animals in early 2000. During the same period, visitor numbers increased as a result of new exhibits, such as Pygmy Hippo, new Walk-Through Bird Aviary and more. The visitor numbers increased to 500 000 visitors during the 2004/5 financial year and then grew to 552 000 in 2010/11 (Johannesburg Zoo, 2011a). An increase in the number of visitors was accompanied by environmental problems, amongst others, that of a litter problem. The photograph below (Image 4.1) illustrates how the Zoo grounds looked after the visitors of the previous day.



Image 4.1 Litter left on previous day by visitors (10/06/2013)

Researcher's perception: I do acknowledge that development is good for organisations to survive. It also makes an organisation relevant. It may however come at a high price. In the case of the Zoo, development meant an increase in the number of visitors, which is a positive aspect; however this increase resulted in a great deal of litter generated and left behind by visitors.

Litter has been a problem for the Zoo because it tends to affect many aspects of zoo management which include: animals swallowing litter that ended up in the enclosure, animal death and also the increased cost of managing litter. The Zoo strives to provide a clean, well-managed facility that looks after the visitors. It also aims to attract many visitors for family outings. The Zoo desires to be a visitor attraction of choice and plans to do this by providing exciting and unexpected experiences while in a clean litter-free environment, so as to encourage the visitors to come to this Zoo again and again.

Throughout the years of working at the Zoo, I have observed that the Zoo has not been an exception in terms of litter, which also affects other environmental institutions located within the big cities. All of the above have equipped the researcher with the exposure and experience that has equipped him to reflect on the problem of litter within the Zoo.

I have also observed that the Zoo has expectations from its visitors. It expects that the visitors will also care for the environment. This is because there is an assumption that people who want to see wildlife will also be concerned with conservation and animal welfare. My experience has made me realise that the assumption is not always true as the zoo visitors often behave in a way, which indicates that they sometimes do not care about damaging the environment.

4.3 LITTER IN THE ZOO

It is by and large not the intention of the visitors to the Zoo to act in a way that will compromise the Zoo. However, their actions such as leaving litter within the Zoo picnic areas and throwing litter into the enclosures causes an environmental footprint for the Zoo. Some visitors might regard litter as a minor issue because they see Zoo staff collecting it. This is not the case, as it is not always possible to collect all the litter in the Zoo due to the large area of land that the Zoo covers.

Furthermore, some visitors throw litter into the enclosure, an area in which the litter pickers do not have access. This is the litter that eventually gets swallowed by animals causing them to require veterinary attention. Some animals survive whilst others are not so lucky. I have been in the Zoo long enough to have seen much litter collected from enclosures and some animals dying because they consumed lots of it. Often these animals die whilst receiving treatment.

It becomes important to highlight the problems, which the Zoo encounters in terms of litter, as it is clear that people are not aware of the implications when they leave litter lying around in the Zoo. This reflective writing will provide some details of the incidents that occurred because of litter. It will also examine the cost that the Zoo incurs to deal with the problem of litter.

As curators in a zoo, the suffering and death of animals affect us directly since we work with the animals daily. We see litter left every day, which makes animals suffer. It is important to bring the issue into the light so that we can consider possible solutions for the problem. Hopefully, this will change visitors' behaviour. According to Jasper (2005:205), who wrote about ownership and focus on subjectivity, when owning thoughts, feelings and emotions, the outcomes of the process may lead to action or change of behaviour when set within a framework for reflective practice. Further, the practitioner gains a deeper understanding of the meaning of the experience by bringing it to consciousness tacit knowledge.

4.4 INITIATIVES TO ADDRESS LITTER

The Johannesburg Zoo introduced outstanding programmes in 2011 and 2012 in order to exert a positive influence by enabling the visitors to understand the natural world and how they impact on it and the planet.

4.4.1 Staff clean-up campaign

'Staff clean-up campaign' is a program, which aims to encourage Staff to be aware of problems, which could be caused by litter in their environment and start participating by picking up litter in their respective sections as they walk in the Zoo. It encourages staff to perceive litter not as a separate departmental problem but a Zoo problem. It was also aimed at showing the visitors that the staff members care about problems associated with litter, observe the cleanness due to staff cleaning

campaign and thereby encourage the visitors not to litter. It was also done to get the Zoo clean before being accredited by the African Association of Zoos and Aquaria.

The programme started at 10h00 and involved all Staff members from different departments within the Zoo. They were separated into different groups and were given a leader and a name. There was an agreement to use colours as group names. The Zoo was divided into five areas of which each group was given a section to clean. There was a prize for the group, which end up with the cleanest area as per the inspector's analysis. There were three judges from different departments who moved from one group to another assessing cleanness of the allocated areas.

The groups returned at 15h00 and convened at the Education Centre of the Zoo for the report back on their performance and the announcement of the winning team. The Chief Executive Officer and the Executive Management Team were also part of a team. The judges included the researcher and Ms Vani.

Researcher's perception: The programme is a positive initiative and good for the organisation. It worked as an eye opener for some staff members whose work is not related to litter picking. They have seen that the amount of litter, which was removed in just one day, does not reflect a positive image of the Zoo. However, the programme did not have much of an effect on the visitors since some only came once and never returned and they did not have experience with how the zoo looked before the clean-up campaign. The Zoo stayed clean for few weeks after the clean-up campaign, which suggests a need for more such programmes. This kind of programme, however, will not be sustainable since people are employed for different roles and are expected to perform in those roles. I also observed that people visiting the Zoo are not always environmentally conscious because of the amount of litter that was removed.

4.4.2 “BE MAD” Club programme

The ‘Behaviour Enrichment Make a Difference’ (BE MAD) is a program to enrich the lives of the Zoo animals. It is aimed at Grade 8 to 12 learners (14 to 19 years of age). The club focuses on the welfare of the Zoo animals. They get the chance

to learn what being a zookeeper is about. It also encourages young people to be agents of nature. It aims to encourage young people to be part of the Zoo so that they could spread the message and encourage people not to litter as they come to the Zoo. As a general manager my job is to encourage curators and keepers to permit these children to be part of the process. They need to work with them and give them an experience relating to animal husbandry.

Researcher's perception: This program only happens during holidays and these children are becoming aware of the environment as they work with the Zoo staff and have observed some animals, which are suffering due to litter. In the mornings they also assist by picking up litter in the enclosures. This programme is done to encourage them and make them aware of the environment. The timeline of the programme is short and the Zoo cannot easily assess the impact. The Zoo believes that by encouraging the children to take part in activities, which are good for the environment, it will encourage them to behave in an environmentally friendly manner as part of the society.

4.4.3 Honey Badger Club program

The Honey Badger Club is a program to enrich the lives of the Zoo animals. It is aimed at Grade 1 to 7 learners. The club focuses on getting to know the zoo animals, their needs and habits. Club members get to go where only Zoo keepers go and get close-up with the creatures. It targets a young group, who are perceived to become the future generation of adults. They also remove litter in the enclosures as part of the theme of keeping the Zoo clean.

Researcher's perception: This program works to a certain degree since the children enjoy being in the Zoo and sometimes actually understand the situation at the Zoo. However, it is expected that as they get more experienced within this natural environment they will behave in a considerate and caring manner.

4.4.4 Introduction of more than 300 dustbins

With a number of visitors increasing, the Zoo purchased more dustbins to deal with the problem of litter. The dustbins are supposed to work as a point of collection which makes it easy for litter to be disposed of and could be easily collected directly from the bins by the grounds staff members. If litter is contained

in the bins it will not end in the enclosure either through wind or otherwise. Disappointingly, there are some visitors who leave litter lying around next to the dustbins (Image 4.2 & Image 4.3).



Image 4.2 *Litter next to dustbin (October, 2010)*



Image 4.3 *Litter around dustbin (August, 2012)*

Researcher's perception: The Zoo has introduced more dustbins during my period in the organisation. There are currently about 330 dustbins distributed throughout the area. Yet people still leave litter lying next to dustbins, which is of concern. There are many incidents whereby movable bins are taken to picnic areas during the functions. In spite of this, visitors still leave litter next to dustbins. The dustbins are a solution to a certain point but they unfortunately do not address issues relating to the attitude of the people. The behaviour of some zoo visitors made me realise that people behave differently in different places, for instance, they will usually not litter at home, but will litter when they visit tourist destinations.

4.5 PROBLEMS ASSOCIATED WITH LITTER AT JOHANNESBURG ZOO

Over the years, Johannesburg Zoo has been experiencing challenges resulting from the littering that occurs in the Zoo. Most of the information provided is based on my experiences since I joined the Johannesburg Zoo, in January 2005. I will also add the information I acquired from the medical records of the Zoo. I have access to this information and furthermore the people who compile this information are aware of this research and were present when animals in the Zoo suffered from the consequences of litter. It has helped to recognise and clarify the

important connections between what the researcher already knows and what he is learning.

Throughout the years that I have been working at the Zoo I realised that an increase in visitor number has its own challenges and litter was the most common problem. I have also experienced that with political changes in the country most people have started to realise that Zoos offer some relaxation time and they are taking advantage of the opportunities offered by the Zoo. To some extent, the economic situation plays a critical role, since some people from the neighbouring residential area might not be able to afford visiting other areas yet the Zoo offers an option to them. The photographs (Image 4.4 & Image 4.5) below indicate litter removed by Zoo keepers from an enclosure after a weekend.



Image 4.4 Litter in an enclosure
(08/07/2011)



Image 4.5 Litter collected from enclosure
(08/07/2011)

This section will focus on the impact of litter on animals, on the image, on invasive animals and on the economic situation of the Zoo and will provide some evidence to illustrate the severity of the problems encountered.

4.5.1 Impact of litter on animals

An increase in visitor number means a financial gain, however, it also means more litter generated. Litter in the zoo requires an intensive litter management strategy, as animals might die from ingesting plastics, which entered their enclosures when people threw it there or when it was blown by the wind.

Birds, mammals and reptiles can be injured or killed by litter, which is thrown away.

The magnitude of the problem is growing every day, especially because some types of litter do not readily disintegrate and therefore remain in the environment for decades thus posing a threat. Litter such as broken bottles or plastic bags can harm people and wildlife. The impact of litter on the animals will be illustrated by means of the following examples.

4.5.1.1 *Felicia the female seal*

In 2004, one of the female Cape fur seals, Felicia (ID no: 3184) was one of the species, which attracted people to the Zoo especially during feeding times because she performed tricks. Her feeding was also advertised on the Zoo website and became popular. However in 2005 she started to show signs of illness and had to be treated from time to time. She had to be immobilised on several occasions. During the immobilisation process, blood samples were collected and tests were performed and an abdominal radiograph conducted, all of which costs money. It was discovered that the animal had a lot of large stones in her stomach. The animal died whilst anaesthesia was administered, but before the surgery.

The post-mortem report indicated that the seal died because of indigestion and impaction leading to lethargy, which was caused by stones present in the ventral areas of the stomach. Although there were signs to discourage visitors from throwing stones and plastics into the seal pool, it did not stop them (Johannesburg Zoo, 2005:1–3).

4.5.1.2 *Pricilla the female seal*

In 2009, another seal, Priscilla (ID no: 3183) also started to become ill. She was immobilised on the 29 December 2009. It was discovered that she had swallowed three separate items made of cloth/elastic. These were packed tight in the pyloric region preventing food from passing through the stomach. Further item made of corn or thick string could not be removed although part of it was pulled into the oesophagus. This animal only started eating properly on 2 January 2010. Once again it involved administering anaesthesia, which is risky and costs money. These are unnecessary expenditures resulting from visitors misbehaving by causing litter (Johannesburg Zoo, 2010). Eventually Pricilla had to be sent away because seals are social animals and it is not natural to display a single animal. It

was also due to the fact that the litter problem may cause more damage to an animal. This meant that the Zoo no longer has any seals, which once were so very popular. This deprives the visitors of seeing the seals, their favourite animal.

4.5.1.3 Eland

The third case is the eland, which died because of the amount of litter found in the stomach. The animal looked healthy and had a good body condition. There were, however, signs that something was not right by looking at the back of the animal because it had big stomach but skinny hind quarter. The animal was treated several times without immobilisation since these animals are very sensitive. The eland is considered critically endangered. Unfortunately the animal eventually died. Although this eland had very few teeth left due to old age there were a lot of plastics, which were removed from the stomach during the post-mortem (Image 4.6 & Image 4.7).



Image 4.6 Eland with bloated abdomen (2010)



Image 4.7 Plastic in stomach of Eland

4.5.1.4 Lion

This lion has been in the Zoo for most of its life and was used to the zoo environment. Due to litter, which was found in his enclosure, the lion swallowed a piece of pipe. It therefore had to undergo several surgical treatments. It was in 2011 when this lion was taken to hospital for an operation to remove a piece of

pipe that was observed through X-rays (Images 4.8, 4.9, 4.10, 4.11). This animal survived for few days after treatment but ultimately died.



Image 4.8 Preparation for lion in the theatre (researcher present)



Image 4.9 Lion during the process



Image 4.10 Locating blockage in lion



Image 4.11 Showing piece of rubber in stomach of a lion

4.5.1.5 Vulture

This bird showed signs of sickness in 2009 and was treated for some time. It eventually died. It was during the post-mortem that pieces of glass of bottles were discovered in the stomach and is the reason why the bird died.



Image 4.12 Glass found in stomach of a bird (2010)



Image 4.13 Plastics found in stomach of an antelope (2010)



Image 4.14 Tile pieces found in bird stomach (2009)



Image 4.15 Shaded net found in bird stomach (2011)

These photographs (Images 4.12, 4.13, 4.14, 4.15) taken at the Zoo serve as further evidence of cases where some were taken during the post-mortem.

Researcher's perception: It is clear from the evidence provided that animals are dying unnecessarily due to human behaviour. Litter poses a threat to animals in the Zoo and should be attended to through different approaches, including this research on the perception of visitors and their behaviour. Over many years, the Zoo has lost animals due to litter, starting from common species to endangered species. As an employee in the organisation, I have observed lots of litter being removed from the stomach of animals during post-mortems. I have also observed the suffering some animals go through before they die as a result of litter thrown

into enclosures either through wind but mostly by visitors. My observation and experience have indicated that human behaviour does indeed have a direct impact on the environment. Litter is an environmental problem and has affected animals in the Johannesburg Zoo in a very negative way.

4.5.2 Impact of litter on the image of Johannesburg Zoo

Tourist attractions continue to survive by attracting new clients and retaining the old. It is important to provide high quality service to the clients in order to encourage them to return. Return visits are an indication that visitors enjoyed themselves. Return visits also lead to business growth.

Perception plays a critical role for organisations, such as zoos as they rely on visitors to generate income generation and furthermore rely on them to convey the messages of conservation and environmental education. The amount of uncontrolled litter found in a tourist destination will affect the image and devalue the aesthetics. Littering by tourists at destinations and visitor attractions can detract from the aesthetic quality of the environment and harm wildlife. These will discourage a return visit.

Below are photographs (Image 4.16 & Image 4.17) taken in the Zoo following a function hosted for an external company. This situation as can be seen in the photographs could indicate to new visitors that people and management do not care.



Image 4.16 Litter on the grounds
(27/08/2013)



Image 4.17 External company
preparing to clear the litter
(27/08/2013)

Researcher's perception: When arriving in the morning and finding the area with the amount of litter as shown in the photograph above, implies that there was a behavioural problem among the people who were in that place. I spoke to some visitors, who told me that they would not be recommending the Zoo to others as they saw a lot of litter in the Zoo. These comments made me realise that even though the visitor numbers are increasing annually, there is no doubt that the Zoo is losing a certain percentage of clients due to litter.

4.5.3 Impact of litter on invasive animals

There are lots of challenges, which could be brought into an environment because of litter. Litter can attract invasive animals such as rats, unwanted birds and bees to the Zoo. ***Invasive birds*** are capable of transferring Botulism that is a deadly infection, which kills birds unless they are vaccinated. Botulism is a disease, which mostly attacks birds. Invasive species cause a change in animal feeding habits and diet, as they begin to compete with the resident animals for food. Litter at places where they find food attracts these invasive birds. The fact that they compete for food with the birds of the Zoo, eventually deprive the Zoo birds of a correct diet. Animals in the Zoo are given a specific diet and they have no means in some cases to find any food beside that which is provided. If there is competition due to invasive animals, they might lose their condition due to lack of food. Furthermore, invasive birds' diet may also change as they begin to rely increasingly on the litter as a quick and an easy source of food.

It has been difficult to control ***rats*** in the Zoo due to litter. Although the Zoo has a pest control officer within the organisation, rats have killed an increasing number of birds. This is a huge loss to the organisation. In February and April 2013 rats ate three birds. In 2012 the Zoo made a decision to remove all the leftover food in bird's aviaries in order to discourage rats from entering the aviaries. This has not helped, as rats get food from the leftovers that are found in the picnic area where they go for food and create nesting areas in the night rooms. This gives them an opportunity to kill birds. To add to the problem, rats also steal bird food to feed their babies in their nests leaving the birds with nothing to eat. The Zoo uses poison in some areas to control rats. These rats have in some instances collected

the poisons and brought it to the aviaries. This led to a situation where some parrots had to be treated for poison.

Bees are also attracted to the Zoo by litter, which is left lying around in the picnic areas. There have been few incidents in the Zoo where visitors were stung by bees whilst having a drink. This creates unpleasant experiences for the visitors, which might discourage them from visiting the Zoo the next time, all because of litter.

Another problem with **free roaming birds** is that they create more work for litter pickers. Litter pickers collect litter, put it in bags and leave the bags on the side of the roads so the bags can be collected later. The birds will open the bags and scatter litter around before the bags are collected. This is another way litter attracts birds to the Zoo. The following photographs (Image 4.18 & Image 4.19) show the amount of litter, which will attract invasive birds. As the Zoo birds are vaccinated, few birds have died from Botulism.



Image 4.18 Zoo parking area with invasive birds due to litter (16/09/2011)



Image 4.19 Birds which have removed litter from plastic container (17/06/2013)

Researcher's perception: The rats' activities are encouraged by the litter visitors leave behind. Litter serves as a source of food for the rats and they become difficult to control because the more food they have the more they breed. In March 2013, I was called as a general manager to the parrot enclosure. This was after they had discovered that although all holes were blocked to prevent rats from entering the enclosure, they discovered one parrot missing. The rats pulled the

animal into a very small hole, which the rats opened because they needed the food of the parrots. In the process of looking for the parrot's food, they ended up killing the bird. This is a loss to the organisation because sometimes the only breeding male might be eaten, which means that the Zoo must find money to buy another bird. When invasive birds remove litter from the plastic containers they create more unnecessary work. Fewer invasive birds will be attracted to the Zoo if litter is controlled, which will minimise chances of the birds in the Zoo being infected.

4.5.4 Impact of litter on neighbouring areas

With an increased number of visitors, comes a need to increase parking space. In 2010, the Zoo signed an agreement with one of its neighbours (The Military Museum) granting the Zoo permission to use its parking space for visitors. Lots of litter was left in the parking area a number of times. The Military Museum cancelled the arrangement because of the litter. This brings to the fore that the Zoo has a problem, which is exacerbated by an increase in the visitor number. The Museum had to take a decision to cancel the deal since the litter the visitors to the Zoo left in their area affected their image.

Researcher's perception: As a worker it is always important to reflect on how you will feel as a visitor if exposed to a dirty environment. Sometimes when you come into the Zoo in the morning and you are met with piles of litter created the previous day by other visitors, it leaves you with conviction that visitors who come to the Zoo do not care about the animals and the Zoo environment. The visitors might have a different perception about the Zoo, which might affect the image of the Zoo and their decision-making to visit the Zoo in future.

4.5.5 Impact of litter on the economy of the Zoo

The Zoo has to be economically sustainable. Litter causes unnecessary expenditure for temporary litter pickers whom the Zoo employees to deal with litter in the Zoo over weekends. Further expenditure has to be made for medication and equipment used when an animal has to be treated because of litter related problem. This section therefore focuses on the amount of money spent on temporary staff and also outlines the challenges faced due to animal treatment.

4.5.5.1 *More temporary staff members*



Image 4.20 Collection of litter by permanent staff members (27/08/2012)



Image 4.21 Collection of litter by temporary workers (27/08/2012)

Due to the amount of litter generated in the Zoo during weekends, the Zoo has 10 temporary litter pickers each weekend. They are paid R125 per person, which adds up to R1250 per day and R2500 for the weekend. The Zoo spends R10 000 per month for collecting litter, which is R120 000 in a year. This is a lot of money for a small organisation such as the Zoo. Photographs (Image 4.20 & Image 4.21) shows the amount of litter, which has to be collected during some busy days in the Zoo and the work force involved during the litter collection process

Researcher's perception: The Zoo has to be perceived as an environmentally friendly organisation. This therefore means that it should spend money on the protection of animals through releasing the animal in the wild as part of contributing to *in-situ* conservation. However, with the amount of money spent on litter pickers, it sometimes defeats the purpose and the role of the Zoo.

4.5.5.2 *Increase in veterinary cost*

In the case where an animal needs to be treated, a lot of money has to be spent to perform anaesthetic procedures. This is not an easy procedure since it sometimes involves bringing in external veterinarian services. Litter thrown into the enclosures has a serious impact on the finances of the Zoo while at the same time affecting the health of the animals. Litter in the Zoo creates unnecessary costs due to the situation where animals have to be treated for a long time after the anaesthetic procedure depending on the litter consumed and the severity of the damage

caused. The treatment might pose a potential risk to an animal as it could die during the anaesthetic procedure. Improving management and control of processes can lead to significant waste reduction, which in turn can lead to considerable savings in costs due to less wastage and more efficient procedures.

Researcher's perception: As an employee of the organisation, finance is the one aspect when an animal has to be treated but another aspect is the close relationships which are created with the animals. Seeing an animal suffering is not easy for Zoo employees who spend time taking care of the animal. However, expenditure problems, created by visitors while they leave litter in the Zoo, are costly and totally unnecessary. I have been at the Zoo long enough to see animals being treated as a result of problems relating to litter. It costs time and money. Sometimes there is a need to get hold of machines and medication not readily available at the Zoo. If visitors would not leave litter in the Zoo, animals would not need to be treated and the Zoo would save a lot of money.

It is also important to state that the acquisition of a new animal after another has died is a costly process. The animals die unnecessarily because of litter and it becomes expensive to replace them. It involves quarantine for more than 30 days (as per Zoo protocol) and during that process it has to be treated for various diseases as a precaution. This would not be necessary if the animals were not exposed to litter from the visitors in the first place. Another perception is that although the zoo has experienced an increase in visitor numbers over many years, this number could have been more if litter could be controlled better. It is therefore my perception that there is also some financial loss as a result of littering.

4.5.6 Impact of litter on the parking area and the streets

Drivers travelling along a road surrounding Johannesburg Zoo get a bad impression when a lot of litter lies along the street. It is a sign that people in the area do not care about the environment. One of the Zoo's roles is to care for the environment, hence it must be perceived to be environmentally friendly to the drivers and walkers in the area, including the Zoo's neighbours. What happens is that the visitors empty their luggage when they are about to leave, some inside the Zoo or outside where they parked. This requires that litter pickers must also collect

litter along the streets. The following photographs (Image 4.22 & Image 4.23) serve as examples of the above-mentioned scenario.



Image 4.22 Litter left by visitors among parked cars



Image 4.23 Litter left by visitors in the street



Image 4.24 Litter on the street along the Zoo premises (17/09/2011)



Image 4.25 Litter within Zoo parking area (17/09/2011)

Researcher's reflection: The parking area is the first point, which should reflect that the people in an organisation care. The Zoo tries to contain litter, however, in most cases it does not manage to remove litter on time due to the amount of litter left by visitors in the parking area. When visitors leave the Zoo they are surprised at the amount of litter in the parking area especially during weekends, which is when many functions are held (Image 4.24 & Image 4.25). This is not good for the image portrayed of the Zoo and may deter visitors from visiting the Zoo again.

4.6 CONCLUSION

The experiences acquired over the years are relevant to report as it confirms and helps to focus on problems that need to be resolved. Working for the Zoo made me realise how people's inconsiderate actions can lead to the death of some of the animals in the Zoo. Their actions create unnecessary expenses for the Zoo. I am of the belief that reflecting on the problem and educating the perpetrators can develop some actions that will minimise littering by visitors. It is important for an organisation that works to protect and conserve the environment, to show people that they do not condone any acts that seek to destroy the environment and unduly injure animals. This would enhance a positive image for the Zoo and contribute to educating a society who will passionately conserve nature and the environment.

Chapter 5

ANALYSIS OF RESULTS AND DISCUSSION OF SURVEY DATA

5.1 INTRODUCTION

The survey involved the collection of data from staff, visitors to Johannesburg Zoo and other stakeholders by means of questionnaires and interviews to fulfil the following objectives:

- To establish the perception of staff, visitors and other stakeholders of the impact of litter on the Zoo;
- To investigate the perception of the effectiveness of existing litter awareness programmes presented at the Zoo.

The analysis of the data will be presented according to the data collection tools applied and the respondents who participated. This chapter will culminate with a discussion of the findings according to the objectives.

5.2 VISITORS: PERCEPTIONS REGARDING LITTER (Questionnaire A)

There were 332 respondents who answered the questionnaire.

Table 5.1 Age distribution of visitors

Age category	Respondents	
	Number	%
19 years and under	33	9.94%
20 – 29 years	101	30.42%
30 – 39 years	125	37.65%
40 – 49 years	48	14.46%
50 – 59 years	21	6.32%
60 years and over	4	1.21%
Total:	332	100.00%

The visitors' age ranged between 14-78 years with a mean age of 32.3 (SD=10.47) years. Table 5.1, on the distribution of age among the respondents, indicates that 9.94% of respondents who answered the questionnaire were 19 years old and under. Most of the respondents (37.65%) were between the ages of 30 to 39 years and 30.42% were between the ages of 20 to 29 years. Of the remaining respondents, 14.46% were between the ages of 40 to 49 years, 6.32% between 50-59 years and 1.21% were 60 years and over. This sample comprised of more young and slightly older adults who visit the Zoo more often than the older people and high school age children who could have answer the questionnaire. It is important to indicate that one of the questions which were asked to the respondents was about the area in which they reside or attend school (Table 5.2).

Table 5.2 Total questionnaires regarding community/school item

<i>Community/school</i>	Number	%
Ordinary visitors from Gauteng	144	44.72%
Ordinary visitors from other provinces	12	3.73%
University students (Gauteng)	27	8.40%
Teachers (except for 1, all from Gauteng)	41	12.72%
Visitors from other countries	10	3.10%
Not specified	88	27.33%
Total questionnaires completed	322	100.00%

A fair number (27.33%) of the respondents did not indicate their community/school. The majority (65.83%) of the respondents were residents from the Gauteng Province. From the education side, there were 21.12% of which 12.72% represented teachers and 8.4% university students. Only 7 of the 41 teachers were from a high school while the remainder were from primary schools or crèches. The countries represented by the foreign visitors (3.1%) were Angola, Australia, Botswana, India, Mozambique, Nigeria, Pakistan, USA and Zimbabwe. Their presence seems to suggest that the Johannesburg Zoo has created international interest among tourists.

To follow are the responses of the participants according to the questions posed in Questionnaire A (Addendum A). Only one answer was required for each question.

5.2.1 Q 1: Is this the first time you are visiting Johannesburg Zoo? (Visitors)

The responses to this specific question also include follow-up questions based on the Yes/No response.

Table 5.3 Visitor Q 1: Results of responses

QUESTION 1	RESPONSE %(n)			
	Yes	No		
Is this the first time you are visiting Johannesburg Zoo?	29.8% (99)	69.6% (233)	$\Sigma N=332$	
If your answer is YES , would you recommend the Zoo to other people? [N/S = 25.3% (25)]	70.8% (70)	3.9% (4)		
	Once	Twice	3 Times	More
If your answer is NO , how often did you visit the Zoo in a two-year period? [N/S = 2.6% (6)]	22.7% (53)	27.0% (63)	18.5% (43)	29.2% (68)

Table 5.3 above indicates that 69.6% of respondents were return visitors to the Zoo, while 29.8% of respondents were visiting the Zoo for the first time. These percentages indicate that at the time of the survey the Zoo had more clients who had visited the Zoo previously and would have some prior experience of the Zoo when answering questions about their perception of the litter problem in the Zoo. The first-time visitors (29.8%) would base their perception only on the visit of that day. In spite of this, their perception on litter plays a critical role as well.

If your answer is Yes, would you recommend the Zoo to other people?

Figure 5.1 below shows that 70.8% of people will recommend the Zoo to others, which is a large number, however it was expected that more than 80% could recommend the Zoo to others. This expectation is as a result of the increase in visitor numbers experienced by the Zoo since 2004. It would have served as a good sign if more than 80% could have recommended the Zoo, as it could affect revenue generation.



Figure 5.1 Recommendability of Zoo to others (visitors)

Only 3.9% will not recommend the Zoo to other visitors. The most concerning part is that 25.3% did not know whether they would recommend the Zoo to others or not. This is a negative sign because they could not decide based on whatever they observed in the Zoo.

If your answer is No, how often did you visit the Zoo in a two-year period?

Table 5.3 indicates that an insignificant number of respondents (2.6%) did not answer the question. However, 22.7% of the respondents visited the Zoo once, which is a call for concern if the Zoo wishes to increase visitor numbers to ensure income generation. The fact that 29.2% of people visited the Zoo more than 3 times is very encouraging and should be an inspiration to keeping the Zoo as a litter-free environment. The 19.3% of the visitors who visited the Zoo twice in two years and those who visited three times (18.5%), added to previous 29.2%, gives a percentage of 67.0. This suggests that it is a sought after destination.

5.2.2 Questions 2-10: Specific perceptions regarding litter at Zoo (visitors)

Table 5.4 Visitor Q 2-10: Results of responses

QUESTIONS	RESPONSE %(n)			
	Strongly agree	Agree	Disagree	Strongly disagree
2. Littering is a problem in the Johannesburg Zoo.	16.9% (56)	25.9% (86)	40.1% (133)	17.2% (57)
3. Johannesburg Zoo is an environmentally friendly place.	35.2% (117)	60.5% (201)	3.0% (10)	1.2% (4)
4. Notices about litter control can be seen on the Zoo property. [N/S = 16.0% (53)]	17.8% (59)	42.5% (141)	19.9% (66)	3.9% (13)

5. The litter control message on the signboard of the Zoo is visible and relevant. [N/S = 3.0% (10)]	20.2% (67)	45.8% (152)	26.2% (87)	4.8% (16)
6. Pictures of animals killed by litter thrown into enclosures should appear on the signboard. [N/S = 1.2% (4)]	22.9% (76)	35.5% (118)	28.0% (93)	12.3% (41)
7. I am fully aware of the legislation that governs waste control in South Africa. [N/S = 4.2% (14)]	15.1% (50)	47.0% (156)	28.6% (95)	5.1% (17)
8. There are enough dustbins on the property of the Zoo. [N/S = 1.5% (5)]	34.6% (115)	51.8% (172)	9.9% (33)	2.1% (7)
9. The litter problem in the Zoo severely affects the environment and the animals. [N/S = 3.4% (12)]	22.6% (75)	44.6% (148)	23.8% (79)	5.4% (18)
10. Environmental education programmes could be a solution to the waste problem. [N/S = 0.9% (3)]	41% (136)	55.4% (184)	2.1% (7)	0.6% (2)

These questions required a response as to how strongly the visitors feel about the issue of litter at the Zoo. Unfortunately not all of the respondents answered these questions. The non-response varied between 0.9% and 16% in these responses. Fortunately, everyone responded to Questions 2, “Littering is a problem in the Johannesburg Zoo” and Question 3, “Zoo is an environmentally friendly place”. In Table 5.3 the results for Questions 2 to 10 are presented as a single entity.

5.2.3 Q 2: Littering is a problem in the Johannesburg Zoo (visitors)

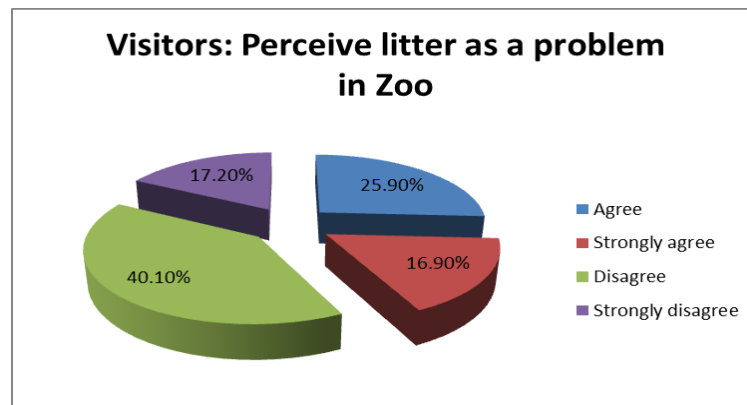


Figure 5.2 Littering a problem in the Zoo (Visitors)

Figure 5.2 indicates that 40.1% disagree and 17.2% strongly disagree that litter is a problem in the Zoo, which denotes a positive view by 57.3%. However, the remainder who agree (25.9%) and strongly agree (16.9%) that litter is a problem is disappointingly high. Considering this statistic, there is an unacceptably high number of negative perceptions from visitors regarding litter in the Zoo. This therefore raises a point of concern regarding litter in the Johannesburg Zoo. In the

additional comments made by the visitors, they mention specific areas, such as the tiger enclosure, food area and Anglo Gold enclosure where they noticed litter. Mention was made of broken bottles, cigarette butts and large rubbish bags lying around.

5.2.4 Q 3: Johannesburg Zoo is an environmentally friendly place (visitors)

Of the respondents, 60.5% agree and 35.2% strongly agree that the Zoo is environmentally friendly (Figure 5.3). The visitors who disagreed (3.0% & 1.2%) are way in the minority. This is a very positive perception and could indicate that the respondents gained the impression that Johannesburg Zoo is making a good effort to ensure that the Zoo remains environmentally friendly. A number of the visitors commented that the Zoo is well kept (grass well maintained, staff cleaning all the time, animals well cared for) and pays attention to not polluting the environment (lots of trees, wetland conservation, economic use of electricity, recycle bins, waste management, no chemical pollution). Those who disagreed made reference to pollution in the BBQ area and the arid and dirty conditions.

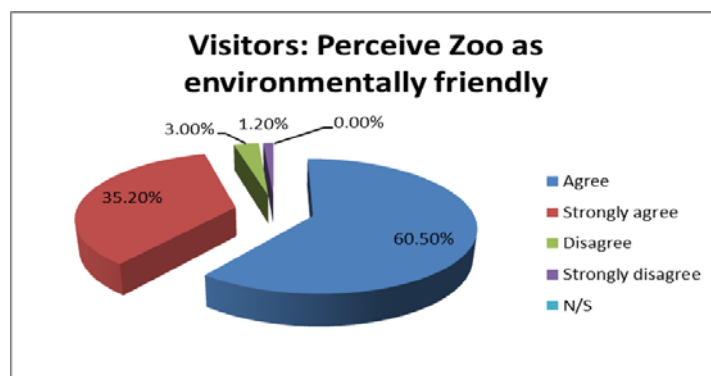


Figure 5.3 Zoo environmentally friendly (visitors)

5.2.5 Q 4: Notices about litter control can be seen on Zoo property (visitors)

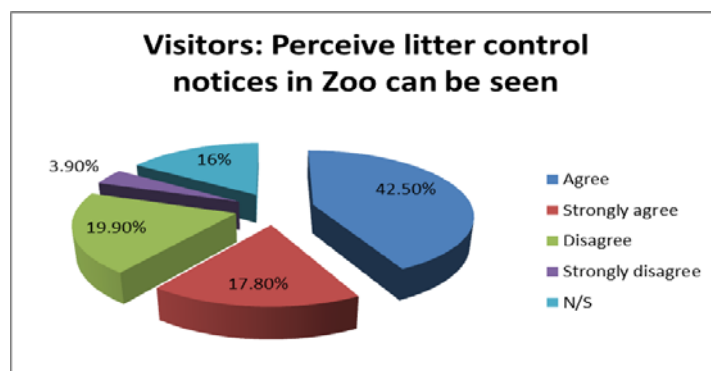


Figure 5.4 Litter control notices seen on Zoo property (visitors)

Those visitors who did see messages relating to litter while they walked in the Zoo added up to 60.3% (Agree=42.5%; Strongly agree=17.8%). However, there were 19.9% (Disagree) and 3.9% (Strongly disagree) of the respondents who did not see such messages (Figure 5.4). Quite a large percentage (16.0%) of the respondents did not respond to this question and could well have disagreed or the notices just did not catch their eye while in the Zoo. The negative responses (40%) are a point of concern and are an indication that more needs to be done to successfully attract all visitors to see and read the messages. Those that saw signage about litter could name these areas, such as the entrances, animal and bird enclosures, food area, ferry, centenary walk, next to administration, educational centre and ablution blocks. Those that disagreed bluntly said they saw no signage. When looking at the age groups, the respondents up to 29 were very observant as higher percentages agreed that the notices could be seen. The older respondents agreed progressively less.

5.2.6 Q 5: Litter control message on signboard of the Zoo is visible and relevant (visitors)

Of the respondents, 45.8% (Agree) and 20.2% (Strongly agree) agree that the litter control messages are visible and relevant, yet there was a notable number of the respondents (Disagree=26.2%; Strongly disagree=4.8%) who disagreed (Figure 5.5). This implies that the Zoo management team would need to revisit the visibility, the placement and the relevance of the wording on these signboards.

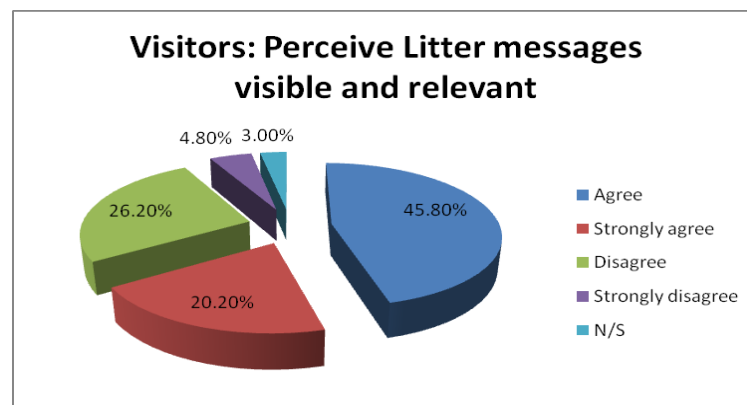


Figure 5.5 Litter control message visible and relevant (visitors)

In the comments, those that agreed just confirmed their response while others commented that signboards were bright, clear, easily readable, strategically

placed, while some suggested bigger print, more impact and more prominent. According to the age groups, the 40 to 49 year-olds were much more positive about the visibility and relevance of the messages on the signboards.

5.2.7 Q 6: Pictures of animals killed by litter thrown into enclosures should appear on signboards (visitors)

Figure 5.6 indicates the perception of the respondents relating to what should be seen on signboards. The specific image that was postulated concerned pictures of animals that had died tragically due to litter disposed in the enclosures where these animals were kept.

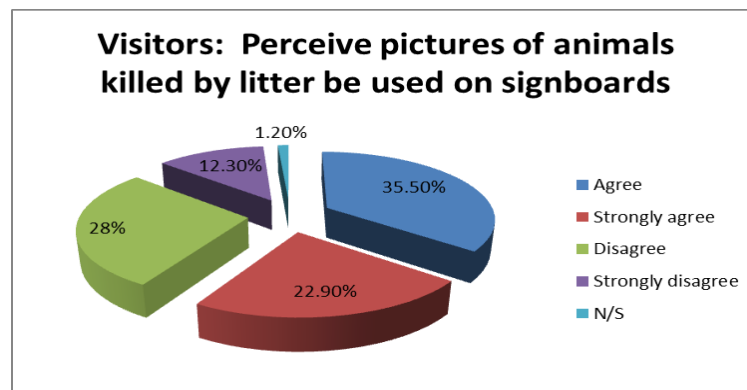


Figure 5.6 Pictures on signboards of animals killed by litter (visitors)

Nearly two-thirds of the respondents (Agree=35.5%; Strongly agree=22.9%) agreed that pictures depicting how of animals died because of litter disposed in the enclosures should appear on signboards. Of the remainder of the respondents, 28% disagreed and 12.3% strongly disagreed with this form of communication. Some visitors who commented were very strongly opposed to these pictures saying it frightens and saddens young children, it is disgusting, ruins their day, etc. In contrast, others approved, as it would make a stronger impact to see the damage and consequences and drive the message home more successfully. Of the youngest age group 20% more agreed about displaying animals killed by litter than the total group average, while 10% of the age group 40 to 49 years agreed less than the average of the total group. The latter could be the concerned teachers or the younger grandparents.

The majority of the respondents therefore perceived this kind of communication as a good tool to discourage visitors from littering while they are in the Zoo. It may be

a route worth pursuing, however, implementation should be gradual and the choice of visuals needs to be selected with care to be effective for all ages and to be educational in nature.

5.2.8 Q 7: I am fully aware of the legislation that governs waste control in South Africa (Visitors)

Figure 5.7 shows that 47% (Agree) and 15.1% (Strongly agree) of the respondents were well aware of legislation governing litter in South Africa. However, 28.6% disagree and 5.1% strongly disagree implying that these respondents are not aware or do not know of legislation on litter in this country. The 4.2% of respondents who did not answer this question, may very likely have sided with the latter. Those who were unaware commented that the government should communicate it through the media, while others felt there should be signboards reminding visitors about the legislation and the consequences, and actually mention that the Zoo could fine those who litter. More respondents of the age groups, 40 to 49 (73%) and 50 to 59 (71%), were aware of the legislation than the total group (61%). The least informed group was 30 to 39 years old (54%).

Those who do not know of legislation no doubt would also not be aware of consequences of leaving litter lying around in an open space. This might be related to littering that is taking place during visits to *ex-situ* conservation areas. This is a call for concern.

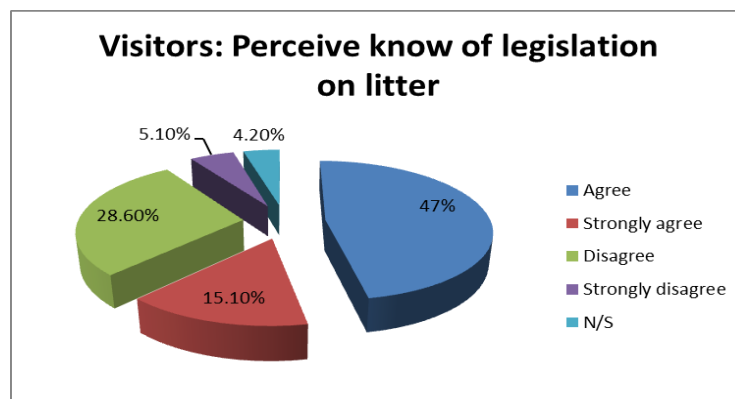


Figure 5.7 Knowledge relating to legislation on litter (visitors)

5.2.9 Q 8: There are enough dustbins on the property of the Zoo (visitors)

A large majority (86.4%) of the respondents agreed (51.8%) and strongly agreed (34.6%) that there are enough dustbins in the Zoo (Figure 5.8). This number (86.4%) is significant and provides support that the Zoo does have sufficient dustbins and the visitors' behaviour of leaving litter lying around is most probably influenced by other factors than lack of dustbins. The remaining respondents, who disagreed (9.9% & 2.1%) on the availability of enough dustbins, make up a very small proportion of the people.

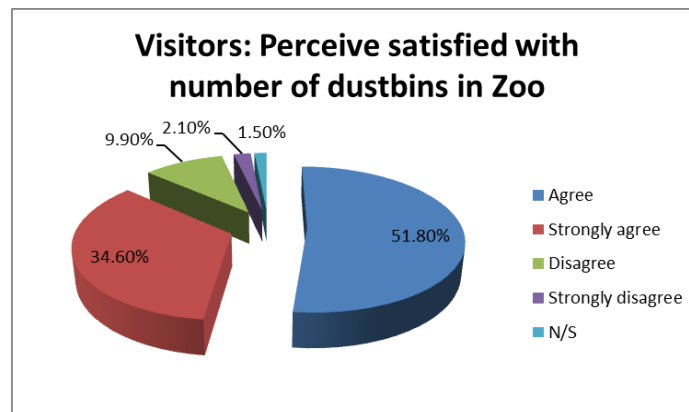


Figure 5.8 Satisfaction with number of dustbins in Zoo (visitors)

Although the additional comments just confirmed their response, some remarked about the distribution and placement of the dustbins in the Zoo and in the streets. It may be wise to look at factors like increasing visibility of dustbins and looking at the distribution within open spaces to cover the needs of the group that disagreed.

5.2.10 Q 9: Litter problem in the Zoo is severely affecting the environment and animals (visitors)

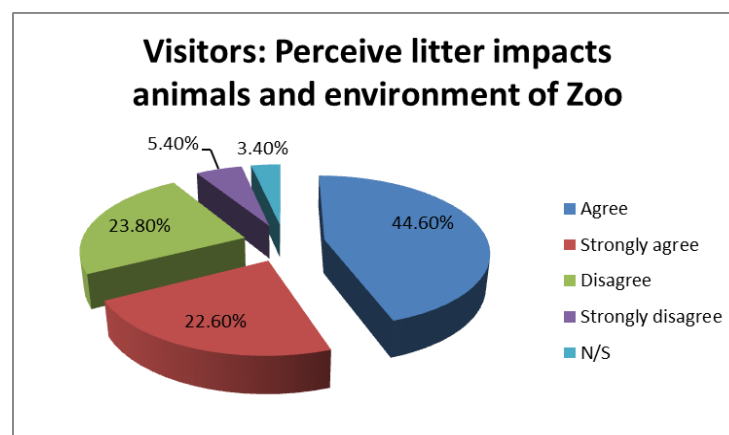


Figure 5.9 Perceptions of impact of litter on environment and animals (visitors)

Two-thirds of the respondents (Agree=44.6%; Strongly agree=22.6%) were of the opinion that litter does have an impact on the environment and the animals (Fig. 5.9). The remaining respondents (Disagree= 23.8%; Strongly disagree= 5.4%). did not believe that litter affects these entities. This latter group may not be aware of the fact that litter in the enclosures can seriously injure animals, often fatally

Regarding the environment, they seem to have impression that there was no litter at the Zoo or that litter did not bother them much. However, the large number of respondents who were convinced that it is a problem suggests that there is an urgent need to look at litter as one of the aspects, which could play a negative role in the image of the Zoo as a conservation area. More effort should be put into a litter control strategy so that the Zoo could continue fulfilling its mandate as a conservation, education, recreation and research area. The 3.4% of the respondents who did not answer this question probably did not notice or did not care much about the litter. The comments centred mostly on their concern about the effect of litter on the animals than the environment.

5.2.11 Q 10: Environmental education programmes could be a solution to the waste problem (Visitors)

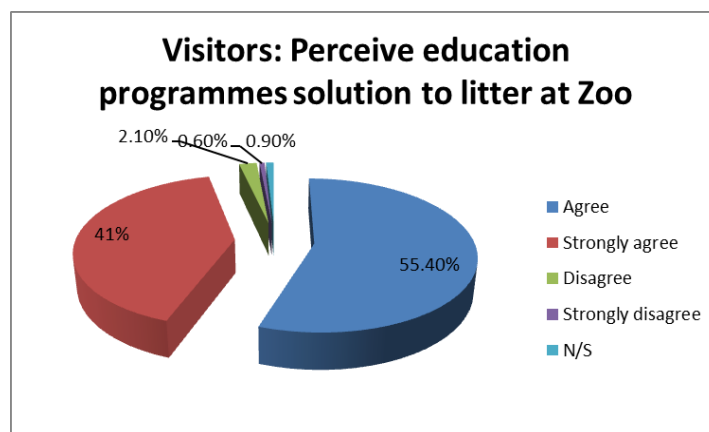


Figure 5.10: Environmental education programmes a solution to litter problem (Visitors)

A very convincing majority (96.4%) believed that environmental programmes are worthwhile presenting at the Zoo and could be a solution to the litter problem (Figure 5.10). The response to this question attracted the largest number of respondents to strongly agree (41%) and an equally large group (55.4%) who

agreed. The number of respondents who disagreed (2.1%), strongly disagreed (0.6%) or did not answer the question (0.9%) made them a negligibly small group. The importance of gaining knowledge was a typical comment and some suggested making use of brochures, workshops in the community and using the variety of media to educate the public.

The Zoo should therefore maintain, continue and even increase the education programmes and the frequency thereof, as the public seem to see the worth of such an initiative in playing an important role in reducing litter.

In conclusion, on the results after analysing the data on the visitors' perception on litter in the Zoo, it is clear that different perceptions on one issue will always occur and should be respected. As this sample of visitors consisted of more young adults to the age of 44 years than the elderly and school children, one could assume that maturity, experience and knowledge formed the background for their responses.

There are a significant number of respondents who indicated that they perceive litter to be a problem in the Zoo. Most respondents also believed that littering on the grounds and in enclosures does affect the image of the Zoo environment and the animals. In spite of the perception that the Zoo has enough dustbins, it does not stop people from littering. This is a point of concern and might be related to visitor's behaviour. As the literature suggests, people behave differently in the conservation areas compared to their homes. They leave litter lying around in open spaces while they visit conservation areas, yet they do not practise the same behaviour while at their homes.

Based on the high percentages expressing concern on the litter issue, it could be deduced that the overall perception is that litter is a problem in the Zoo and should be addressed. One aspect that was well supported by the respondents is the value of educational programmes, which they believe can make a difference and curb the problem of littering.

5.3 EMPLOYEES: PERCEPTIONS REGARDING LITTER (Questionnaire B)

The only biographic details the employees were requested to provide were their age and their years of service. However, when distributing the questionnaires,

various levels of job status were considered so as to include a fair representation of the personnel at the Zoo. The distribution of the age of the employees is presented in Table 5.5 where just more than half of the employees (55%) who participated were in the age category 30-39 years with the remaining employees in the categories 20-29 (20%) and 40 to 49 (25%) years. The mean age was 35.55 years (standard deviation =6.45) within the range of 27 to 62 years. This spread of age across this group of adults is to be expected where it comes to employees of an institution.

Table 5.5 Age distribution of employees

Age category	Respondents	
	Number	%
20 – 29 years	4	20%
30 – 39 years	11	55%
40 – 49 years	5	25%
Total:	20	100.00%

5.3.1 Q 1: Years of service (Employees)

A total of 20 employees completed a questionnaire. Of these, 85% of the respondents have been employed in the Zoo for four years and more (Table 5.6).

Table 5.6 Employees: Results of responses

QUESTIONS	RESPONSE % (n)			
	<1 yr.	2 yrs.	3 yrs	More yrs
1. How many years have you been working in the Johannesburg Zoo?	--	5.0% (1)	10.0% (2)	85.0% (17)
	Agree	Strongly agree	Disagree	Strongly disagree
2. Littering is a problem in the Johannesburg Zoo.	25.0% (5)	60.0% (12)	10.0% (2)	5.0% (1)
3. The litter control message on the signboard of the Zoo is visible and relevant.	65.0% (13)	25.0% (5)	5.0% (1)	5.0% (1)
4. Pictures of animals killed by litter thrown into enclosures should appear on the signboard.	45.0% (9)	20.0% (4)	20.0% (4)	15.0% (3)

5. I am fully aware of the legislation that governs waste control in South Africa. [N/S = 5.0% (1)]	75.0% (15)	20.0% (4)	--	--
6. There are enough dustbins on the property of the Zoo.	70.0% (14)	20.0% (4)	10.0% (2)	--
7. The litter problem in the Zoo severely affects the environment and the animals.	40.0% (8)	50.0% (10)	10.0% (2)	--
8. Environmental education programmes could be a solution to the waste problem.	70.0% (14)	30.0% (6)	--	--

Table 5.7 Employees: Responses of employees in service less than 4 years

QUESTIONS	RESPONSE % (n)				
	<1 yr.	2 yrs.	3 yrs	More yrs	
1. How many years have you been working in the Johannesburg Zoo?	--	33.3% (1)	66.7% (2)	--	
	Agree	Strongly agree	Disagree	Strongly disagree	Not Answered
2. Littering is a problem in the Johannesburg Zoo.	33.3% (1)	33.3% (1)	33.3% (1)	--	--
3. The litter control message on the signboard of the Zoo is visible and relevant.	66.7% (2)	33.3% (1)	--	--	--
4. Pictures of animals killed by litter thrown into enclosures should appear on the signboard.	--	66.7% (2)	33.3% (1)	--	--
5. I am fully aware of the legislation that governs waste control in South Africa. [N/S = 5.0% (1)]	33.3% (1)	33.3% (1)	--	--	33.3% (1)
6. There are enough dustbins on the property of the Zoo.	66.7% (2)	33.3% (1)	--	--	--
7. The litter problem in the Zoo severely affects the environment and the animals.	33.3% (1)	66.7% (2)	--	--	--
8. Environmental education programmes could be a solution to the waste problem.	66.7% (2)	33.3% (1)	--	--	--

The majority of the respondents, therefore, have more than three years of experience (85%) and would be able to provide valuable information because of their long years of service at the Zoo. The results in Table 5.6 actually represent this group. The remaining three respondents had two years' experience (5%) or at least three years' experience (10%). These respondents had sufficient opportunity to experience the challenges the Zoo faces regarding the litter problem. Table 5.7 indicate the percentages of respondents who are three or less years in the Zoo.

5.3.2 Q 2: Littering is a problem in the Johannesburg Zoo (employees)

According to Figure 5.11, most of the employees perceive litter as problematic where 60% strongly agree and 25% agree that litter in the Zoo is a huge concern. This perception of these 85% of the employees is probably based on their experience since they are either directly or indirectly affected and are confronted by it on a daily basis.

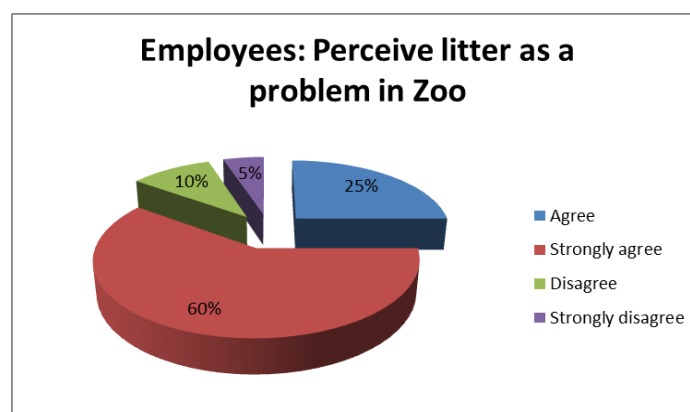


Figure 5.11 Littering a problem for the Zoo (employees)

Their perception is something to take seriously. Despite the fact that the Zoo is an *ex-situ* conservation area, there are still 15% of the employees that consider litter as an insignificant problem. The younger age groups had the lowest number of employees who agreed, namely 30 to 39 (64%) and 20 to 29 (75%), while the oldest group, 40 to 49, agreed 100%.

5.3.3 Q 3: Litter control message on signboard is visible and relevant (employees)

Figure 5.12 indicates that 65% of the employees agree and 25% strongly agree that litter control messages in the Zoo are visible and relevant. Only 10% of the employees are of the opinion that litter control messages in the zoo are not easy to

spot, nor pertinent. The youngest age group, 20-29, were undecided with only a 50% agreement. This could imply that the signboards need to be assessed regarding these aspects. Despite the fact that according to 90% of the employees, signboards concerning the impact of litter on the Zoo are satisfactory, litter remains a problem.

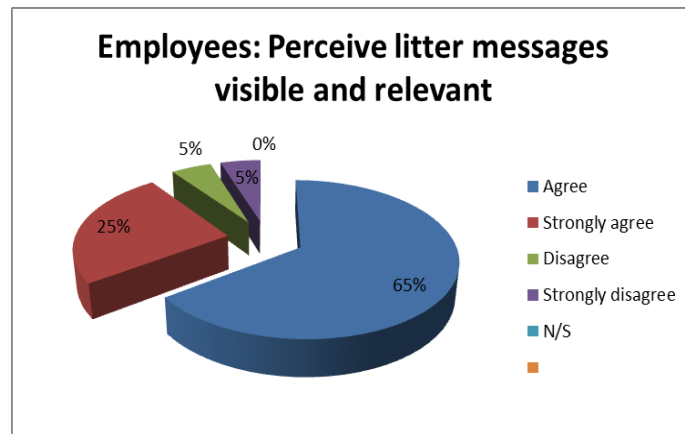


Figure 5.12 Litter control message visible and relevant (employees)

5.3.4 Q 4: Pictures of animals killed by litter thrown into enclosures should appear on signboards (employees)

Of the respondents, 45% agree and 20% strongly agree (Figure 5.13) that signboards with messages or images, like the intestines of animals that died due to litter, might reduce visitors' behaviour of leaving litter lying around in the open spaces. This perception supports those detected from the response of the visitors. However, there are 35% of respondents here who either disagree (20%) or strongly disagree (15%) with this.

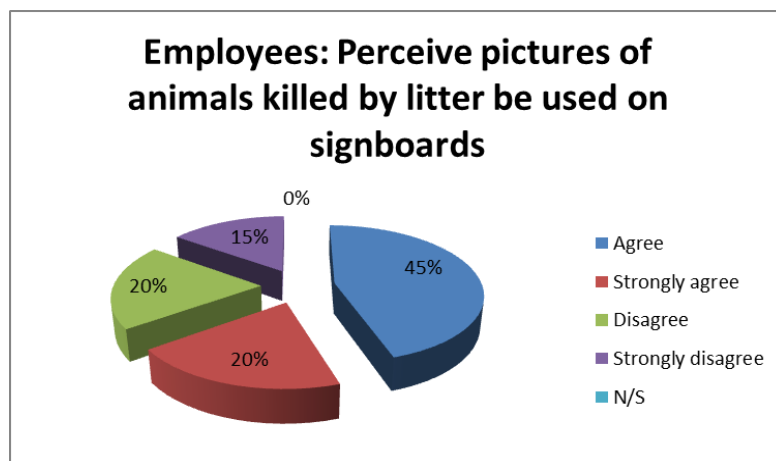


Figure 5.13 Pictures on signboards of animals killed by litter (employees)

Nonetheless, the fairly larger percentage of the employees was in favour of adding gruesome pictures to demonstrate the reality. Of interest is that only 55% of the age group 30 to 39 were in agreement who could possibly be the parents of young children.

5.3.5 Q 5: Know South African legislation governing litter (employees)

According to Figure 5.14, 95% of the employees are aware of legislation governing litter. Only 5% of employees (1 person) did not answer this specific question. Overall, the responses can be regarded as a positive sign as this emphasises the fact that employees are not ignorant of the consequences associated when people subject themselves to illegal behaviour, such as leaving their litter behind in open spaces. It is interesting to note that the most informed age group of the employees was the younger group 20 to 29 (100%) and the least informed the oldest group 40 to 49 (80%).

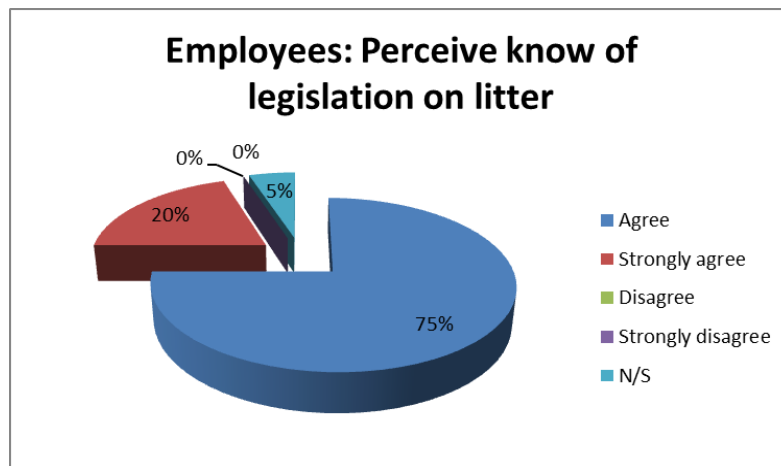


Figure 5.14 Knowledge of legislation on litter (employees)

5.3.6 Q 6: There are enough dustbins on the property of the Zoo (employees)

Figure 5.15 shows that 90% of the respondents either agree (70%) or strongly agree (20%) with the perception that there are enough dustbins available in the Johannesburg Zoo. This can be regarded as a very positive perception and a valuable initiative. The greatest challenge is that although there are enough dustbins, the Zoo continues to experience litter as a problem.

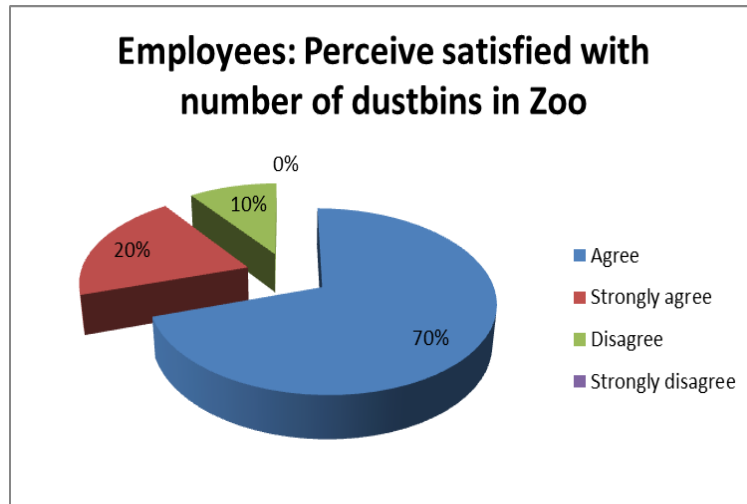


Figure 5.15 Satisfaction with number of dustbins in Zoo (employees)

In spite of the small number who disagreed (10%), their perception should be noted as a concern which management should address. It could be that the visibility and the actual placement of the dustbins may be linked to options they could examine.

5.3.7 Q7: Litter problem in the Zoo is severely affecting the environment and animals (employees)

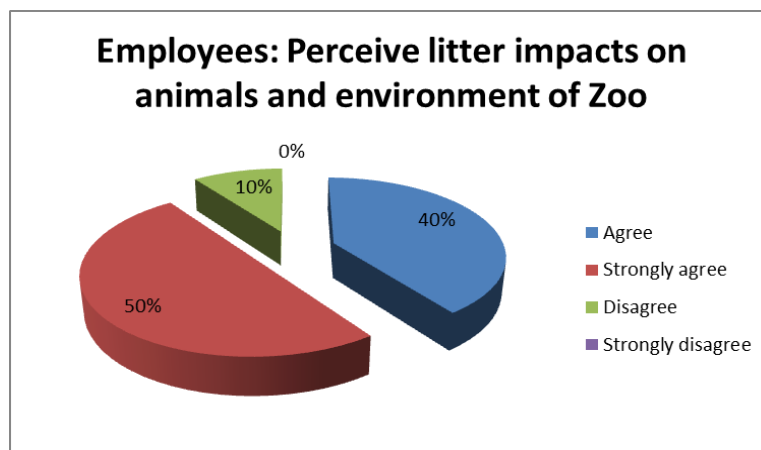


Figure 5.16 Perceptions of impact of litter on environment and animals (employees)

The majority (90%) of employees perceive litter to have a negative impact on the Zoo as a conservation area (Figure 5.16). They agree that litter will have a negative impact on the environment and the animals. There are only 10% of the employees who have a different perception. They disagree with the perception that litter affects the environment and the animals kept in the zoo.

It is very concerning that even though they are working in an *in situ* conservation area, they are not aware that litter can seriously harm animals and the environment. Maybe it would be useful to inform all employees, especially those newly appointed, by means of the available awareness programmes. They should also realise that littering can damage the image of the Zoo as a conservation area.

5.3.8 Q8: Environmental education programmes could be a solution to the waste problem (Employees)

The entire group (100%) of the respondents either agree (70%) or strongly agree (30%) with the perception that environmental education programme is a solution to the litter problem (Figure 5.17). Maybe management needs to assess the effectiveness of the current programmes periodically and reconsider the frequency of the presentations in the hope that littering can be curbed. The largest percentage of employees that lodged a response of strongly agree, is the oldest group, 40 to 49 years (80%). The strongly agree category diminished with age.

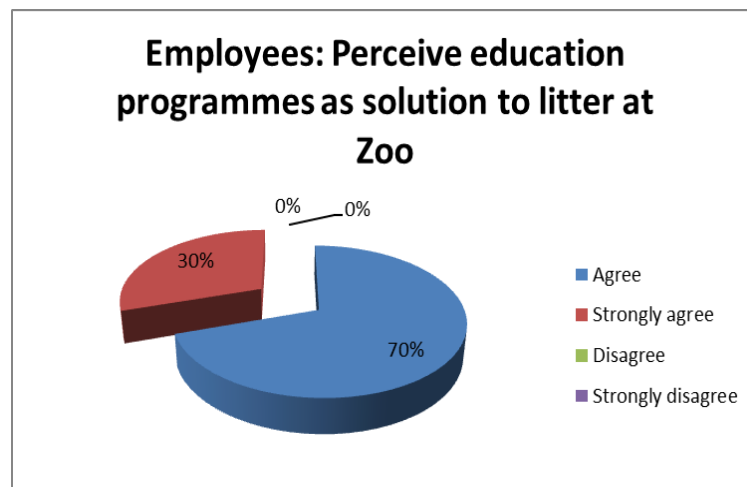


Figure 5.17: Environmental education as a solution to litter problem (employees)

In conclusion, it is clear that the high number of employees who responded to the questionnaire believe that litter is a problem and that it impacts negatively on the animals, environment and image of the Zoo. The management of the Johannesburg Zoo will need to consider additional strategies to control the litter and intensify those in operation to more effectively deal with the impacts thereof.

5.4 OTHER STAKEHOLDERS: PERCEPTIONS REGARDING LITTER

By means of personal interviews with relevant stakeholders, the purpose was to determine their perception of the litter problem in the Zoo. The stakeholders included the former acting Johannesburg Zoo Chief Executive Officer, the Zoo veterinarians, chairperson of the Forest Town Residents Association (neighbouring properties), and Michel (neighbour).

Collecting qualitative data allows personal experience and engagement, whereby the researcher could make direct contact through conversation with these persons. This allowed one to personally get closer to the respondents. This interaction helped to focus directly on the phenomena aided in gaining a better understanding of the litter issue from another perspective. The interview served as part of the survey. Data was collected through telephonic, personal and electronic interviews and with some of the participants, amongst others the neighbours. Structured interviews face-to-face were conducted with the former acting CEO and the veterinarian of the Zoo. The chairperson of the Forest Town Residents Association requested the interview questions to be sent through the electronic system.

5.4.1 Stakeholders: Interview with the former acting Chief Executive Officer

5.4.1.1 Q 1: What is your opinion about litter in the Zoo?

Litter is not well controlled as visitors do not use the available dustbins and do not care about where they throw or leave their litter.

5.4.1.2 Q 2: How does it affect the image of the Zoo?

It is cleaned up every day however during the big events it may look like the Zoo does not care about their parks as picking up litter takes time. A bad image can be formed.

5.4.1.3 Q 3: What happened to the agreement between the Zoo and the Military museum?

In 2010, the Johannesburg Zoo and Military museum had an agreement, which allowed the visitors to the Zoo to park their vehicles in the museum parking area.

A firm service level agreement was not put in place addressing how to handle conflict. The area was left in a bad state after a particularly busy

day and the Zoo did not realise that there was littering in the parking area.
The agreement was cancelled on the spot.

5.4.1.4 Q 4: Do you believe the litter problem has an effect on return visits to the Zoo?

I do not know. This is not measured with litter in mind; however it may affect people during their first visit that they may decide not to return.

5.4.1.5 Q 5: Do you believe the Zoo has enough dustbins and are distributed in the right places?

No, we need more waste separation bins and there are hardly any bins in the parking areas.

5.4.1.6 Q 6: Do you believe the Zoo is doing enough to control litter?

More education is required, as well as more policing. Nobody should be responsible for another person's litter. Events need to take more responsibility for their own litter and removal of such.

5.4.2 Stakeholders: Interview with the veterinarian

5.4.2.1 Q 1: How long have you been working in the Zoo?

I have been working at the Zoo for six and half years.

5.4.2.2 Q 2: Do you consider litter to be a problem in the Zoo?

I fully agree that litter is a problem

5.4.2.3 Q 3: How many animals have you treated due to impact of litter, either directly or indirectly?

I have treated more animals and cannot count because they are many roughly 21 since I joined the zoo and the last one I treated is 30 August 2013. It was Tambowine Dove. It had a string attached to its leg and I had to remove some of the fingers because they were badly damaged. It took me more than three hours on the bird. The equipment used and my time could be calculated to about R1500. I am not sure if it was due to litter that it happened.

The veterinarian mentioned that she had treated many animals and that the majority survived. It might be about seven or more who died. Treating these

animals affected by litter is very costly and time consuming. The organisation spends about R50 000 annually on animals treated due to the litter problem. However, she mentioned that it does not include the value of the animal itself especially if it dies.

5.4.2.4 Q 4: Are you happy with number of dustbins in the Zoo and do you believe the Zoo could do more to reduce litter?

The veterinarian is not happy at all satisfied with the number of dustbins and she was convinced that the Zoo could do so much more to reduce and minimise litter. Regarding the effect of litter on the environment and the animals, she is of the opinion that it severely affected the animals.

5.4.2.5 Q 5: Do you believe enough is done to educate the public about litter and the consequences?

She emphatically believes that much more can be done in the sphere of educating the public especially the consequences to the animals and the image of the environment of the Zoo.

5.4.3 Stakeholders: Interview with the Chairperson of the Forest Town Ratepayer's Association

The chairperson of the Forest Town Ratepayer's Association is considered a representative of the community neighbouring the Zoo. Those living on the perimeter of the Zoo are well placed to see what is going on at the Zoo.

5.4.3.1 Q 1: As the chairperson of the community, how has litter from the visitors to the Zoo impacted on the community?

The number of visitors to the Johannesburg Zoo has increased more than four fold in the last 10 years or so. This is generally a good indication that the Zoo's entertainment and educational efforts are succeeding.

However, the Zoo has not invested adequate funds into its infrastructure to cater for this very large increase in numbers. This has led to a number of problems, namely: noise; parking problems in Forest Town; drunkenness in the surrounding streets; increased levels of crime in the vicinity of the Zoo and also increased pollution due to litter.

He noted that the Zoo has instituted a clean-up regimen after the weekends, which are generally their busiest times and has proven to be generally successful.

However, he mentions that there are still many areas of Forest Town that the Zoo does not attend to. These are mainly along the southern side of Upper Park Drive, and along Rannoch, Birnam and Wychwood Roads. The Forest Town community is one that prides itself on a clean and safe environment. Any litter is seen as having a severe negative impact on the suburb.

5.4.3.2 Q 2: Do you believe litter problem from the zoo visitors is severely affecting the image around the community?

The main entrance to the Zoo is immediately adjacent to the Forest Town residential area. Due to the fact that the City Council does not undertake regular or effective cleaning of the streets, the residents are left with the problem of removing this litter. The chairperson continues to mention:

This means that the litter can be lying around for a few days that have a detrimental impact on the look of the suburb. It has been proven many times that a clean environment is a safer environment. It is therefore essential that litter be eradicated in order to ensure that more dangerous crimes are avoided.

5.4.3.3 Q 3: Have you previously received complaints from other members of the community relating to litter?

His response was “Yes” and continued to say that the Forest Town Ratepayers’ Association (FTRA) regularly receives complaints about litter left by visitors to the Zoo. This has been and is communicated to the Zoo management on a regular basis during their many stakeholder meetings.

5.4.3.4 Q 4: Based on your observation, is the Zoo doing enough to deal with the litter problem?

No. Whilst the Zoo knows about the problem, they seem unwilling to tackle it.

The FTRA has, on many occasions, recommended that the Zoo management arrange for the JMPD to police littering outside the Zoo. To date, as far as the chairperson is aware, this has never happened. He emphasised that littering is an offence yet the reality is the following:

The JMPD either ignore this or do not seem to understand. The lack of enforcement of by-laws is the most serious issue affecting the residents of Forest Town at present. The lack of prosecutions by the JMPD for

littering is a clear indication of the start of the breakdown of law and order in general in Johannesburg. The perception is that if “small” laws, such as littering can be ignored, so can the “larger” laws, such as assault, burglary, rape and murder. This concept has been well proven by New York’s “broken windows” approach to policing in previous years.

The Zoo management knows that littering is a serious problem, even inside the Zoo. However, as far as I am aware, they have not prosecuted anyone for littering inside the Zoo. They certainly do not seem interested in doing so outside the Zoo premises.

5.4.3.5 Q 5: Do you believe there are enough dustbins around the Zoo?

No. There are a number of dustbins in the area, and they have increased over the last few years; however, there are still not enough. It is important to bear in mind that the inadequate number of dustbins in the area is not the real problem. The real problem is that the public does not deem littering to be a problem! Despite repeated attempts at education by the City of Johannesburg, the litter problem gets worse. It is now time to start a high profile law enforcement campaign to prosecute offenders. The by-laws already exist so use them!

5.4.3.6 Q 6: What would you suggest as a possible solution to deal with the litter problem around the Zoo?

- 1. Provide more dustbins in and around the Zoo.*
- 2. Make sure that people are told not to drop litter in or around the Zoo.*
- 3. Prosecute people dropping litter inside and around the Zoo.*
- 4. Ensure that Zoo management are always on duty at weekends and busy times to police the littering problem in and around the Zoo.*

He continues to explain that a lot of people say that the littering problem is linked to a lack of education, which is correct. However, effort has been put into this in many areas: advertising; school programmes; etc. None of these has had the desired effect.

Prosecuting people for littering is an “educational” system. It provides a direct incentive not to litter, as it will cost you money. The fined offenders will very quickly educate their friends and colleagues not to litter in order to reduce the potential for them to be fined as well. The City of Johannesburg has so far abdicated its responsibilities to its residents to provide a clean city. It is time that they were called to account on this matter.

5.4.4 Stakeholders: Interview with Michel, a neighbour in Forest Town

5.4.4.1 Q 1: Is litter a problem around the Zoo and, if so, does it affect the image of the area?

Michel mentions that it is really a huge problem because people leave litter lying around as they leave the Zoo and they never clean after themselves. This littering affects the image and the culprits are allowed to get away with it.

5.4.4.2 Q 2: Are you satisfied with number of dustbins around the Zoo?

The respondent is not happy at all since there is only one dustbin next to her house and the public do not even use it. She calls for more education of the visitors. On enforcement of the law, Michel imparts:

Security should also be educated on how to enforce the law on the people leaving litter lying in open spaces. The Zoo sends people to collect litter in the morning, however that on its own is not good enough. There should be education. This is also a waste of labour and money for the zoo.

5.4.4.3 Q 3: What would you suggest as a possible solution to deal with the litter problem around the Zoo?

The Zoo should allocate more dustbins around and they should be visible. Clients should be encouraged to use those dustbins. Security must be educated on how to enforce the law on offenders.

5.5 DISCUSSION

This section focuses on a discussion of the results of the data collected for the study. The data consisted of 332 questionnaires collected from the visitors, 20 from employees of Johannesburg Zoo, a high level administrator and a veterinarian from the Zoo, and two other stakeholders from the community. The discussion focuses on the objectives of the study. Firstly, the social, cultural and contextual background and status of the Johannesburg Zoo was determined through reflective reporting by the researcher based on how he perceived litter over a period of eight years. Secondly, the impact of litter in the Zoo was established based on the perceptions of visitors, staff and other stakeholders. Thirdly, all stakeholders considered the effectiveness of the existing anti-litter awareness programmes at the Zoo.

Triangulating the results of the various groups of participants will focus on the same questions that all the respondents were asked to answer. The method of analysis involves the concurrent, but separate, collection and analysis of data in order to compare and contrast the different findings to see the extent to which they do or do not agree with one another (De Vos *et al.*, 2011:442).

5.5.1 Litter considered a problem at the Johannesburg Zoo

Just over half of the visitors did not perceive the Zoo to have a litter problem, whilst the greater majority of the employees, the veterinarian and the community stakeholders indicated that litter is a problem in the Zoo. This response could have been predicted because visitors only visit occasionally and are often the culprits of littering. On the other hand, the personnel at the Zoo and the community see and notice the litter on a daily basis and they are affected by it or have to deal with it. These findings support that of Challis (2010) with reference to his study of Belfast Zoo, when reporting that the staff members are aware of the danger associated with litter, but the public in general are not always aware of the problems associated with litter.

The Zoo personnel are also exposed to the suffering the animals have to endure due to ingestion of the litter. The researcher reported on the consequences where animals had to be treated for long periods at great expense to the Zoo, the pests associated with litter and the tragedy of the animals dying. Most visitors have no idea of the dreadful effect litter has on the animals. Also, nearly all the visitors were from out-of-town and do not live with the circumstances as the neighbouring community has to do. The latter also commented that the increase in the number of the visitors has compounded the litter problem. A devastating thought is the possibility that visitors generally do not seem to care about the environment or the animals and do not seem to realise the severity of the effect of litter. This thought echoes the observation at the Surabaya Zoo in Indonesia. Sumampouw (2012) sadly reporting that the newly appointed zoo keeper, who was challenged to tackle the dreadful consequences of litter to the environment and the animals, just gave up after the tragic death of *Kliwon* the Giraffe.

Based on the responses, it can be concluded that litter is a problem in the Johannesburg Zoo, considering that over forty percent of the visitors did agree.

5.5.2 Litter control message on the signboards of the Zoo are visible and relevant

In spite of the fact that most of the visitors and employees were satisfied with the visibility and the relevance of the warning message on the signboards, it is of concern that a significant number (25%-33%) of the various groups of respondents were not satisfied. The management of the Zoo needs to take note of the view of this fairly large minority that include the visitors and the employees, because the Zoo still has a litter problem. Visible signboards that immediately draw the attention of visitors need to be reviewed concerning the relevance and impact of what the message conveys. Placement, design, size of lettering and the colour are some of the factors that are applicable. According to Laws (1995:112), images can create a meaningful position for a destination in the mind of the public, for instance by making the destination different to others who offer similar primary attention.

5.5.3 Pictures of animals killed due to litter thrown into their enclosures should appear on the signboards in the Zoo

Only a little over half of the visitors and two-thirds of the employees support the notion of tragic animal pictures being displayed on signboards in the Zoo. The notable number who had reservations is something to take into account. The visitors who commented were of the opinion that it might be scary for the younger children who visit the Zoo.

It is a fact that more of the respondents perceive this kind of communication as the best method of communication and should be displayed to discourage littering from the visitors in the Zoo. However, it would be advisable that the type of pictures should be chosen with discretion with the younger children in mind. The message with a seal with stones in the stomach as outlined in the reflective account could serve as a good choice to be displayed. It might influence especially the visitor's behaviour not to litter while in the Zoo.

5.5.4 Know South African legislation governing litter

Although the employees are totally informed about legislation on littering, this was the case with only two-thirds of the visitors. This might be one of the reasons why people litter while they are on the Zoo premises. The problem is that when people

do not know about the legislation they will continue littering because they are not aware of the legislative consequences of littering. It might be worth considering making a signboard with the relevant legislation and with a warning of the consequences. If this were done, it would be imperative to create an infrastructure that monitors the littering for the purpose of voicing a warning of the consequences to the perpetrators.

5.5.5 Satisfied with the number of dustbins in the Zoo

Both visitors and the employees agree overwhelmingly that the Zoo has sufficient dustbins. Furthermore, the same question was extended to the former acting Chief Executive Officer, the veterinarian and the community stakeholders. They indicated that they were not happy with the number of dustbins in the Zoo and indicated that there is a shortage of dustbins in particular in the main parking area of the Zoo.

Although the Zoo increased the number of dustbins over the years, the respondents implied that it is not sufficient. It was mentioned that the lack of dustbins alone is not the main problem, rather the concern is that the public do not deem littering to be a problem. McKenna (2012) reported that in 2010 a professor of environmental psychology at Knox College stated that people do not take the trouble to find a place where they can dispose their rubbish. They found that most litter occurs within 16 feet of a trash bin. According to Amsel (2011), people often litter because they are lazy and cannot be bothered to find a trash bin.

To accommodate the greater numbers of visitors during weekends, school holidays and busy days, insufficient dustbins and the placement thereof, the Zoo should look at developing a more effective way of distributing the dustbins as a collection method if they wish to curb littering.

5.5.6 Littering in the Zoo severely affects the environment and animals

A good majority of the visitors and nearly all the employees are of the opinion that litter severely affects the environment and the animals of the Zoo. In the situation analysis the impact on the environment and more so on the animals was and is still a serious problem. Mention was made of the fatal consequences as result of the litter and the ensuing increase in expenses for the treatment of injured animals

and the replacement of animals, as well as the veterinary services has become a great concern for management. Up to R50 000.00 has been spent in one year on animal treatment, excluding time and dealing with the animal itself if it dies.

According to the former acting Chief Executive Officer, too much litter creates a perception that people in the Zoo do not care about the environment. The informants from the neighbourhood indicated that litter affects the image of their community because litter might be left on the ground for many days and is not good for the appearance of their environment. All the stakeholders believe that litter affects the environment, although some seem uninformed as to the seriousness of litter for the animals.

Mount Everest was an area affected where the visitors considered litter as an eyesore and some also recognised litter as destructive to the environment. Litter had a negative impact on the mountain and has led to the instigation of several regulations to manage the litter (Anderton, 1995:118). Litter is also a problem in the Himalayas and has also affected the image of that destination (Anderton, 1995:119). The degradation of the environment will somehow lessen the aesthetic pleasure for each visitor and also has the potential to endanger the wildlife. A good example is the Bergen County Zoo where their research conducted recommended that with the increasing number of visitors per annum, another form of litter control was necessary due to an increase in litter generation (Challis, 2010).

Another example, which shows that litter will affect the environment, is shown by the introduction of “Picnic In - Litter Out” as part of the Waste Management Policy of Walter Sisulu botanical gardens. Mutsinyalo (2012) reported that the wild animals scavenge from the refuse bins at night causing harm to their health and creating an unhygienic mess in the morning that required cleaning up. Furthermore audited results of the International Coastal Clean-up Day, which took place on 17 September 2011, indicated that plastic litter continues to be a problem on South Africa’s beaches (Kieser, 2011).

5.5.7 Environmental education is a solution to litter problems in the Zoo

The greater majority of the visitors and all the employees believe that environmental education could play a significant role in dealing with littering. The

veterinarian indicated that education is a solution; however the Zoo needs to enhance their current programmes to focus more emphatically on the impact of litter on the animals. The public in particular need to be informed about the consequences of litter on the animals and the Zoo environment. This was fully supported by the comments of the respondents from the neighbourhood. Although education programmes exist, management needs to consider introducing additional information programmes and present them more frequently.

To enhance environmental education at Belfast Zoo, the general public members were involved in “Captain Clean-up campaign”, which took place in September 2010. The campaign focused on the education of the general public about the dangers associated with litter in the zoo environment (Challis, 2010). In Bangkok, “Magic Eyes are Watching You” campaign was a private initiative aimed at children age 10-16 years and has been credited for reducing litter on the streets by 90% (Sopchokchai, 1990).

5.6 CONCLUSION

In conclusion, it could be indicated that the respondents from the various groups represented in this study agreed, maybe not to the same intensity, that littering and its consequences are a problem at Johannesburg Zoo. This therefore implies that management should pay serious attention to the litter problem and educate the public by providing them with the necessary knowledge, including information about the legal consequences. If they can be taught to understand the influence that litter has and learn to believe in and value conserving the environment and the animals, they could adopt a positive attitude so that they can live out their belief in society with commitment and passion.

Chapter 6

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The research was aimed at evaluating the issue of litter and litter management at the Johannesburg Zoo to reveal the current status and the perceptions of various stakeholders. The following were the objectives of the study:

To determine the social, cultural and contextual background and status of the Johannesburg Zoo reflectively;

To establish the perception of staff, zoo visitors and other stakeholders of the impact of litter on the Zoo;

To investigate the perception of the effectiveness of existing litter awareness programmes presented at the Zoo.

The data was collected by means of the reflective recollections of the Curator that represented a situation analysis of the Zoo. Self-designed questionnaires and interviews served to collect the data from the stakeholders producing both quantitative and qualitative data. The analysis of the quantitative survey data was descriptive in nature with frequencies and percentages.

This chapter provides a synopsis of the findings regarding the perceptions of the researcher/curator, visitors, employees, veterinarian, neighbours and other stakeholders on litter in the Johannesburg Zoo. The effectiveness of the existing educational programmes and measures implemented to deal with the litter problem is reported. Finally, limitations of the present study, conclusions and recommendations that could address the litter problem, as well as future research in this area of study are presented.

6.2 SUMMARY OF RESULTS

The findings of the situation analysis will be followed by the results of the perceptions on litter as expressed by the participating visitors, the employees of the Zoo and the other stakeholders that were interviewed. Finally, the findings regarding the effectiveness of the existing litter awareness programmes offered by the Zoo will follow.

6.2.1 Situation analysis

The experiences acquired by the curator as researcher over a period of eight years were reported and analysed. Over this period, the tragic and often fatal consequences of litter ingested by the animals became the major incentive to curb littering. During this time, the Zoo took action by introducing an additional 300 dustbins and creating and presenting educational programmes for school children and the public in an effort to bring the message home of the dangers of littering especially for the animals.

However, when the littering continued and the consequences escalated and the image of the Zoo was being seriously affected, at great additional and unnecessary cost to the Zoo, the management made a commitment to initiate actions to minimise litter. The major perpetrators were the visitors and the Zoo personnel were finding it difficult to stay ahead with collecting the litter. An outside company had to be hired to assist with the clean-up operation. It became the primary mission of Johannesburg Zoo to protect the animals from injury and to prevent the destruction of the environment. Furthermore, visitors in particular need to know that acts of littering cannot be tolerated, and to understand that it could not be condoned in a conservation area.

This research was considered a necessary step towards understanding how the various stakeholders perceive litter, in an attempt to develop a plan of action for the immediate future. In retrospect, it seemed obvious that educating the public was considered necessary, not only with knowledge but, in addition, to inculcate a spirit of caring about and valuing the environment and the animals so that they can live out this belief in society in general.

6.2.2 Perceptions of litter at Johannesburg Zoo

6.2.2.1 Visitors

As the 332 visitors completed the questionnaire over a period of 12 months, their visits covered all four seasons. The majority of the visitors had visited the Zoo more than once and as such their perception was based on experience. Of these visitors most indicated that they could recommend the Zoo to others but there was also a noteworthy number who would not recommend the Zoo. This is a concern because it will affect revenue generation but at the same time, management may need to review the whole Zoo experience.

The response on litter as a problem at the Zoo was divided. On the one hand respondents noticed the litter and on the other hand it did not bother the remainder. Yet two third of the respondents believed that littering on the grounds and in enclosures does affect the image of the Zoo environment and the animals. In spite of this perception and the fact that there are enough dustbins, it still does not prevent people from littering. This is a point of concern and might be related to visitors' general careless attitude and behaviour and not realising the dangers.

It was disappointing to learn that only over half of the visitors are aware of legislation regarding littering and its consequences. Of interest is the fact that the largest percentage of visitors knew the legislation was in the age groups 40-49 and 50-59. The younger respondents and the oldest group were not aware of this legislation.

Three questions were focussed on signage in and around the Zoo. The response to seeing notices and its visibility and relevance was disappointing. As more of the age group 40-49 were the most observant, age could possibly play a role in this variable. On the issue of displaying pictures on the notice boards of how animals die, the response was divided. In the comments, concern was expressed for the young children who may become be scared and saddened, and some visitors recommended that pictures should be chosen with discretion. In contrast, those who approved were of the opinion that it would make a stronger impact to see the damage caused the horrific consequences and drive the message home more

successfully. The visitors overwhelmingly believe that environmental education programmes could be the solution to minimising litter.

6.2.2.2 Employees

All the employees had worked at the Zoo for two years or more with the majority in the category more than three years, which makes them very familiar with the Zoo. The majority of the employees indicated that litter in the Zoo is a huge concern. A large number of employees indicated that they perceive litter to affect the Zoo environment and the animals. The minority who did not have the same perception was noted and could be ascribed the employees who work in an *ex-situ* area and are not aware of the harm litter causes to animals. Their answers were based on their experience since they are either directly or indirectly affected by this problem on a daily basis. The employees were satisfied with the visibility and relevance of the litter control messages in the Zoo. Everyone was aware of the legislation that governs litter and for the exception of two persons they believed there were sufficient dustbins in the Zoo. The fact that they recognised that the Zoo has a problem with litter, everyone agreed that environmental education relating to litter could be a solution to the litter problem.

6.2.2.3 Other stakeholders

The former acting Chief Executive Officer considered litter to be a serious problem in the Zoo and this has affected their relationship with neighbours. She indicated that there is a need for a more strategic distribution of the dustbins and specifically in the parking area. More education is required, as well as more policing. Littering escalates during events and an appeal should be made to visitors to avoid littering.

The veterinarian's perception was guided by her experience in the Zoo for more than six years. The veterinarian also agreed that litter is a problem in the Zoo and that there should be more dustbins with a more intentional distribution in the Zoo. She has a great concern regarding the amount of money and time spent on treating animals and believes the problem could be avoided if litter is managed properly in the Zoo. The veterinarian felt strongly about the need to communicate messages of the real situations about how littering affects the environment and the animals in particular. In the sphere of educating the public, it is an absolute

necessity and should focus especially on the consequences to the animals and the image of the environment of the Zoo.

Neighbours have concurred with the perception that litter from the Zoo is a problem to the environment. Due to an increase in the number of visitors to the Zoo in recent years, there has been an ever-increasing amount of litter in the area and especially along the surrounding roads. The neighbouring community is one that prides itself on a clean and safe environment. Any litter is seen as having a severe negative impact on the image of the suburb. The homes on the perimeter of the Zoo land up with litter on their properties. They have also indicated that litter left for few days has a detrimental impact and pollute their surroundings.

Some believe that the real problem is that the public does not deem littering to be a problem. They recommend that a high profile law enforcement campaign should be launched to prosecute offenders, as the by-laws already exist to apply it. The perception is that if “small” laws, such as littering can be ignored, so can the “larger” laws, such as assault, burglary, rape and murder.

6.2.3 Educational programmes at the Zoo

The Zoo has over many years introduced different programmes with the aim of dealing with problems such as litter. In spite of those programmes the Zoo continues to experience an excess of litter. The programmes introduced include the *Staff Clean-Up Campaign*, *“BE MAD” Club programme* and *Honey Badger Club programme*.

The *Staff Clean-Up Campaign* involved staff members to be part of litter control in the Zoo. This was a good initiative for the Zoo, however the results lasted for few weeks and cleanness was not maintained, as it was a once-off initiative.

The *“BE MAD” Club* programme encouraged the children aged between 14 and 19 years to participate in the Zoo through an environmental and animal enrichment programme. The programme encourages children to behave in an environmentally friendly way and can only happen during schools holidays. Management could consider presenting it more often by inviting schools to plan a day outing to the Zoo.

The *Honey Badger Club* programme focuses on the children being given exposure to know the zoo animals, their needs and habits. The programme encourages the young to behave in the manner, which will not compromise the environment as they grow up to be adults. This programme could be advertised widely and offered when requested by schools and youth organisations.

The introduction of more than 300 dustbins on the part of the Zoo was intended as a way of managing litter but to no avail due to the laziness of visitors to dispose of litter in them while in the Zoo.

There were visitors who motivated their answers by emphasising the importance of gaining knowledge and some suggested making use of brochures, workshops in the community and using the variety of media to educate the public.

6.3 CONCLUSIONS

From the onset, it is important to note that the following conclusions relate directly to the Johannesburg Zoo and to the perceptions of the respondents who participated in this study.

- Litter is a problem in the Johannesburg Zoo.
- Litter has a detrimental effect on the environment and animals in the Zoo, as well as the immediate and surrounding areas.
- Visitors were careless about littering and did not perceive did not always perceive that to litter matters.
- Johannesburg Zoo is perceived as environmentally friendly.
- The employees of Johannesburg Zoo are well informed about the dangers of littering and had a positive attitude towards curbing littering.
- Signage needs to be reviewed as it relates to the message, design and the placement of the signboards so that it would attract the attention of visitors.
- There are sufficient dustbins on the property but not in the exterior surrounding areas, such as the parking area.

- Visitors are not sufficiently informed of the legislation that governs waste control and the consequences to the perpetrators.
- Educational environmental programmes being offered are not adequate or frequent enough to make an impact on all visitors regarding littering.

6.4 LIMITATIONS OF THE RESEARCH

Some of the following limitations of this study that are noted here may serve as guidelines for further research or for similar research. During the analysis of the data, it became evident that additional single biographic details would have provided variables (*visitors*: gender, occupation, date completed, resident from which town/city/suburb, province, etc.; *employees*: gender, job description, date completed, schooling, etc.) that could assist in interpreting and better understanding the results from a sociological point of view and for comparative purposes. Had values been allocated to the responses using the Likert Scale, it would have allowed objective quantitative comparisons to be made between groups based on the biographic information. A larger number of employee respondents would have been more satisfactory.

The time period of a year that was used to gather the questionnaire data was too long as comments made by the visitors often contradicted one another. However, had the date been entered on the questionnaire, it would have made it possible to group the data accordingly. In the procedures followed with completion of the questionnaire by the visitors, it would have been advisable to ensure that each respondent completed all questions or that the respondent was requested to answer all the questions from the start. Concerning the interviews, some were conducted electronically, telephonically or in person. Personal interviews that are accompanied by tape-recording the responses to be transcribed later are without a doubt more valuable and useful tools for analysis purposes.

6.5 RECOMMENDATIONS

Firstly, recommendations are submitted as they relate directly to managing litter at the Johannesburg Zoo. This information could be shared with the management of the Zoo as a gesture of gratitude for allowing this study to be completed in that

facility. Secondly, the recommendations focus on further and future research in the field of waste control in a Zoo or other conservation areas.

6.5.1 Johannesburg Zoo

- *Management should consider appointing a waste management officer whose responsibility would be to minimise litter in and around the Zoo.*

This person could serve as a link between the outside community and the Zoo in ensuring that the message on litter is delivered to various schools. It will also be the responsibility of the person to ensure that the agenda of all meetings in the Zoo cover an item on litter. The neighbours have indicated that they have reported the matter to management because they do not believe that the Zoo management is making enough effort. This position will help to create good cooperation between the Zoo, the neighbours and the public. Furthermore, a waste management officer could handle and align all programmes, which are designed for the Zoo, to also deal with litter.

- *Environmental educational programmes should be designed specifically to deal with littering.*

Due to the absence of programmes relating to litter, the Zoo is not in a better position to monitor their success in relation to bringing across the message of litter minimisation. New programmes should focus on the consequences of littering and on legislation that governs waste control in South Africa. It is through the implementation of such educational programmes that messages relating to the negative aspects of litter could reach the majority of people who are visiting the Zoo.

- *The question of litter should be included as an agenda item at all staff meetings.*

In order for the Zoo to deal successfully with litter they should consider litter as an organisational problem and not only a departmental problem. This could be achieved through the introduction of an item on litter on the agenda of most staff meetings. Discuss all problems, which are posed by litter relating to the animals,

the environment in and around the Zoo and expenses accrued. Every Monday the manager who worked on the weekend should include litter as an item in his report.

- *Gradual introduction of signboards with pictures of animals that died as a result of litter.*

The introduction of signboards with pictures of animals that died as a result of litter would have a profound impact and could affect the behaviour of visitors. The pictures should be carefully chosen by taking into account the effect it could have on the young children. The concern was expressed that it could frighten them and even disgust adult visitors.

- *Strategic distribution of dustbins*

There are sufficient dustbins in the Zoo however litter is still left lying in open spaces and around the actual dustbins. An investigation should be undertaken to establish the most critical areas for the Zoo visitors and people who come to attend a function. The distribution of dustbins in strategic places (like the animal enclosures) should be prominent and attract the eye and should include the areas surrounding the Zoo property as well. Mention was made that there should be more recycling bins to curb pollution and promote the recycling of refuse.

- *Improve communication about challenges, which are posed by litter on the Zoo environment and expand types of media applied to reach a wider audience.*

Communicating the concepts of the consequences of littering and litter minimisation could be effective in conveying the message to the visitors while visiting the Zoo. Messages about all negative aspects affecting the Zoo due to litter could be communicated on the Zoo website, in pamphlets, posters for schools, etc. This will have an influence in how people behave as they visit the Zoo.

- *Introduction of penalties for the offenders in and around the Zoo.*

It is illegal to leave litter lying around in open space in South Africa. It is a punishable offence; however it is not taken seriously by most of the people because they are not punished. It may be necessary to include a few signboards

that provide information about legislation on waste control and the consequences of littering specifically in the Zoo. Presenting a monthly, “No Litter Day”, where those who are seen littering are identified and warned or fined, may be a way to introduce visitors to this scheme of charging penalties for offenders at the Zoo. The waste officer could be responsible for setting up and operating the scheme.

It is important that if litter is to be controlled in the Zoo, introducing educational programmes, appointing a waste officer and improving communication will serve as evidence that the Zoo is doing something to highlight litter problems to the visitors. Now is good time to gradually introduce this scheme of penalties and policing.

6.5.2 Further research

Continued and further research is essential to ensure that research continues in this area of environmental science so as to also include the management of the environment.

- Comparative studies focusing on other *ex-situ* conservation areas (bird/snake/crocodile sanctuaries, aquariums, botanical gardens, etc.) concerning litter and the perceptions thereof, both within South Africa, as well as developing and developed countries, will make a valuable contribution to understand differences and similarities.
- This research lends itself towards multidisciplinary collaboration with a number of fields, such as environmental management, botany, zoology, sociology, psychology, and tourism and recreation management. Further investigation regarding aspects, such as behavioural change and attitudes towards litter and related environmental issues would contribute to the body of knowledge on this topic.

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Addendum 1
LETTERS OF APPROVAL

UNISA

2011-11-30

Ref. Nr.: 2011/CAES/042

To the student: Student nr: 34241825

Mr PL Malepa
Department of Geography
College of Agriculture and Environmental Sciences

Dear Mr Malepa

Request for Ethical approval for the following research project:

Visitor perceptions and awareness of the litter at Johannesburg Zoo

The application for ethical clearance in respect of the above mentioned research has been reviewed by the Research Ethics Review Committee of the College of Agriculture and Environmental Sciences, Unisa. The committee is pleased to inform you that ethical clearance **has been granted** for the research set out in the Ethics application (Ref. Nr.: 2011/CAES/042) **on condition** that the researcher protects the identity of the visitors at the Johannesburg Zoo when photographs of their behaviour or resultant behaviour are taken, by not making their identity known or the person committing the littering act, if any, identifiable. A further condition of the approval of this application is stipulated in terms of feedback that should be given to the Johannesburg Zoo as this institution has given permission for the research to be conducted on the premises and feedback is required to institutions as well, according to the Unisa Ethics Research Policy (page 10).

Please be advised that the committee needs to be informed should any part of the research methodology as outlined in the Ethics application (Ref. Nr.: 2011/CAES/042), change in any way. Should that be the case, a new application, for the amendments, needs to be submitted to the Ethics Review Committee for review. We trust that sampling, data gathering and processing of the relevant data will be undertaken in a manner that is respectful of the environment as stipulated in the UNISA Research Ethics Policy.

The Ethics Committee wishes you all the best with this research undertaking.

Kind regards,

Prof E Kempen

CAES Ethics Review Committee Chair

JOHANNESBURG ZOO

To whom it may concern

This letter serves to confirm that Piet Lesiba Malepa is an employee of Johannesburg Zoo. He has been given permission to do his master's degree study at the Johannesburg Zoo. He will be studying the topic: **Visitor perceptions and awareness of the litter at Johannesburg Zoo**

I sincerely believe that this letter is in order.

Regards

Sannie Kungoane

Executive Manager: Human Resources

Johannesburg Zoo

Tel 011 646 200 ext 224

Addendum 2
QUESTIONNAIRE A: FOR VISITORS

This questionnaire will be used purely for conducting a study on the visitor perception of litter on Johannesburg Zoo environment. The contents of the recording will be used solely for the purpose of a research study for obtaining a Master's degree in Geography at the University of South Africa. The results of this work will also be utilised by the Johannesburg Zoo to assist them to deal with the problem of litter. No individual information will be divulged without the respondents express permission.

I would therefore appreciate it if you could take few minutes of your time to complete the questionnaire.

Please note that answering of this questionnaire is voluntary, but I would like to encourage you to complete the interview, as this will help me in finalising my research.

Consent to participate

I recognise that Piet Lesiba Malepa is conducting research on the impact of waste on Johannesburg Zoo. I understand the purpose of the research.

.....

.....

Signature

Date

Name:

Age:

School/Community:

Please indicate your response with a cross [**X**] in the space [] provided. Only choose ONE of the options provided for a question. Some questions may require an explanation.

1.	Is this the first time you are visiting Johannesburg Zoo?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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If your answer is **YES**, would you recommend the Zoo to other people? Yes No

If your answer is **NO**, how often did you visit the Zoo in a two-year period?

Once Twice Three times More times

2.	Littering is a problem in the Johannesburg Zoo.
-----------	---

Agree Strongly agree Disagree Strongly disagree

3.	Johannesburg Zoo is an environmentally friendly place.
-----------	--

Agree Strongly agree Disagree Strongly disagree

Explain:

4.	Notices about litter control can be seen on the Zoo property.
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Agree Strongly agree Disagree Strongly disagree

Explain:

5. The litter control message on the signboards of the Zoo is visible and relevant.

Agree Strongly agree Disagree Strongly disagree

Explain:

6. Pictures of the intestine of animals that have been killed by swallowing plastic thrown into the enclosure through littering should appear on the signboard.

Agree Strongly agree Disagree Strongly disagree

Explain:

7. I am fully aware of the legislation that governs waste control in South Africa.

Agree Strongly agree Disagree Strongly disagree

Explain:

8. There are enough dustbins on the property of the Zoo.

Agree Strongly agree Disagree Strongly disagree

Explain:

9. The litter problem in the Zoo severely affects the environment and the animals.

Agree Strongly agree Disagree Strongly disagree

Explain:

10. Environmental education programmes could be a solution to the waste problem.

Agree Strongly agree Disagree Strongly disagree

Explain:

Thank you for your kind cooperation

Addendum 3
QUESTIONNAIRE B: FOR STAFF MEMBERS

This questionnaire will be used purely for conducting a study on the visitor perception of litter at the Johannesburg Zoo. The contents of the recording will be used solely for the purpose of a research study for obtaining a Master's degree in Geography at the University of South Africa. The results of this work will also be utilised by the Johannesburg Zoo to assist them to deal with the problem of litter. No individual information will be divulged without the respondents express permission.

I would therefore appreciate it if you could take few minutes of your time to complete the questionnaire.

Please note that answering of this questionnaire is voluntary, but I would like to encourage you to complete the interview, as this will help me in finalising my research.

Consent to participate

I recognise that Piet Lesiba Malepa is conducting research on the impact of waste on Johannesburg Zoo. I understand the purpose of the research.

.....

Signature

.....

Date

Name:

Age:

Please indicate your response with a cross [**X**] in the space [] provided. Only choose ONE of the options provided for a question.

1. How many years have you been working in the Johannesburg Zoo?

Less than 1 year Two years Three years More years

2. Littering is a problem in the Johannesburg Zoo.

Agree Strongly agree Disagree Strongly disagree

3. The litter control message on the signboard of the Zoo is visible and relevant.

Agree Strongly agree Disagree Strongly disagree

4. Pictures of the intestine of animals that have been killed by swallowing plastic thrown into the enclosure through littering should appear on the signboard.

Agree Strongly agree Disagree Strongly disagree

5. I am fully aware of the legislation that governs waste control in South Africa.

Agree Strongly agree Disagree Strongly disagree

6. There are enough dustbins on the property of the Zoo.

Agree Strongly agree Disagree Strongly disagree

7. The litter problem in the Zoo is severely affecting the environment and animals.

Agree Strongly agree Disagree Strongly disagree

8. Environmental education programmes would be a solution to the waste problem.

Agree Strongly agree Disagree Strongly disagree

Thank you for your kind cooperation

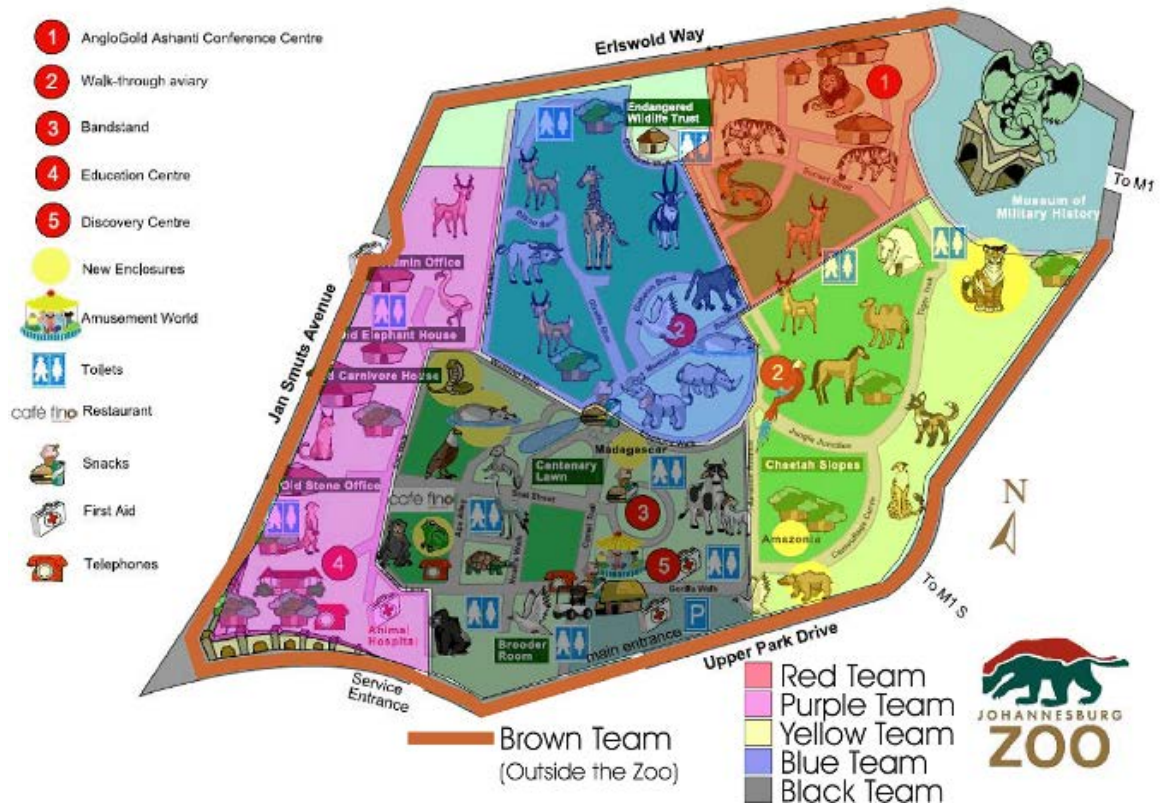
Addendum 4

MAP OF GAUTENG PROVINCE



Source: <http://www.gcro.ac.za/about-gcr/overview> [Accessed on 13 October 2013]

Addendum 5 MAP OF JOHANNESBURG ZOO



Source: Johannesburg Zoo monthly report, 2011 (not published).